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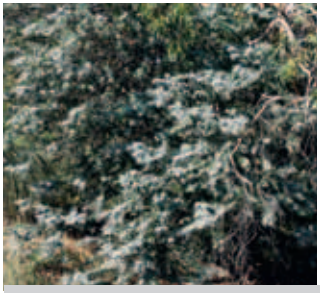
NOONGAR CALENDAR

The Noongar six-season calendar is a guide to what nature is doing at every stage of the year.
Seasons can be long or short depending on what is happening around us, rather than by dates on a calendar.

BIRAK	BUNURU	DJERAN	MAKURU	DJILBA	KAMBARANG
DEC – JAN	**FEB – MAR**	**APR – MAY**	**JUNE – JULY**	**AUG – SEP**	**OCT – NOV**
Hot and dry	Warm to hot	Cool and pleasant	Cold and wet	Cold with less rain	Warming, rains ending
First Summer	Second Summer	Ant Season	The first rains	Growing Season	Wildflower season
Birak is characterised by the onset of hot easterly winds. Mullet, bream, marron and crabs are abundant along the coastal lakes and river estuaries. This is the time to make kangaroo skin coats (Booka), which both cool and act as shields against the harsh wind and sun. Many fledgling animals venture out of nests and reptiles are about to shed their old skin for a new one. It's also time that baby frogs complete their transformation to adulthood.	Bunuru is the time of hot easterly winds with cool south-westerly afternoon sea breezes. Noongar people move to coastal estuaries and reefs where fish and abalone proliferate. The white flowers of marri and the ghost gums are in full bloom. A striking plant is the zamia: the cones of the female plant emerge from the centre within masses of a cotton-wool like substance. As the season continues, seeds upon the cones change from green to bright red. This is a time to burn the land in mosaic patterns to help the bush replenish itself.	As the season changes to Djeran, the cool nights bring dew in the early mornings. Winds are lighter and swing from the south-west. Fishing continues, but the people begin to migrate back to the wetland areas. Hunting increases, mainly for emus and turtles. The women collect bulbs and seeds from zamias and bulrushes. Djeran is the time of the stunning red flowers of red flowering gums and the red 'rust' and seed cones forming on the male and female sheoaks. Banksia flowers blossom, providing nectar for mammals and birds and flying ants emerge.	Now it is the coldest and wettest time of the year. Noongar people continue to migrate inland to the Darling Scarp, to hunt and for shelter, as the winds turn to the west and south bringing cold rains. Food sources change to those of the land, such as kangaroos. The yellow flowers of the acacias are blooming followed by the white flowers of the peppermint. Animals start to pair up in preparation for breeding in the next season.	Djilba is a transitional time, with very cold and clear days, becoming warmer, windy and rainy, then sunny. As the weather changes Noongar groups move to drier areas. Common foods found along the rivers include eggs from emus, swans and ducks supplemented by berries, roots and some larger game. This is the start of the massive flowering explosion that happens in the south west. Flowers of all colours abound, including the blues and purples of the dianellas and purple flags. Soon the flower stalks of the balgas emerge. We now see the swooping protective behaviour of the magpie, willy wagtail and wattle bird.	Kambarang brings longer dry periods accompanying a definite warming trend. Families move back towards the coast where freshwater crayfish (gilgies), frogs, turtles and blue marron are caught. Awakening snakes and goannas are a good source of food during this season. Balgas flower prolifically if they've been burnt in the past year. A wealth of colours and flowers surround us: the yellows and creams of the hakeas, delicate pinks and blues of orchids and the vivid red and green of the kangaroo paw. At this time, the dramatic display of the vibrant orange and yellow flowers of the *Nuytsia* (Christmas tree) signals the heat is on its way.

FABACEAE



Acacia baileyana

Cootamundra Wattle

An upright shrub or small tree with a spreading crown, up to 10m high by 6m across with profuse gold ball-shaped flowers occuring in late winter. Pods are bluish when young. Compound leaves are grey, and are almost stalkless, with the lowest pair of branchlets on each leaf being smaller and angled backwards.

One of the most commonly cultivated wattles in Australia, found in parks, gardens and as a street tree.

Right: *Acacia decurrens* composite
Photography by M. Hancock. Image used with the permission of the Western Australian Herbarium, Department of Parks and Wildlife (https://florabase.dpaw.wa.gov.au/help/copyright). Accessed on Monday, 20 March 2017.

Acacia decurrens

Black Wattle

A tall shrub or tree with brown or blackish coloured bark. The flowers are golden yellow in small globular clusters that are arranged into larger elongated clusters. The seeds are dispersed by water, wind, birds, ants, garden refuse and soil movement. The name *A. decurrens* is Latin and means ‘running down’, referring to the winged ridges which run down the branchlets. This plant originated in eastern Australia.

