

Focus on Flowers October 2022

Theme:

Generally, this walk is about flowers. Specifically, I want to show visitors:

- Some different forms of flowers, including
 - conventional standard flowers like *Micromyrtus*;
 - Flowers that cluster in heads (referred to as racemes, panicles, bracts, inflorescence) e.g. acacias, *calothamnus*, banksias, grevilleas, isopogons, waratahs;
 - Pea flowers;
 - Orchids;
 - Daisies
- Some examples of the ways flowers can be pollinated
- Some species whose names are derived from their flowers contrasted with some that are not
- Conservation and seed collection of threatened species

By the end of the walk, I want visitors to understand that plants and animal interact, to comprehend the importance of the work of Botanic Gardens in preserving plant species, to appreciate the beauty of the flowers of Australian plants and consider Australian native flowers for their own domestic uses.

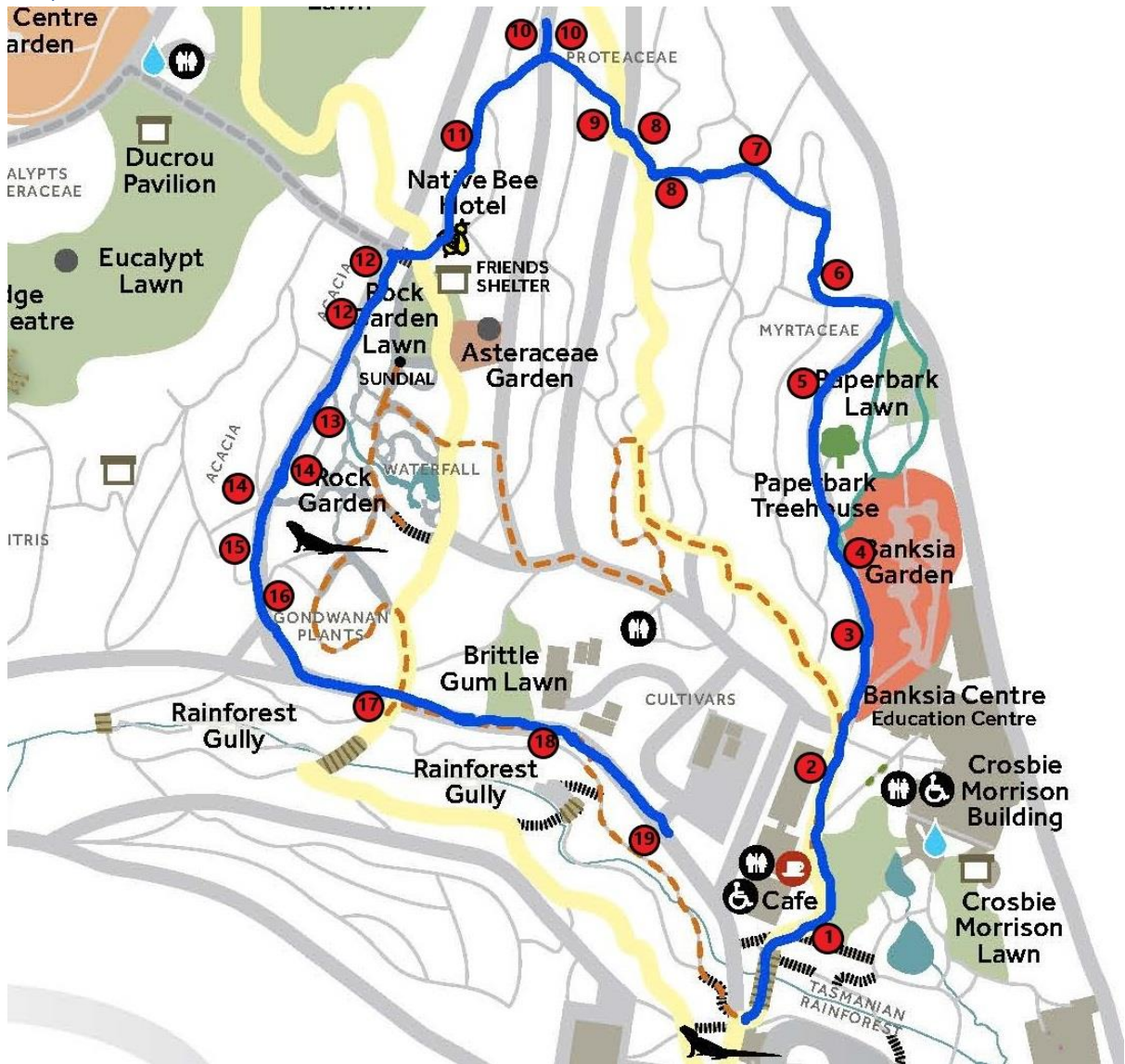
Alternative Route for Wheelchairs and Prams

Depending on the manoeuvrability of the wheeled device, you may have to omit stops 8, 9, 10, or possibly just stop 10. After stop 7 or 10 take the boundary road and turn in to the bitumen road above the main path. This the road that eventually passes between the Acacias and the rock garden. Stop 11 can be viewed from this road.

