Native and Weedy Peas of the City of Whittlesea

Protecting biodiversity on private land series



City of Whittlesea

Whittlesea 2040
A place for all



Artwork © Mandy Nicholson, 2017

Acknowledgement

The City of Whittlesea recognises the rich Aboriginal heritage of this country and acknowledges the Wurundjeri Willum Clan and Taungurung People as the Traditional Owners of lands within the City of Whittlesea.

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Introduction

This booklet follows on from the previous booklet '*Native Peas of the City of Whittlesea: Egg and bacon plants*'. It will help in identifying both the weedy and non-egg and bacon native peas that belong to this family. The Pea group of plants is widely distributed throughout Australia and is part of the family Fabaceae.

All species of the pea family produce seeds in pods or legumes and were originally given the name Leguminoseae. Some botanists gave them the name Papilionaceae because of the resemblance of the flower to a butterfly – *Papilio* in latin.

In the 20th Century, botanists decided to standardise plant family names. Since then, family names have been based on the official name of the first species described in that family. For peas this was the broad bean – *Vicia faba* (faba, Latin translation – "a bean") so the family became Fabaceae, literally the "bean family".

In Australia the pea family are an extremely colourful group of plants. The pea plants featured in this booklet range from the bright red of *Kennedia prostrata* (Running Postman) to the delicate mauve of *Glycine clandestina* (Twining Glycine).

Pea plants are successful because they are able to survive natural disturbances and disasters. They can survive through bushfires, drought, extreme temperatures, floods and poor-quality soils. Pea plants are often the first plants seen when conditions improve, especially on roadsides and gravelly sandy areas.

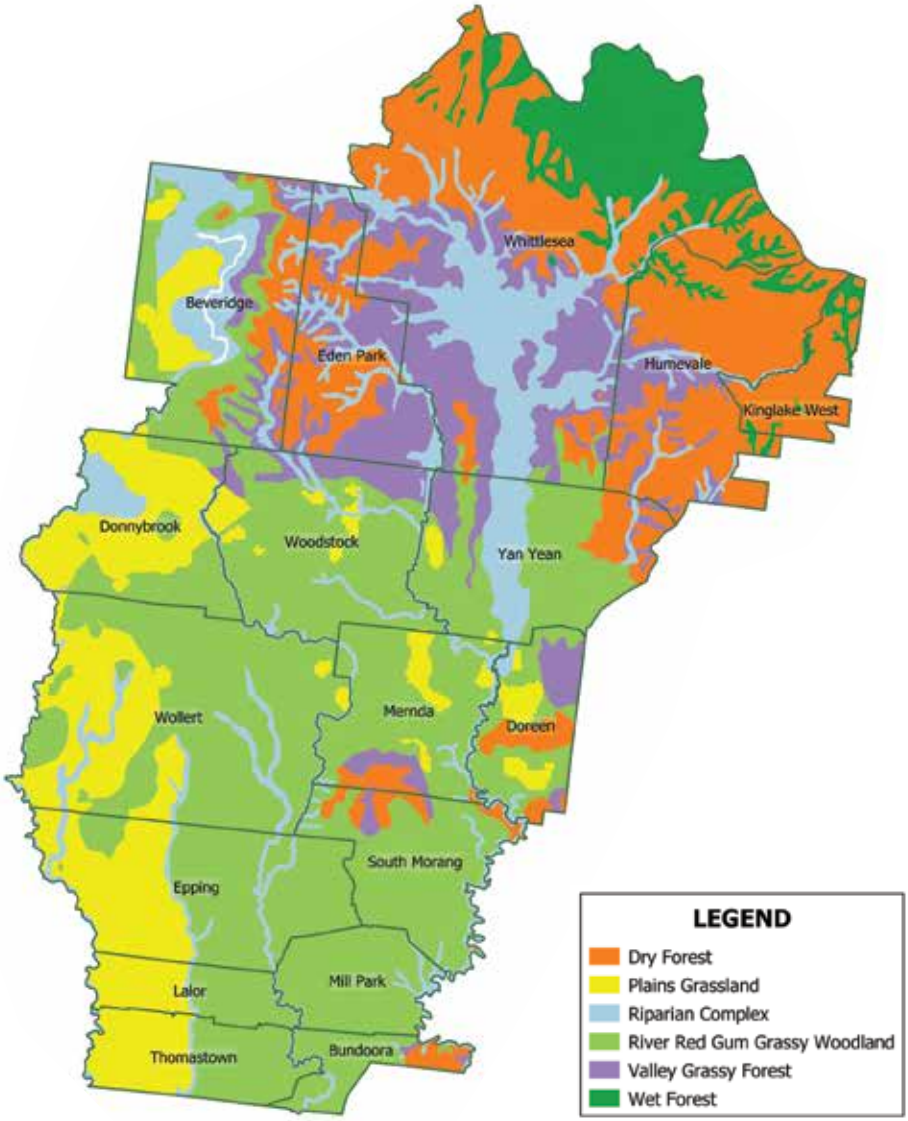
The City of Whittlesea features a range of vegetation. It is made up of volcanic plains, dry Silurian hills, and the wetter Kinglake ranges. As a large area of the land within City of Whittlesea has been cleared for farming and urban development,there are only a few areas of native bush left where native plants continue to flourish. These areas include the western Kinglake forests, Plenty Gorge and some small patches of the volcanic plains grasslands and dry Silurian hills.