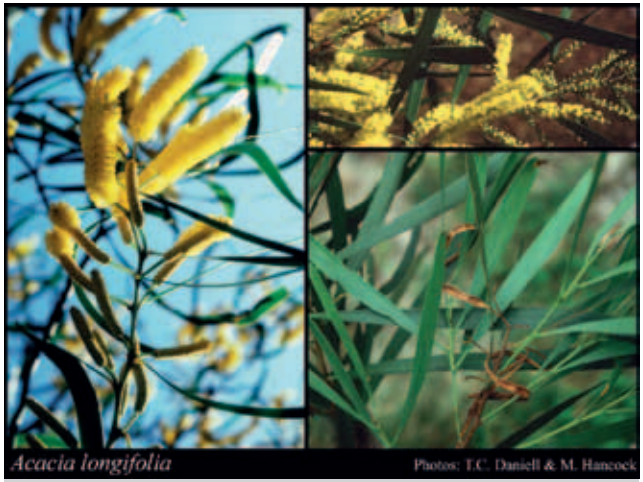
FABACEAE

Acacia iteaphylla

Flinders Range Wattle

A bushy, spreading, shrub or small tree growing to 5m tall. The simple 'leaves', which are long and narrow, are alternately arranged. They are bluish-green and have a single, prominent vein running lengthwise. The pods are elongated with slight constrictions between the seeds.

Right: *Acacia longifolia* composite
Photography by T.C Daniel & M. Hancock. Image used with the permission of the Western Australian Herbarium, Department of Parks and Wildlife (https://florabase.dpaw.wa.gov.au/help/copyright). Accessed on Monday, 20 March 2017.



Acacia longifolia

Sydney Golden Wattle

An upright, spreading shrub or tree with yellow flowers from July to September. The leaves are linear and bright green to dark green in colour. Dense stands can significantly increase the nitrogen content in soil, altering the nutrient balance and affecting the growth and regeneration of indigenous species.

longifolia: Latin *longi* = long + *folia* = leaves

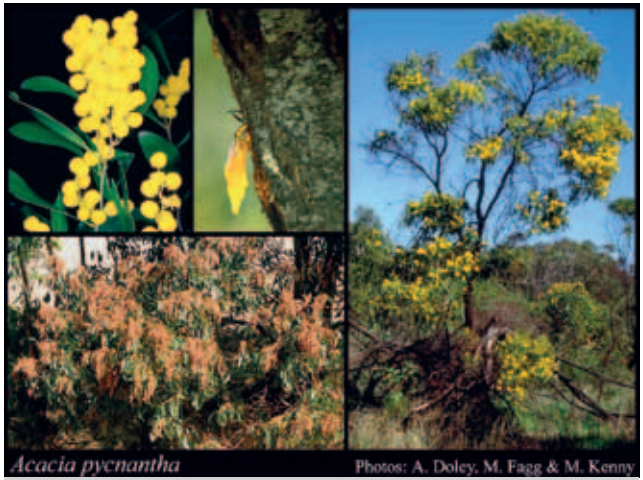
FABACEAE

Acacia podalyriifolia

Queensland Silver Wattle

An upright, spreading shrub or small tree growing to 6-10m, living only 10-15 years. Young branches and buds have a powdery or waxy coating giving them a silvery appearance. The 'leaves' are relatively short and broad (about twice as long as they are wide) with a single prominent vein near the centre. The pods are elongated and flattened with wavy margins and velvety hair when young.

Right: *Acacia pycnantha* composite
Photography by A. Doley, M. Fagg & M. Kenny. Image used with the permission of the Western Australian Herbarium, Department of Parks and Wildlife (https://florabase.dpaw.wa.gov.au/help/copyright). Accessed on Monday, 20 March 2017.



Acacia pycnantha

Golden Wattle

A short-lived large shrub or small tree, with an upright and spreading habit, that usually grows 3-8m tall. This is a somewhat variable species and small, spindly forms sometimes occur that flower when only 0.5-1m high.

pycnantha: Greek *pycnos* = dense, densely packed.

PLANT ME INSTEAD OF THE 'WEEDY WATTLES'

Acacia howitii
'Sticky Wattle'

Fast growing dense tree or shrub grows to 4m, pale yellow flowers in September.

Acacia howitii
'Green Wave'

Dense groundcover spreading 0.4 x1m, yellow flowers in September.

Acacia denticulosa

Fast-growing, dense shrub grows to 2-3m, golden rod flowers in September-October. WA native.

Acacia lasiocarpa

Dense shrub or ground cover grows to 0.5m, in sandy, some saline or alkaline soils, grows in shade, native to the Perth region, attracts butterflies.

Acacia howitii
'Honey Bun'

Dense shrub grows to 1.5m yellow flowers in September.

Acacia merinthophora

Shrub grows to 2m, with yellow flowers in August - October. WA native.

Acacia coriacea

Tree grows to 5m, lemon flowers in June-July.

These native Australian wattles thrive on **low water, in sandy or clay soils**.
Thank you to Zanthorrea Garden Centre for providing photos and information. www.zanthorrea.com

MYRTACEAE

Eucalyptus accedens

Powderbark

A medium to large tree growing to 25m high, with smooth, powdery bark, which is white to pink or apricot, often with darker flecks. White to creamy yellow flowers occur from December to April (Birak to Djeran). Powderbark grows on lateritic breakaways and stony ridges, in clay loam or lateritic gravel.

DID YOU KNOW? Rubbing your hand over the bark of *E. accedens* leaves a powdery coating.

accedens: Latin *accedens* = approaching or resembling. Refers to the similarity of the bark to that of *E. wandoo*.

This tree is endemic to WA.

Although similar, *E. accedens* can be distinguished from *E. wandoo* by its powdery bark.

Old trees develop hollows which are used by lizards, birds and bats for shelter and nesting.

The major commercial use of *E. accedens* is in beekeeping.

Dropped branches make shelters for lizards, snakes and echidnas.