Plant List

Stop	Scientific Name	Common Name	Location
1	<i>Asterolasia</i> 'Lemon essence' <i>Pycnosorus globosus</i>	Billy buttons or Drumsticks)	Next to café wall
2	<i>Acacia leprosa</i>	Cinnamon wattle	Next to Ellis Rowan building
3	<i>Calothamnus quadrifidus</i>	One-sided bottlebrush or Claw flower	On left on road to banksia garden
4	<i>Banksia praemorsa</i> <i>Banksia coccinea</i>	Cutleaf banksia The scarlet banksia	Banksia garden, just before and just at third inlet
5	<i>Micromyrtus ciliata</i>	Fringed heath myrtle	On left on road past treehouse
6	<i>Pomaderris walshii</i>	Carrington Falls Pomaderris	Just inside Pomaderris garden
7	<i>Pomaderris reperta</i> <i>Pomaderris delicata</i>	Denman pomaderris Delicate pomaderris	Five ways corner
8	<i>Grevillea juniperina</i> <i>Grevillea flexuosa</i>	Juniper-leaved Grevillea, prickly spider flower Zig-zag grevillea	Where track up from Pomaderris meets main path, near bitumen road
9	<i>Grevillea</i> 'Lady O' <i>Hakea rostrata</i> <i>Isopogon asper</i>	Beaked hakea Coneflower	Across road from stop 8
10	<i>Grevillea wilkinsonii</i> <i>Grevillea hookeriana</i>	Tumut Grevillea	Take first dirt track on left from main path, then turn right at first cross path
11	<i>Hakea macraeana</i> x 2	Willow needlewood	Return to cross path and turn right. Hakeas on right before Friends shelter
12	<i>Acacia havilandiorum</i> on Right <i>Acacia clelandii</i> on Right	Needle Wattle, Haviland's Wattle Erect Umbrella mulga	Go up to bitumen road between Acacias and Rock Garden and turn left. Choose either 12 or 14
13	<i>Telopea speciosissima</i> 'Corroboree' x2	Waratah	At top of rock garden
14	<i>Acacia cognata</i> on Left Or an unnamed acacia <i>Acacia longifolia var sophorae</i> on Right	Bower wattle, River wattle, Coastal wattle	Just past rock garden
15	<i>Olearia viscidula</i>	Viscid daisy bush or Wallaby weed	On bitumen road on right
16	<i>Prostanthera rotundifolia</i> <i>Ranunculus collinus</i>	Round-leaved mint bush Strawberry buttercup	On bitumen road on left
17	<i>Dendrobium kingianum</i>		On rainforest verge just before main path
18	<i>Indigofera australis</i>		Near fallen log
19	<i>Dendrobium speciosum</i>	Rock orchid, Cane orchid, Rock lily	On rainforest verge opposite depot entrance

Map



Plant Notes

Stop 1 *Asterolasia* 'Lemon essence'

Is a hybrid seedling of *Asterolasia correifolia*, discovered at the ANBG. This species grows in wet forests in moist gullies and occurs in Carnarvon National Park in Qld, and on the North and Central Coasts, Central and Southern Highlands of NSW. *Asterolasia* is a genus of seventeen species of erect or prostrate shrubs in the family Rutaceae, and is endemic to Australia. 'Lemon Essence' can be used as a screen or hedge plant.

Theme point:

- Standard conventional flower. The flowers are bisexual and have five sepals, five petals and ten to twenty-five stamens. The sepals, petals and stamens are all free from each other, the stamens slightly shorter than the petals. There are five carpels fused at the base, sometimes to the tip usually with a small beak with the styles fused to each other with a shield-shaped stigma. The fruit is composed of up to five follicle and the dull, black seeds are released explosively.
- Illustration of natural variation that has been used to develop a cultivar

[Asterolasia 'Lemon Essence' – Bywong Nursery](#)

[Asterolasia correifolia - Wikipedia](#)

NB Conventional Flower diagram

Pycnosorus globosus (Billy Buttons or Drumsticks)

Has a wide distribution and occurs over much of NSW as well as Qld, Vic and SA. Previously known as *Craspedia globosa* it was renamed in 1992. It is a dense ground cover that spreads at least 50 cm. Mature plants may carry dozens of flower heads.

Theme points:

- Named for their flowers The genus name is from the Greek, pycne meaning thick, and sorus meaning heap; referring to the dense flower heads, globosus refers to the shape of the flower heads, i.e. globular.
- Daisy flower. Each flower head (pseudanthium) consists of three to eight tube florets surrounded by bracts (modified leaves). The florets with their surrounding bracts are yellow or golden-yellow.