Because there is a lot of variation in climate and geography across the City of Whittlesea, there are a wide variety of non-Egg and Bacon pea plants. These plants range from large shrubs 2m high to small trailing creepers.

There are 8 genera and 13 species in this group of pea flower plants that are indigenous to the City of Whittlesea. However, many of these grow on the volcanic plains grasslands and along creek verges like Merri Creek and Curly Sedge Creek. This has meant some of this group of pea flower plants have become endangered due to urban growth and loss of habitat. Displacement caused by environmental weeds, such as the weedy pea species covered in this book, is also a threat to local species.



Map of the City of Whittlesea showing the six broad vegetation communities



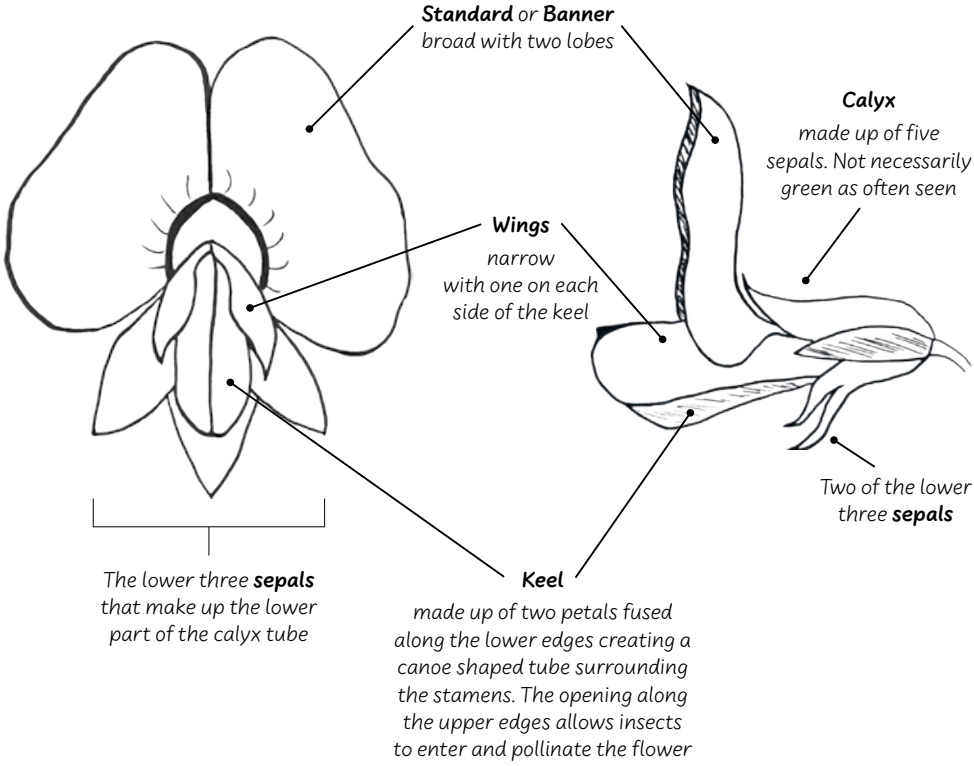
Identifying features of pea flowers

Flower characteristics

The flowers have the typical "pea" shape, consisting of five sepals (the calyx) and five petals (the corolla).