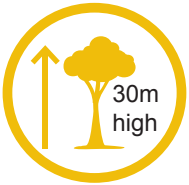
MYRTACEAE

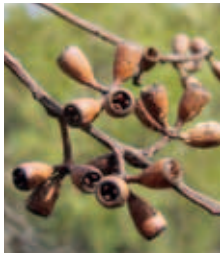
Eucalyptus wandoo

Noongar Name: Wandoo

Tree grows to 30m high, with a well-developed crown and wiggly branches. The trunk is seldom greater than 1m diameter with bark that is cream to grey, smooth or mottled.

Leaves are dull bluish-green and flowers are white to cream occurring December to May (Birak to Djeran). *Wandoo* grows in sandy or clay loams, in gravel, over laterite or granite, on stony rises or undulating terrain.





The tree hollows are used by many birds and mammals, such as small bats and brush tailed possums for shelter. The nectar is food for birds and insects.

Wandoo woodland is the home of the numbat, WA's faunal emblem. In the Wheatbelt, wandoo is an indicator of good farming soils.

The Noongar people collected water from the hollows, ate the roots and made sweet drinks from the flowers.

Wandoo is distinguished from powderbark, *E. accedens* by its powderless bark and pointed bud caps.

The large fallen branches remain on the ground for many years as termite resistant habitat for animals such as snakes, lizards, echidna, mardo, chudditch and brush-tailed possums.

Noongar Name: Marri

Red gum, Medicine tree

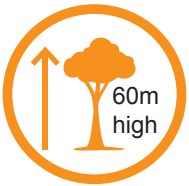
MYRTACEAE

Corymbia calophylla

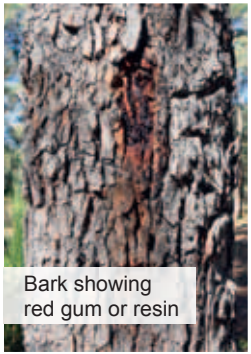
Tree grows to 60m with grey, rough bark and red gum often visible. Leaves are green to dark green, paler underneath. Cream flowers in terminal umbels occur in February-April (Bunuru to Djeran). Marri occurs in a variety of habitats including jarrah and karri forests and in a wide range of soils on the coastal plain.

DID YOU KNOW? Marri is the Noongar word for blood and refers to the red gum which oozes from the tree.

calophylla: Greek *calos* = beautiful + *phyllon* = leaf.



Marri was used to make spears and digging sticks.



Bark showing red gum or resin

Gumnuts inspired the *Snugglepot and Cuddlepie* stories by May Gibbs.

Fruits, seeds, flowers, leaves and wood are all important food sources for fauna including Carnaby's and Baudin's cockatoos; twenty-eight and red-capped parrots, purple-crowned lorikeets; silvereyes, wattlebirds, honeyeaters, bees, wasps, ants, beetles, moths; larvae of the silkworm moth (woolly bears) and western brown butterflies.

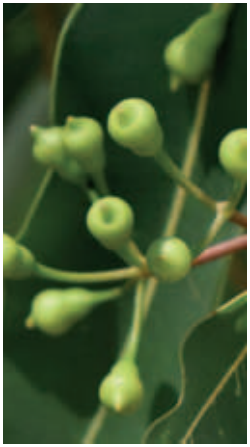
The blossoms are a direct source of honey which is often found in hollows of branches.

The gum contains an antiseptic used to prevent wounds bleeding, for upset stomachs, as a disinfectant and mouthwash. It can be rubbed on the skin to treat eczema.

Crushed leaves were used to relieve headaches, sinusitis and colds; smoke from leaves is an insect repellent.

Infusions of flowers were blood purifiers and used to treat diabetes.

Parallel veins almost at right angles to the midrib



FABACEAE

Acacia alata

Winged Wattle

A branched shrub which grows to 2.1m high, with white-cream to golden, sometimes creamy pink flowers, from April to December (Djeran to Birak).

Grows in forest areas and sand plains in a variety of soils. Occurs on rocky hills, breakaways, salt pans and clay flats and is often found near water.

Acacia: Greek *acis* = pointed instrument, probably referring to the thorns of some species.

alata: Latin *alatus* = winged.

'Leaves' form opposite wings, with each one extending to the next below

Flowers are grouped in simple globular heads of mostly 2 heads per axil.

FABACEAE

Acacia pulchella

Prickly Moses

This shrub grows to 3m in height with golden flowers from May to December (Djeran to Birak).

The flowers are arranged in spherical heads, to about 1cm diameter. An endemic plant to WA.

It is very common in the bushland around the Darling Range and is found in sandy soils or clay loams over laterite, in low-lying areas, and near swamps and watercourses.

pulchella: Latin *pulchellus* = beautiful and small.

This is one of the few species of wattles with true leaves rather than phyllodes.

Leaves are bipinnate; the leaflets are flat, dark green, about 6mm long and often hairy. There are one or two spines at the base of each leaf.

The genus *Acacia*, was originally classified in the family *Mimosaceae*.

The name ‘prickly moses’ is thought to come from ‘prickly mimosa’.

Noongar Name: Condil

Forest Sheoak

CASUARINACEAE

Allocasuarina fraseriana

An erect, common understory tree that grows 15m high, with fibrous, reddish-brown bark and slender, green branchlets or needles. Flowering time is from May to December (late Djeran to early Kambarang).