<https://resources.austplants.com.au/plant/pycnosorus-globosus/>

[Pycnosorus - Wikipedia](#)

NB Daisy flower diagram

Stop 2 *Acacia leprosa* (Cinnamon wattle)

Unfortunately, this plant has not flowered and so may be worth ignoring.

Common name refers to the perfume of the leaves. Found in Qld, NSW, Vic.

Theme Points:

- Flowers not yet open show clusters of buds, i.e. many flowers in the one head.
- Flowers consist of the stamens and pistil, no petals
- Illustration of natural variation that has been used to develop a cultivar

Interesting story: In 1995 a group of bushwalkers were on a track in the Black Range State Forest north-east of Melbourne. On a small side track one of them noted a single red-flowering specimen of the distinctive large phyllode variant of this species, amongst the usually yellow-flowering ones. One of the ladies picked a piece and took it for identification and it was eventually passed on to the National Herbarium of Victoria at the Royal Botanic Gardens, Melbourne. Two experts were taken to the site by bushwalkers to collect some cuttings for propagation by the Botanic Gardens nursery. When the four of them arrived at the location they were stunned to find that the plant had been all

but stripped! Evidently someone who knew where it was, had been there recently and taken most of the available cutting material. 12 cuttings were taken on that day, six of which went to the Royal Botanic Gardens nursery and six to the Carawah Nursery in Hoddles Creek. Only 3 tubes survived and these were all then held at the Royal Botanic Gardens so they could eventually be potted on. These three little tubes became the foundation for all the stock we now have. Sadly, but not unexpectedly, a short time later the ranger reported that the original plant had died. It later transpired that the excessive number of cuttings taken illegally apparently all failed to strike.

See [Acacia leprosa and 'Scarlet Blaze' \(anpsa.org.au\)](http://anpsa.org.au) for full details.

NB leprosa – Latin for “disease”, due to the phyllodes having a whitish, mealy or spotted surface, so not related to the flower.

Stop 3 *Calothamnus quadrifidus* (one-sided bottlebrush or claw flower)

Theme points:

- flowers that cluster, i.e. many actual flowers in one flower head
- Plant named for the flower
- Bird pollinated
- **Calothamnus** – derived from the ancient Greek kalos, meaning “beautiful” and thamnos meaning “a shrub”, **quadrifidus** – meaning “divided into four parts” referring to the floral structure. *Brown, the botanist on Flinders’ ship Endeavour, went ashore at Lucky Bay, east of Esperance, in 1802, and collected three different specimens of Calothamnus. Two of these had flower parts in fives, while this one had them in fours, hence the name.* [Calothamnus quadrifidus - Australian Native Plants Society \(Australia\) \(anpsa.org.au\)](http://anpsa.org.au)
- Bird attracting as flowers last for many months
- **Calothamnus** is a genus of shrubs in the family Myrtaceae and is endemic to the south-west of Western Australia. The common names **one-sided bottlebrush** or **claw flower** are given to some species due to their having the flowers clustered on one side of the stem or because of the claw-like appearance of their flowers. **Calothamnus** species are generally medium to tall woody shrubs with crowded leaves. In most species the leaves are crowded and linear in shape, and the flowers are usually arranged in dense clusters. The petals are small and fall off the flower soon after it opens but the stamens are long, numerous and usually bright red.
- **Calothamnus quadrifidus** naturally occurs in the south-west region of Western Australia where it is widely distributed. Also known as Common Net Bush or One-sided Bottlebrush it is an excellent plant to grow in Australian gardens. The beautiful flowers produced over a long period are noticeably bird attracting and the lovely texture of the foliage provides a pleasing contrast in the garden. **Calothamnus quadrifidus** can be grown to create an effective screen and/or windbreak.

Stop 4 *Banksia praemorsa* (Cut leaf Banksia)

Restricted to south-west WA on the south coast between near Albany and extending about 100 km east. It grows on sand in sclerophyllous shrubland and woodland.

Theme Points:

- praemorsa means as if bitten off, so not related to the flower.
- Many flowers in one spike. Can see some of the flowers opening, from the bottom of the flower spike.

***Banksia coccinea* (The Scarlet Banksia)**

Is a shrub or small tree found in and around Albany and the Stirling Ranges on the south coast of WA. Usually grows to about 4 m but can reach up to 8 m. These flowers are highly prized in the cut flower industry, not just because of their beauty but because of the long, fairly straight, single stems on which they grow.