The sepals are fused to form a tube with five lobes: an upper pair and lower three making up the calyx.

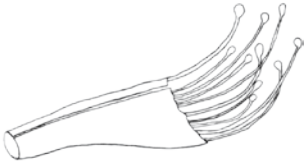
The petals have different shapes: there is the standard or banner, the keel (two petals) and two wing petals making up the corolla.

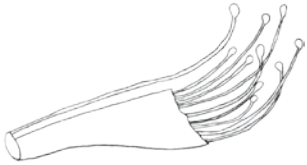


Stamens

All pea flowers have 10 stamens. However, the form the stamens take divides pea flowers into 3 separate groups. The non-Egg and Bacon plants of the City of Whittlesea belong to all 3 groups.







Group 1:

All 10 stamens are free to their base.

This includes the genus:

Viminaria

Group 2:

All 10 stamens are joined together for the majority of their length, forming a tube. This tube is open along its top side.

This includes the genus:

Hovea

Group 3:

9 of the 10 stamens are joined in a tube and the upper 10th stamen is free for all its length.

This group includes the genera:

Cullen
Desmodium
Glycine
Hardenbergia
Kennedia



Viminaria juncea

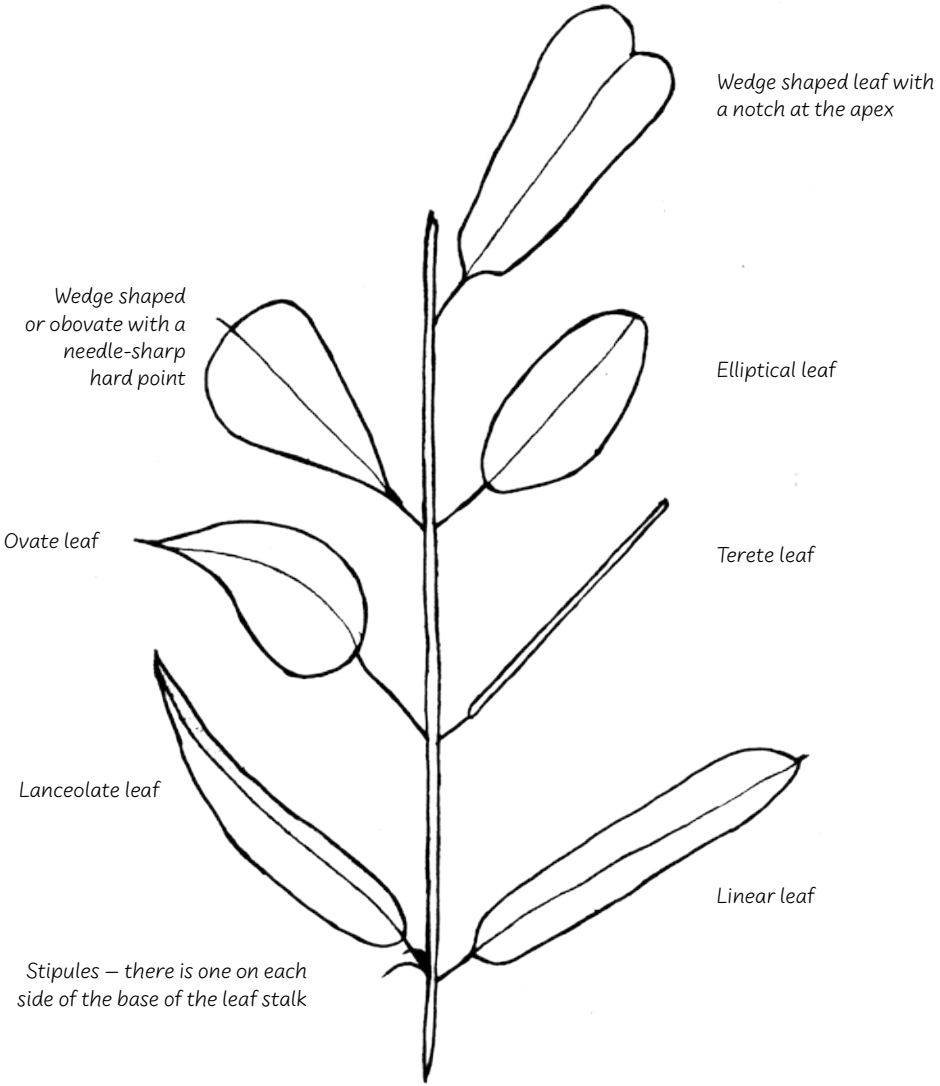


Hovea linearis



Kennedia prostrata

Leaf shapes

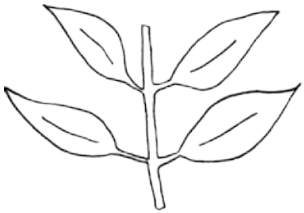

Wedge shaped leaf with a notch at the apex
Wedge shaped or obovate with a needle-sharp hard point
Elliptical leaf
Ovate leaf
Terete leaf
Lanceolate leaf
Linear leaf
Stipules – there is one on each side of the base of the leaf stalk

Leaf arrangement on a stem

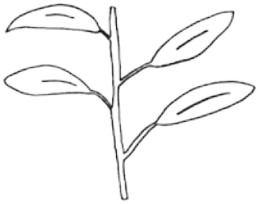
Leaves may be simple and entire or compound and made up of several leaflets.



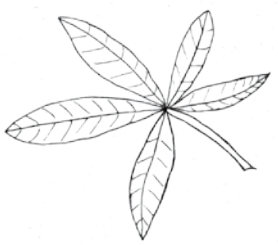
Simple leaf



Opposite



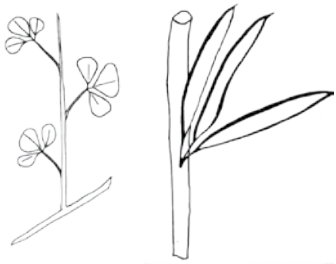