The male and female flowers occur on separate trees. The orange-brown male flowers are borne at end of branchlets and the reddish female flowers are occur singularly on shortened branches of their own. This tree grows in lateritic soils in the jarrah forest and in white, grey or yellow sand on sand dunes, often in association with banksias.

Sheoaks are from a family of very ancient plants which existed before most Australian flowering plants. They fix nitrogen in the soil and are much valued in Noongar culture as they enrich our nutrient poor soils.

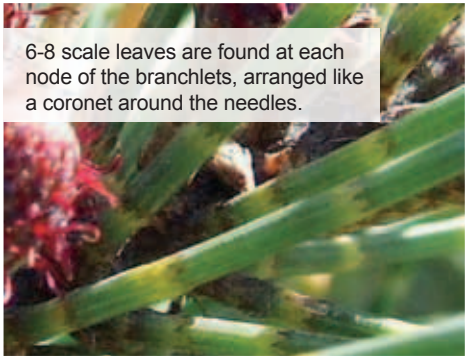
Casuarina: from Malay *kasuari* meaning cassowary and refers to the resemblance of the drooping branches to the bird's feathers.

Sheoak wood was used for making boomerangs, shields and clubs. In South Australia archaeologists found a sheoak boomerang over 10,000 years old.


Male flowers

Native cockroaches eat a black fungus which develops on the tree, crickets eat the leaves and twenty-eight parrots feast on the seeds.

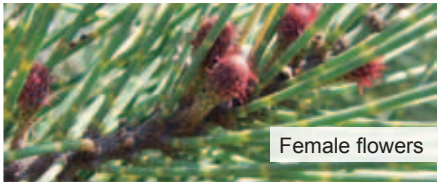
The sheoak is home to a great variety of insects including jewel beetles, long-horned beetles, weevils (which are coloured to match the needles), sap-sucking buds, ants and wasps.


6-8 scale leaves are found at each node of the branchlets, arranged like a coronet around the needles.

The timber was used for roof shingles by the early settlers. Nowadays it is very popular for wood turning and carving.

Noongar people believe the spirits of the old people speak to them through the sound of the breeze blowing through the trees. When sheoak needles fall onto their faces they are thought to be tears of healing from ancestors.

To help them sleep, babies were placed under the trees on the soft beds of shed needles. These beds also provide habitat for orchids such as bird orchids.


Female flowers

Noongar people chewed the young shoots to relieve thirst. The immature cones can also be eaten.

PROTEACEAE

***Banksia sessilis* (syn. *Dryandra sessilis*)**

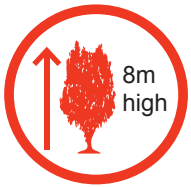
Noongar Name: Pulgart, Budjan

Parrot Bush

This is a prickly shrub or tree that grows to 8m high. Flowers are cream to golden yellow and occur April to November (Djeran to Kambarang). Leaves are dark green and prickly-toothed.

It grows in the jarrah forest on white, grey or yellow sand with laterite or granite or on coastal limestone.

sessilis: Latin *sessilis* = 'fit for sitting on' referring to how the flower heads nestle into the branches.



This plant is a major honey producer in WA, flowering from April to November.

B. sessilis has characteristic spiny-toothed leaves. It is unusual in that its flowers remain yellow with age unlike other banksias whose flowers redden with age.

B. sessilis is a good coloniser of disturbed land such as old gravel pits. Fire kills the tree but it regenerates easily from the many seeds it produces.

The tree provides food and shelter to fauna and birds and cover and nesting habitat for singing and brown honeyeaters.

Quendas dig their burrows in the shelter of the bush and the seeds are eaten by the twenty-eight parrots and black cockatoos.

PROTEACEAE

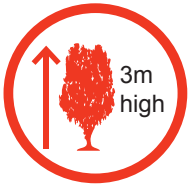
Hakea trifurcata

Two-leaf Hakea, Kerosene Bush

Rounded, open or dense, non-lignotuberous shrub growing to 3m high and 3.5m wide with two forms of leaves. White to creamy pink, scented flowers in April to October (Djeran-Kambarang). It grows in white, grey or brown sand, loams or gravel, over limestone or laterite.

DID YOU KNOW? *Hakea* is named after Baron von Hake (1745-1818), an 18th century German patron of botany.

trifurcata: Latin *tres* = three + *furca* = fork referring to the leaves which are divided into 3 segments.



Leaves are of two shapes: oval, mimicking the shape of the seed pod and the more predominant linear leaves, divided once or twice.

Carnaby's Cockatoos eat the seeds.

Fruits can remain green, rather than turning brown as in other hakeas.

H. trifurcata is a rich source of pollen and nectar: the pollen is used by beekeepers to build up their bee colonies and the nectar attracts honey bees, native bees, wasps and the green wolf-beetles.

The seed is shed within a year. Fire kills this plant but it regenerates from seeds.

ZAMIACEAE

Macrozamia riedlei

Noongar Name: Djiridji

Zamia

Zamias grow to 3m high, usually trunkless, with 12-30 large deep green pinnate leaves growing from the crown.

Seeds are bright red and poisonous. Preferring lateritic soils, these plants are common in the understory of the jarrah forests.

These are ancient plants from the age of the dinosaurs, appearing on Earth nearly 300 million years ago.

They are dioecious, meaning that there are separate male and female plants.

The female cones contain large, red, poisonous seeds known by Noongar people as by-yu. In 1697 members of Vlamingh's crew were poisoned by eating the seeds untreated.

Noongar people used the leaves for thatching shelters and the soft woolly fibre at the base as tinder for fire.

Female cones

They also ate the seed coatings, raw or roasted, first leaching the poison by soaking or burying them.

This species usually produces 1-3 female cones and 1-5 male cones. They are pollinated by the wind and possibly weevils.

Male cones

FABACEAE

Acacia saligna

Photograph by Bruce Maslin, used with the permission of the Western Australian Herbarium, Department of Parks and Wildlife.

Noongar Name: Coojong

Golden Wreath Wattle

A dense, often weeping, bushy shrub or tree that grows to 6m high with grey bark. Flowers are yellow in globular heads, from July to November (Makura to Kambarang). Pods are linear, flat, with seeds 5–6mm long, shiny, dark brown to black. The ‘leaves’ are often larger towards base of plant and have a prominent midrib.

This plant grows in a variety of habitats including the coastal and inland sandplains, the Darling Range, among the granite boulders in the wheatbelt, along the creeks and rivers of the Great Southern and through the coastal dune systems, where it forms dense thickets in the hollows between sand hills.

saligna: Latin *salignus* = willow wood, resembling a willow, referring to the drooping habit especially when in full flower.

A. saliagna spreads quickly from root suckers and seed and is drought tolerant.

Leaf variant

Coojong protects itself from insect attack by having nectar glands at the base of the leaves which attract ants keeping the leaf-eating insects away.

Rust fungus gall

This shrub provides shelter and food for jewel beetles, birds and reptiles.

MYRTACEAE

Calothamnus quadrifidus

One-sided Bottlebrush

An erect, compact or spreading, evergreen shrub that grows to 3m high. Leaves are linear to needle shaped, green to grey green. The soft appearance of this species is due to the hairs on the leaves. Red flowers from June to December (Makuru to Birak). It is widely distributed in the south-west of Western Australia, occurring on a variety of soils and habitats including sands and gravels, in the laterite and granite soils of the Darling Range and among granite outcrops.

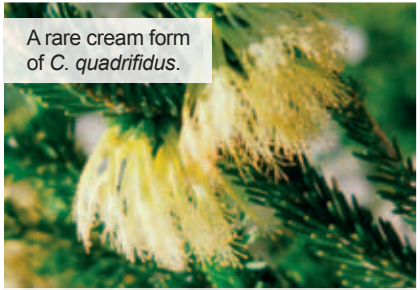
C. quadrifidus was named by Robert Brown who collected it when he visited Lucky Bay near Esperance during the Flinders expedition in January 1802. The genus *Calothamnus* is endemic to WA, it contains 36 species all growing in the south-west.

calothamnus: Greek *kalos* = beautiful + *thamnos* = a shrub

quadrifidus: Latin meaning 'divided into four parts' referring to number of flower parts.

One difference between the one-sided bottlebrushes and the 'true' bottlebrushes of the genus *Callistemon*, is that the flowers of *Calothamnus* grow on the old wood and those of *Callistemon* grow on the new wood.

Flowers of the one-sided bottlebrushes are well designed for pollination by birds.



A rare cream form of *C. quadrifidus*.

Photograph by Tony Tapper, used with the permission of the Western Australian Herbarium, Department of Parks and Wildlife.

The fruits are woody capsules which remain on the plant for many years.

Flowers are bright red and full of nectar which are a nutritious food source for wattlebirds, honeyeaters and honey possums.

The flowers are grouped along one side of the stem. The conspicuous parts of the flower are the stamens (the tiny petals fall off soon after the flower opens), which are fused and arranged in bundles called staminal claws.

MYRTACEAE

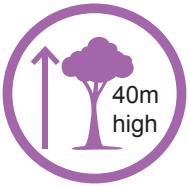
Eucalyptus marginata

Noongar Name: Jarrah

Tree grows to 40m high, bark grey-brown, rough, stringy, with vertical grooves, shedding in strips. White-cream to pink flowers from June to January (Makuru to late Birak).

Growing in grey sand, clay or sandy loam over laterite, on hills or rises. Jarrah is endemic to WA. It is very susceptible to dieback.

marginata: Latin *marginatus* = 'having a border' which refers to the thickened reddish margins of the leaves.



Jarrah was known for its beautiful, hard, red wood. It was known as Swan River Mahogany.

This wood is renowned for strength, durability and white ant resistance. It is used in construction, flooring, furniture and railway sleepers. Roads in London and Berlin were once paved with jarrah blocks.

Leaf close-up showing venation and thickened margins.

Noongar people used jarrah gum as a mild anaesthetic, to treat stomach disorders and as tooth fillings.

They considered the bark of the jarrah best for the roofing of shelters and used the wood to make spear throwers. Hair ornaments and necklaces were made from the nuts.

Jarrah is used in honey production and beekeepers find its highly nutritious pollen useful for maintaining bee colonies.

Bees, birds and possums also feed from the nectar.