Alternate



Palmate arrangement



Pinnate arrangement
(can be even, as shown here, or uneven)



Trifoliate leaves
(three leaflets in the arrangement, can be pinnate or palmate)

Glossary

Alternate:
arranged singly at different heights on a central axis

Anther:
the pollen bearing part of a stamen

Apex:
at or on the tip of a structure, eg. leaves ending in a short triangular point

Axil (leaf):
angle formed by the leaf and the branch

Calyx:
the outermost coat of the flower, consisting of the sepals

Corolla:
all the petals collectively

Elliptical:
broadest across the middle, narrowing at both ends

Endemic:
found only in a specific geographic region

Genus (plural genera):
a classification of closely related species, eg. Glycine

Keel:
a ridge, usually on the back, like the keel of a boat; the 2 fused anterior (front most) petals of the papilionaceous (butterfly like) pea flower

Lanceolate:
narrow and tapering at each end, especially the apex. Like a lance

Leaflet:
each of the leaflike structures that together make up a compound leaf

Linear:
long and narrow with parallel sides

Nectar:
a sugary fluid produced within most flowers to encourage pollination

Oblong:
longer than wide

Obtuse:
blunt or rounded at the apex

Opposite:
arising at the same level but on opposite sides

Ovate:
egg shaped and attached by the broad end

Palmate:
Divided into several leaflets from the same point

Petiole:
the stalk of a leaf

Pinnate:
a compound leaf with leaflets arranged on opposite sides of a common axis/midrib

Pollen:
dust-like powder produced in the anthers – part of the male organs, the stamens

Prostrate:
lying close to or on the ground

Riparian:
of or on a watercourse or drainage line

Sclerophyll:
referring to a forest dominated by eucalypts with an understorey of shrubs with small hard leaves, eg. egg and bacon plants and acacias

Sepal:
one of the lobes that go into making up a calyx

Silurian:
a geological period of 416 million years ago; it is the shortest period of the Palaeozoic era

Species:
a group of living organisms consisting of similar individuals; the most basic category in the system of classification, ie. family eg. Fabaceae, genus eg. Desmodium, species eg. *D. gunnii*

Stalk:
a support for a flower or leaf

Stamen:
the male part of a flower producing pollen, consisting of an anther and a filament

Standard:
the large posterior (rear) petal of a pea flower

Stipule:
a structure, pairs of which occur at the base of the petiole on most plants

Terminal:
at the end or extremity

Trifoliate:
a leaf with (consisting of) three leaflets

Woodland:
a low-density forest forming open habitats with plenty of sunlight. A woodland may support an understorey of shrubs and herbaceous plants including grasses



Detail of the gland dotted leaflets of the Cullen plants (*C.microcephalum* in this image)

Cullen

The Scurf-Peas

Of the 130 species of this genus that are known to exist in predominantly tropical and temperate regions of the world, 20 are indigenous to Australia and two of those are indigenous to the City of Whittlesea.

Foliage: The species has alternate compound leaves with glands dotted across the upper surface of the leaves. The leaflets are arranged pinnately or palmately.

Flowers: The small, pink, blue or white flowers form round clusters on long stalks that originate in the leaf axis. The flower stalk of *Cullen microcephalum* is by far the longest. The calyx lobes are almost equal, or the lowest one is longer.

Pea pods: The pod is small, oblong and does not open at maturity.



Trifoliate leaflets with an ovate shape



Dense hair on calyx

Dusky Scurf-Pea/Mountain Psoralea

Cullen microcephalum

Size: Prostrate – 0.6m x 0.5m.

Flowering season: November to January. Can extend longer into late February.

Form: A spreading or twining perennial herb.

Foliage: *C. microcephalum's* leaves are arranged trifoliate on the end of long stalks. Their leaflets have a lanceolate to ovate-oblong shape. The upper surface is dotted with glands. The base leaves resemble clover while the upper leaves tend to be more lanceolate in shape.

Flowers: The flower heads of mauve to purple pea flower are on the end of long erect stalks. The calyx for each tiny flower is densely covered in hair.

Pea pods: The tiny seed pods are black and rough textured or wrinkled.

Habitat and requirements: In the City of Whittlesea it is found on plains grasslands. It prefers moist well drained soils and appreciates summer watering.

It is an uncommon plant, becoming more so, as its growing areas are consumed by urban growth.





Tough Scurf-Pea/Emu-Foot

Cullen tenax

Size: 0.5m x 0.5m.

Flowering season: August to March.

Form: Slender often trailing perennial herb.

Foliage: Dark green leaves on long stalks made up of 5 – 7 stalkless, narrow leaflets, dotted in tiny glands above and below. The stalks of *C. tenax* have angular ridges. The flower spikes are about half the length of *C. microcephalum*.

Flowers: The flower head of tiny bluish mauve pea flowers, tends to be longer than *C. microcephalum*.

Pea pods: The tiny seed pods are black, rough textured or wrinkled.

Habitat and requirements: It is found on the plains grasslands. *C. tenax* prefers moist soils and appreciates summer watering.

Traditional uses: Highly palatable to grazing animals. Important nutritious forage species but can form fibre-balls in the stomach of sheep. *C. tenax* is one of a number of Cullen species being investigated as low rainfall drought-resistant pasture species.

Cullen tenax is extinct throughout most of its range and now Endangered within the City of Whittlesea.



Desmodium gunnii





Desmodium varians

Desmodium
The Tick-Trefoils

There are about 450 species world wide, mostly in tropical and subtropical regions, with 30 species in Australia (mostly endemic); three in Victoria and two within the City of Whittlesea.