MYRTACEAE

Eucalyptus rudis

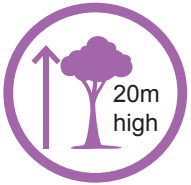
Noongar Name: Moitch

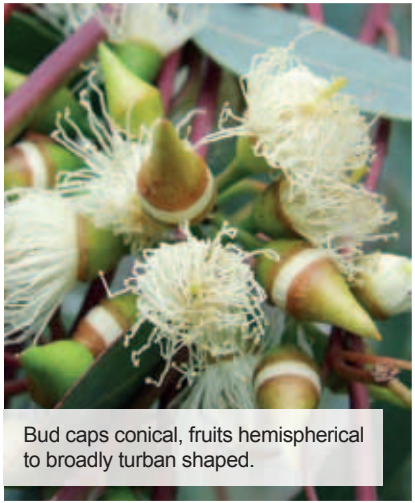
Flooded Gum

Tree formed by several branches arising from near the ground, growing to 20m high. The box-type bark is rough and fibrous on the trunk and lower branches, and smooth grey-white on higher branches. Leaves are dull grey-green to blue-green. White flowers from July to September (late Makuru to Djilba). Grows in sandy or loam soils in wetter areas of south-west WA.

It is associated with wetlands but it can occur on higher ground in the more fertile soils found on the Darling Scarp.

rudis: Latin *rudis* = rough, wild.





Bud caps conical, fruits hemispherical to broadly turban shaped.

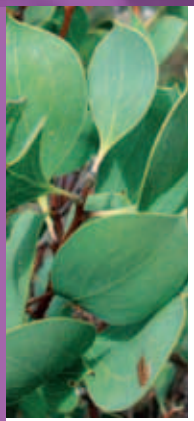
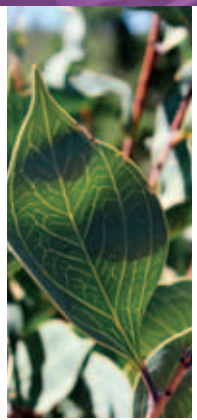
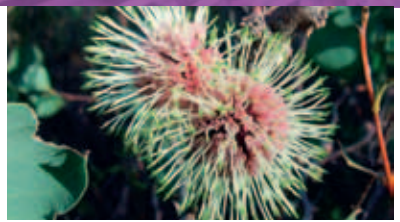
Leaf miners, scale insects, aphids and bugs live in the leaves and these are eaten by ladybirds, praying mantises and lacewings and by birds such as pardalotes, thornbills, silvereyes and western gerygones.

Growing near lakes and watercourses, *E. rudis* forms a critical habitat for water birds including ducks, darters, herons, cormorants, egrets and ibises.

Noongar people used the leaves and gums and would eat the sugary substance on the leaves (Manna), which is produced by mites.

The nuts have 4 valves

The bark harbours jewel beetles, long-horned beetles, wasps, scorpions and crickets.

PROTEACEAE

Hakea petiolaris

Noongar Name: Berrung

Sea Urchin Hakea

Erect, lignotuberous shrub growing to 2m high with pale grey, broadly ovate leaves. Spherical clusters of pink and cream flowers occur in June (Makuru). The inflorescences contain 120-200 flowers which darken to mauve with age.

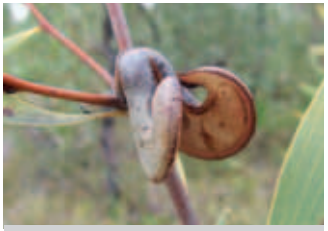
Grows in loam and granite soils, in the jarrah forest of the Darling Range and around granite outcrops & hills. *H. petiolaris* is endemic to WA.

The local subspecies found in the Darling Range and into the Wheatbelt is *Hakea petiolaris* subsp. *petiolaris.*

Hakeas were important sources of honey for Noongar people. The flowers attract honeyeaters and bees.

petiolaris: Latin *petiolaris*, referring to the leaves, which are borne on a conspicuous stalk (petiole).

HAKEA NUTS



Hakea cyclocarpa

Hakea prostrata

Hakea ruscifolia

Hakea lissocarpha

Hakea petiolaris

Hakea trifurcata

Hakea undulata

DASYPOGONACEAE

Kingia australis

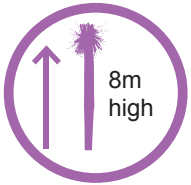
Drumsticks

Perennial tree-like monocot, growing to 8m high, occasionally branched, with long, narrow leaves.

Creamy white to yellow-green or brown flowers generally appear from July to August (Makuru to Djilba), however *Kingias* are known to flower within 3-4 weeks of a fire, regardless of season.

Growing in sand and sandy to clay loams, *Kingia* is only found in the south-west of WA and is endemic to WA.

australis: Latin *australis* = southern.



Kingia can have up to 100 drumstick shaped flower stalks, grows about 1½ cm per year and can live for centuries. As in *Xanthorrhoea*, the trunk is constructed from leaf bases.

Aerial roots run under the leaf bases, absorbing nutrients, water and oxygen; these strong roots also help support the plant.

Kingia flowers attract insects.

Its trunks are termite resistant and were used as flooring for sheds and barns.

Collected by Robert Brown in 1801, *Kingia* is named for Philip Parker King, a rear-admiral and naturalist who sailed with A. Cunningham and J.S. Roe to the north-west coast of WA: and his father, Philip Gidley King, the Governor of NSW during Brown's voyage with Matthew Flinders.