Form: Desmodium are perennial herbs, shrubs or rarely small trees.

Foliage: Leaves are arranged trifoliate on the end of long stalks. They are made up of three leaflets with a lanceolate to ovate-oblong shape.

Flowers: Flowers are a terminal (growing at the end of the stem) or originate from the leaf axil and are in loose cluster of white, pink, bluish, purple or mauve.

Pea pods: The seed pods of the Desmodium genus are quite distinctive, being deeply indented on both sides.

Traditional uses: It has been shown to possibly be of benefit in cases of non-alcoholic fatty liver disease (NASH), also called fatty liver syndrome. The antispasmodic and anti-allergic effects of Desmodium allow its use in cases of asthma and chronic bronchitis. It has been grown amongst other crops to keep certain insects away and being a pea adds nitrogen to the soil.









Glycine

There are around 25 species in the genus Glycine. Most of these species are endemic to Australia; however, some are also found in East Asia and the Pacific Islands.

One of the renowned Glycines is the soy bean, *Glycine max*.

Form: Glycines are slender scrambling or twining perennial herbs.

Foliage: They are covered in hairs pressed closely to the plant, often downward facing on stems and upward facing on leaflets. The leaves are usually trifoliate but occasionally consists of five or seven leaflets. The stipules are tiny.

Flowers: Glycine flowers are usually pink through to purple. Sprays in the upper axils can be significant whereas in the lower axils usually a lot smaller. The calyx has two upper sepals joined to about half way. The standard is nearly circular and the keel is smaller than the wings.

Pea pods: Pods are oblong to linear, with partitions between the seeds. They are sometimes curved, often twisting after seed dispersal. The seeds are circular to squareish.



Flowers originating in the leaf axis

Hardenbergia

This is a small genus of three species. The Victorian representative, *H. violacea* is very well-represented within the City of Whittlesea.

Form: They are prostrate or climbing shrubs with 1 or 3 leaflets.

Foliage: The leaf stipules are fine and small.

Flowers: Hardenbergia are quite prolific with significant sprays of flowers originating out of leaf axils.

Pea pods: The seed pods are elongated and often flattened.



Large sprays of flowers



Leathery leaves with distinct veins

Purple Coral Pea/False Sarsaparilla

Hardenbergia violacea

Size: Trailing to 2m+.

Flowering season: July to November.

Form: A fast growing, dense, wiry, trailing creeper or twiner.

Foliage: Leathery dark green ovate to lanceolate leaves that are paler underneath. The leaves have a distinctive network of veins.

Flowers: It has sprays, sometimes quite large, of mauve to purple (rarely white), flowers in showy masses along branches.

Habitat and requirements: It is widespread and found in a variety of habitats, including open woodlands and forests. It is a useful plant for covering embankments. *H. violacea* grows in a variety of conditions, especially once established, but most commonly in dryish well-drained soils. It tolerates light frost.

Traditional uses: The edible flowers and leaves of the purple coral pea can be crushed and used to make tea, a slightly sweet and reasonably pleasant drink similar in taste to green tea. At one time the roots were also reportedly used for this purpose. A tea from the leaves helps to relieve toothaches, sore throats, and maintain gut health. Dye has also been made from the flowers.

Hovea

Of the approximate 20 species of Hovea in Australia, there are about five in Victoria and one in the City of Whittlesea. They occur in all states mostly in temperate areas.

Foliage: The leaves are simple and alternate and usually hairy on the underside.

Flowers: Flowers range from mauve to purple with the occasional white. Hovea can be straggly or erect.







Simple alternate leaves can be seen in various shapes

Common Hovea/Blue Bonnet

Hovea linearis

syn. *Hovea heterophylla*.

Size: 0.3m – 0.6m x 0.3m.

Flowering season: August to October.

Form: Open straggling to erect hairy subshrub.

Foliage: *H. linearis* often has many slender branches. It has olive-green leaves that are simple, alternate and variable in shape and size, the lower leaves being oval and the upper leaves being narrow-lanceolate to linear.

Flowers: The small mauve flowers form in the leaf axil, sometimes singularly but often up to three originating out of each axil along the stems.