MYRTACEAE

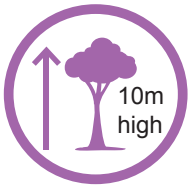
Melaleuca rhaphiophylla

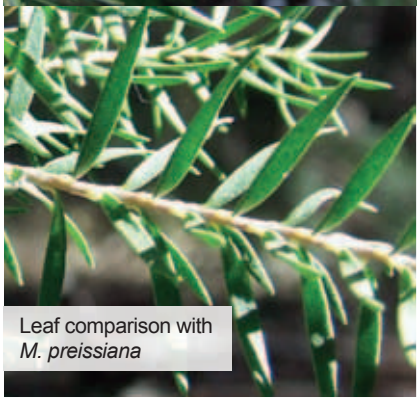
Swamp Paperbark

Tree or shrub, often multi-stemmed, that grows to 10m high. Bark is papery, white, stripping off in papery sheets. Leaves are narrow, needle-like, round in cross section, 2-4cm long. Small white-cream flowers in dense clusters at or near the end of the stem, July to January (Makuru to Birak).

Grows in the south-west of WA, in white or grey sand or clay soils, sometimes with limestone, along riverbanks, creeks, lakes and saltmarshes, preferring less-saline water.

rhaphiophylla: Greek *raphis* = needle + *phyllon* = leaf.





Leaf comparison with *M. preissiana*

This habitat is well-used by water birds. Moorhens, coots and ducks nest in the hollows at the base of the tree. Nest sites in the forked branches are used by darters, cormorants, egrets, herons, ibises and spoonbills.

The massed flowers in spring attract honeyeaters and insects.

The shallow root system reduces the erosion of river banks, stabilises soils and traps sediment. This species is being replanted in some wetlands to improve the ecological value.

Along Perth watercourses, *M. rhaphiophylla* grows in competition with the introduced bulrush, *Typha orientalis.*

Typha dries out in summer and if its habitat is burnt, the associated paperbarks can be decimated.

Noongar Name: Balga

Grass Tree

XANTHORRHOEACEAE

Xanthorrhoea preissii

Perennial tree-like monocot, growing to over 5m high, with a spear length to 4m. Usually only one spike per crown unless division is occurring. Leaves long and slender with a 4-sided cross section. White-cream flowers form on the spike from June to December (Makuru to early Birak). Grows in grey to black sands and loams and gravelly, sandy clay over laterite and granite. Occurs in the hills, the coastal plain and near watercourses.

The trunk of *Xanthorrhoea* is a hollow ring of accumulated leaf bases, with aerial roots running down the centre, transporting nutrients.

Xanthorrhoea: Greek *xanthos* = yellow + *rheo* = flow, referring to the gum or resin which flows from the stem.

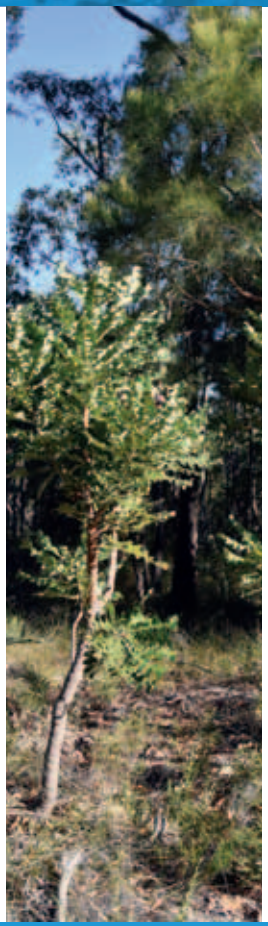
Spikes were used as fishing spears and as torches to carry fire from camp to camp.

Noongar people used all parts of the Balga: the resin was used to start fires, as glue to bind tools, to tan kangaroo skins and was chewed to relieve diarrhoea and constipation.

Infusions of flowers made sweet drinks and flowers were used as compasses as the opening of the buds aligns with the sun's arc.

Young leaf shoots are edible and leaves made good thatching and bedding.

Insects like jewel beetles eat the leaves. Lizards and other small insects shelter within the foliage. Flowers attract honey eating birds like wattlebirds and honeyeaters and bees, ants, wasps and butterflies. The twenty-eight parrots pluck out the young fruit.



PROTEACEAE

Banksia grandis

Noongar Name: Poolgarla

Bull Banksia

A tree or shrub growing to 10m high with rough bark. Flower spikes cylindrical, pale yellow-green from September to January (late Djilba to Birak).

Leaves up to 45cm long. Seeds are released in autumn and spread by the wind, up to 10m away. A typical banksia of this area, occuring on white or grey sand over laterite.

Banksia are named after Sir Joseph Banks, the botanist who sailed with Captain James Cook on the Endeavour, on the voyage to the east coast of Australia in 1770. Sixty Australian *Banksia* species are native only to the south-west of Western Australia.

grandis: Latin *grandis* = large, referring to the leaves.

Leaves are held in whorls and divided into large triangular segments.

Although this tree can live for 100-150 years, it is very susceptible to the introduced dieback fungus, *Phytophthora cinnamomi* which attacks the roots destroying their structure; the leaves yellow and the plant dies. Saplings resprout from underground root-stock.

In the forest *B. grandis* is an essential part of the food chain, providing nectar for honey possums, honey-eaters, wattlebirds and silver-eyes. Carnaby's cockatoos, red-capped parrots and moth larvae eat the seeds, while other moth larvae feed in the flower spikes.

Flower spikes of *B. grandis* have been known to contain over 6000 flowers.

In Noongar culture, infusions of flowers were drunk to relieve coughs and sore throats, and as a sweet drink.

Cones were used as fuel for fires and were wrapped in paperbark (*Melaleuca*) to carry fire from one camp to the next.

The nectar is useful to beekeepers, bridging the gap between the flowering of the parrotbush and jarrah.

MYRTACEAE

Taxandria linearifolia

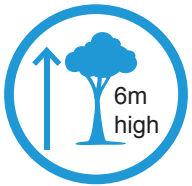
Swamp Peppermint

Small tree or shrub, growing to 6m high with narrow leaves that are 1.5-3.5cm long. Numerous small (½ cm diameter) white flowers with five petals from September to December (Djilba-Birak), and sometimes in March (Bunuru). Grows in loam, clay, sand or gravel soils with quartzite and laterite.

It occurs along creeks and streams, in winter-wet depressions and often dominates swamplands within the jarrah forests.

In the jarrah forest the *T. linearifolia* swamp shrublands are considered distinct communities.

linearifolia: Latin *linearis* = linear + *folia* = leaf.



The density of the thickets provides cover for birds such as the red-eared firetail finch, inland thornbill, splendid fairy-wren, red-winged fairy-wren, white-browed scrub wren and western spinebill.

T. linearifolia thickets provide shade to pools, creating cool and damp habitat for frogs.

Native flies, bees and beetles, including jewel beetles, are attracted by the nectar. Scorpion flies and robber flies hunt these smaller insects.

Noongar Name: Mudja or Mooja

Christmas Tree

LORANTHACEAE

Nuytsia floribunda

Tree or shrub, growing to 10m high, with thick branches and rough, grey-brown bark. Leaves are dull green, linear with no leaf stalk. Yellow-orange flowers from October to January (Kambarang to Birak). It grows in sandy and gravelly soils, with granite, laterite or limestone, on sandplains, heathland, hill slopes and bases of rock outcrops. In the Darling Range it is mainly found in rocky or damp places.

Nuytsia is a root hemiparasite, a most unusual tree. It is the largest member of the mistletoe family but instead of attaching itself to branches, the roots attach themselves to roots of nearby plants to obtain nutrients.

A monotypic genus, endemic to WA.

Named after Peter Nuyts who sailed around the south and west coasts in 1627.

floribunda: Latin *flos* or *floris* = flower + *abundus* = 'abounding in'.

Nuytsia is traditionally regarded by Noongar people as the tree of the dead (ghost bush), where disembodied spirits of recently deceased persons 'rested on the branches' en route to the island of the dead 'beyond the western sea'. This tree is very sacred in Noongar culture.

Fruit 2-3cm wide with 3 wings, wind-dispersed.

During Kambarang, Noongar people used the bark to make shields. When the mudja was in blossom, it was a sign to move towards the coast.

The vivid flowers are honey-scented and arranged in large inflorescences to 25cm long, at ends of branches.

Laden with pollen, *Nuytsia* attracts bees, wasps, ants & beetles, which in turn attract birds like thornbills, cuckoo shrikes, rainbow bee-eaters. The nectar attracts wattlebirds, honeyeaters, western spinebills and silvereyes.

Horses have been known to chew through the bark of these trees.





XANTHORRHOEACEAE

Xanthorrhoea gracilis

Noongar Name: Balga

Slender Grass Tree

Tufted, perennial tree-like monocot, growing to 2m high, no trunk, scape length about 1.5m, spike length about 15cm. White-cream flowers from October to January (Kambarang to Birak).

This species is restricted to the Darling Plateau and grows in sand, lateritic loams and gravel.

The symmetrical, 3-part flowers are produced on a spike, above a bare section called a scape.

The cross section of the leaves is a triangle.

gracilis: Latin *gracilis* = thin, slender.

EUCALYPTUS FRUITS INCLUDING CORYMBIA

Gumnuts can be distinguished by their shape, size, no. of valves and exsertion of valves.

Shape and size can be extremely variable and are not a reliable means of identification. Size is particularly affected by conditions such as drought or available resources.

The number of valves and their exsertion position can be a valuable aid to identification.

Eucalyptus marginata

Eucalyptus accedens

Corymbia calophylla

Eucalyptus rudis

Eucalyptus wandoo

GLOSSARY OF TERMS

Bipinnate	of leaves, twice pinnately divided
Compound	of a leaf, having the blade divided into two or more distinct leaflets
Exsertion	protruding, e.g. of stamens with respect to a corolla tube, or to valves which extend beyond the rim of a capsular fruit
Inflorescence	the group or arrangement in which flowers are borne on a plant.
Leaflet	one of the ultimate segments of a compound leaf
Lignotuberous	a plant with woody swelling usually underground or just above the ground, containing buds from which new shoots develop if the top of the plant is cut off or burnt (common in the shrubby eucalypts ('mallee') and in many other fire-tolerant Australian shrubs)
Linear	very narrow in relation to the length, with parallel sides
Monocot	a flowering plant whose embryo has only one cotyledon (seed leaf)
Phyllode	a leaf whose blade is much reduced or absent and whose petiole has assumed the functions of the whole leaf
Pinnate	with the same arrangement as a feather; divided into pinnae; once-compound
Scape	the stem-like flowering stalk of a plant with leaves clustered at the base of the stem
Sessile	without a stalk
Spike	an unbranched inflorescence of sessile flowers or spikelets
Umbel	an inflorescence in which all the individual flower stalks arise in a cluster at the top of the peduncle and are of about equal length.

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Without his kindness we could not have accomplished this work.

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Thanks to the Djidi Djidi Aboriginal Women's Group for sharing Noongar information and extending our knowledge.

Photos were taken by Amanda Spooner, Cliff Burns and Cathy Levett, unless where individually credited.

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