Pea pods: The pods are round and green turning black when ripe.

Habitat and requirements: They prefer dry, well drained, shallow, clay or gravelly soils in open forest of the foothills.



Compound pinnate leaf with an unequal number of leaflets



Indigofera

There are about 30 species of this large genus in Australia, with two varieties of Indigofera australis in Victoria and one within the City of Whittlesea.

Foliage: They have compound leaves with an unequal number of leaflets.





Austral Indigo

Indigofera australis

Size: 1m – 2m x 1m – 2m.

Flowering season: September to December.

Form: Open spreading shrub.

Foliage: Indigofera has blue-green pinnate leaves with an elliptical leaflet shape.

Flowers: It has sprays of pink to mauve pea flowers, originating in the leaf axils. The flowers are occasionally white. The sprays are often large enough to bow the branches down.

Pea pods: The seed pod is long and cylindrical and bronze brown in colour.

Habitat and requirements: It is an adaptable plant to any well drained soil, found in foothills and dryish forests. It tolerates light frosts and lime soils. Indigofera is a very attractive plant and is useful in understorey planting in full sun to semi shade. Pruning is important to help maintain bushiness and vigour and to help prevent branches splitting.

Kennedia

Of the approximately 16 species endemic to Australia, only two occur in Victoria and only one in the City of Whittlesea.





Running Postman

Kennedia prostrata

Size: Prostrate x 1m – 2.5m.

Flowering season: April to November.

Form: Open to dense trailing or matted perennial.

Foliage: *K. prostrata's* young growth is hairy. It has trifoliate, crinkly, blue-green leaflets.

Flowers: It has 1 – 2 large scarlet pea flowers originating from the leaf axils and on long stems. The flowers are rich in nectar.

Pea pods: The pod is long and almost cylindrical, exploding seeds out when it splits.

Habitat and requirements: It prefers well drained soils in full sun or light shade in open grassy areas of drier forests and woodlands. It is drought tolerant once established and recolonises after a fire.

Traditional uses: The nectar from the flowers has been used as a food source while running postman stems have been used as twine.



Viminaria

This very small genus of one species is endemic to Australia. It occurs in all states except Northern Territory.

Foliage: It has long, fine, twiggy branches with leaves often reduced to thin petioles.



Golden Spray/Native Broom

Viminaria juncea

Size: 2m – 5m x 2 – 3m.

Flowering season: October to February.

Form: Fast growing, slender, erect, bright green, often leafless, weeping shrub.

Foliage: Leaves are reduced to very slender stalks. The juvenile leaves are divided into 1 – 3 leaflets.

Flowers: *V. juncea* has a profusion of bright yellow pea flowers often with red markings.

Pea pods: The small pod is black and ovoid.

Habitat and requirements: It prefers a sheltered position in poorly drained soils in swamps and depressions in full sun or partial shade. It tolerates salt and lime. It is found in red gum woodland, riparian and swampy valley sclerophyll forest.

Environmental Weeds

Genista

Flax-leaf Broom

Genista linifolia

The flax-leaf broom is native to the Mediterranean region and is often found along roadsides or in pastures across Australia.

Size: Up to 3m tall.

Flowering season: Late winter to spring.

Form: Erect or spreading shrub.

Foliage: Stems are softly haired with ridges. Leaves are trifoliate, stalkless, and alternately arranged. Leaflets are linear to lance shaped, lightly haired on the top with denser hair on the underside.

Flowers: Flowers are yellow and found in clusters on the ends of branches.

Pea pods: Pods are grey to black and densely haired.



Photo credit: *Thomas Mesaglio*

Cape Broom/Montpellier Broom

Genista monspessulana

Cape broom is native to Europe and the Mediterranean region.

Size: 1.5m – 2m tall.

Flowering season: Late winter to spring.

Form: Erect shrub.

Foliage: Leaves are typically trifoliate with silky hairs. The cape broom is fairly similar to the Flax-leaf broom; however, leaves of the cape broom are typically broader and on short stalks opposed to the stalkless leaves of the flax-leaf broom.

Flowers: Flowers are yellow and found in round clusters on the ends of branches.





Ulex

Gorse

Ulex europaeus

Gorse is considered a major weed invading pasture lands in Victoria and significantly reducing capacity for grazing if left uncontrolled.

Size: up to 3m tall.

Flowering season: Spring and autumn.

Form: Densely branched spiny perennial shrub.

Foliage: Gorse is largely leafless with noticeable spiny leaf-like stalks covering the plant. These stalks are grooved along their length.

Flowers: Gorse flowers are typically yellow.

Pea pods: Pods are oblong and covered in dense hairs.



Spiny stalks are a noticeable feature distinguishing gorse from other Fabaceae plants



Cytisus

English Broom

Cytisus scoparius

English broom is native to Europe and is considered a threat to native bushland across Australia.

Size: 2.5m tall.

Flowering season: Spring to summer.

Form: Upright shrub. Stems are strongly ridges with five ridges.

Foliage: Leaves are trifoliate. Leaflets are hairy and oval to oblong shaped.

Flowers: Flowers are typically golden yellow and can have red markings in the middle.

Pea pods: Pods are largely hairless, with hair found only along the edges.



Photo Credit: *Elspeth Swan*



Upright stems with noticeable ridges
Photo Credit: *Elspeth Swan*

Gleditsia

Honey Locust

Gleditsia triacanthos

Honey locust is native to eastern North America and is considered a weed of the subtropics found in open bushlands, pastures and near watercourses.

Size: Up to 10m tall.

Flowering season: Spring.

Form: Large spreading deciduous tree

Foliage: Tree spines are stout and sometimes branching with a length of 2 – 10cm. Leaves are pinnate with small oblong leaflets.

Flowers: Greenish or creamy yellow flowers form drooping clusters that are 5 – 10cm long and can be easy to miss.

Pea pods: Dark brown pods are leathery, flattened and slightly curved.



Photo Credit: *M Fagg*



Photo Credit: *Thomas Mesaglio*

Robinia

Locust Tree/Black Locust

Robinia pseudoacacia

The black locust is native to North America used frequently in Australia as an ornamental tree.

Size: Up to 17m tall.

Flowering season: Spring to early summer.

Form: Spiny deciduous tree.

Foliage: Bright green leaves that turn yellow in autumn have alternately arranged narrowly oval to oblong shaped leaflets. Stipules are spiny.

Flowers: Black locust flowers can be white, yellowish or pink and are found in dense clusters that droop.

Pea pods: Black locust pods are red/brown, leathery and linearly shaped.



Photo credit: *Coenobita*



Photo credit: *Thomas Mesaglio*

Chamaecytisus

Tree Lucerne/Tagasaste

Chamaecytisus palmensis

Tree lucerne is native to the Canary Islands. It is often planted for hedges and fodder, and can be found invading roadsides, along creeks and on grasslands.

Size: 1.5m. Can grow up to 4m high.

Flowering season: Late winter to spring.

Form: Bushy shrub or small tree.

Foliage: Soft hairs are present on branches and the underside of leaves. Leaves are trifoliate and alternately arranged.

Flowers: Cream to white flowers are abundant in clusters.

Pea pods: Pods are linear-oblong shaped and compressed.



Photo credit: *Lachlan Copeland*



Soft hairs on stems and leaves



The City of Whittlesea is indebted to **Suzi Duncan** who provided the line drawings and the text and images for the native peas.

This booklet was born out of Suzi's curiosity and is now a resource for the rural community of City of Whittlesea and abroad.

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For weeds information visit
agriculture.vic.gov.au/biosecurity/weeds/weeds-information

Notes

Notes



City of Whittlesea

COUNCIL OFFICES
Civic Centre
25 Ferres Boulevard
South Morang, VIC 3752

Whittlesea Services Hub
63 Church Street,
Whittlesea, VIC 3752

whittlesea.vic.gov.au

9217 2170, select option 4
National Relay Service: **133 677**
(ask for **9217 2170**)

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Interpreter

Free telephone interpreter service
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