Theme Points:

- *coccinea* - from the Latin *coccineus* meaning scarlet, which refers to the colour of the pistils of the flowers that give the inflorescence its colour.
- Very attractive with wide, toothed, light to mid-green leaves and large striking flowers of orange-red to bright scarlet that appear between May and January.
- This is a great plant for attracting nectar-feeding birds into your garden. Good place to explain the role of nectar feeding birds in pollination.

Stop 5 *Micromyrtus ciliata* (Fringed Heath Myrtle) is found from south-eastern NSW through western Vic to south-eastern SA and grows in a variety of habitats from sandy coastal heaths to rocky slopes.

This species has the tiniest of leaves and flowers among native garden shrubs, but both are of solid substance for their size, and being massed are effective. Leaves are opposite, an arrangement often seen in shrubs of the Myrtaceae family. It gives them a neat and clean appearance at all seasons and thus many are valued as foliage plants apart from their flowering interest. The leaves of all are aromatic when bruised and seldom blemished by pests or diseases.

Flowers can be white or flushed pink or red and age to deeper reds.

Theme points

- Masses of tiny flowers along the branches to give an outstanding display
- Typical of the Myrtaceae family, flowers have a cup shape and five petals
- The flowers are massed along the branches to give an outstanding display from late winter to summer.

Based on text by Irene Beeton (1971)

<https://www.anbg.gov.au/gnp/gnp1/micromyrtus-ciliata.html>

<https://resources.austplants.com.au/plant/micromyrtus-ciliata/>

Stops 6 Pomaderris Garden

The genus. Altogether there are about 70 species of *Pomaderris* approximately 65 in Australia, mainly in the eastern states with the majority in NSW and Vic and 13 species in the ACT. They grow in heathland, shrubland, woodland and open forest from near sea-level to about 2200 m altitude. Some species are also found in WA, SA, Qld and Tas. In general, *Pomaderris* species occur in areas that have some shade. They are in the Rhamnaceae family.

Threatened species. The ANBG is a member of the Southeast Bioregion Group along with several other Botanic Gardens in NSW and the NSW Dept of Environment. This group joined forces with some University and CSIRO researchers to study six of the most endangered *Pomaderris* species, namely *P. bodalla*, *P. brunnea*, *P. cotoneaster*, *P. delicata*, *P. pallida*, *P. reperta* and ***P. walshii***.

NB *P. pallida* was collected from southern ACT. See [Plight of the Pomaderris - Pomaderris pallida - YouTube](#)

This project entailed collecting samples from the wild, seeds where possible, but also cuttings. Seed orchards were established by growing many plants of the same species together and collecting the seeds produced. Seeds are held in seed banks and plants grown from some seeds are translocated to the wild.

Recognising and Growing. Two of the aims of this garden are to introduce visitors to this little-known genus and to demonstrate how they can be grown in the home garden. *Pomaderris* are useful for growing in shaded sites, especially beneath established trees. Most species respond well to pruning from an early age and can be formed into hedges. Note the hedge along the front of the garden. *Pomaderris* generally prefer acidic soils and like to be in moist conditions year-round when young. Established plants will tolerate extended dry periods. Most species will survive light frost while some species are hardier and will tolerate heavy frosts.

See [The Pomaderris Garden \(friendsanbg.org.au\)](http://ThePomaderrisGarden(friendsanbg.org.au)) for more details about all of the above points

Theme points:

- Conservation and seed collection of a threatened species
- Learn to recognise and appreciate the unique attractiveness of *Pomaderris* species

The largest bushes in the garden are ***Pomaderris walshii* (Carrington Falls Pomaderris)** which is critically endangered in NSW. Its distribution is very restricted to the upper catchment of the Kangaroo River, near Robertson, above Carrington Falls. There may be only about 40 plants in the wild.

[Costa and the Plight of the Pomaderris - Saving Pomaderris walshii - YouTube](#)

Stop 7 Five ways paths Two other endangered species that were studied, *P. reperta* and *P. delicata*.

***Pomaderris reperta* (Denman Pomaderris)** is a critically endangered shrub that grows 1 to 3 metres tall in a small number of sites along a single ridgeline near Denman, south west of Muswellbrook in the upper Hunter Valley in NSW. It has very hairy young stems and leaves to 35 mm long and 20 mm wide and very distinctive buds. It grows in woodlands in association with *Eucalyptus* species in sandy loam soils on sandstone or conglomerate.

Interesting Story

Seeds were collected at Myambat in Denman in 2016 from 23 different existing plants and the staff at the gardens germinated approximately 600 new plants using the developed protocols developed as part of the project. 450 plants were translocated to the Denman site, and the remainder were planted at the ANBG.

Unfortunately, the Black Summer bushfires devastated the Denman population, so the Australian National Botanic Gardens holds the only current living collection. The National Seed Bank has a collection of seeds of the Denman Pomaderris which in conjunction with the horticultural expertise of the gardens staff, could produce a renewable population for the species if the wild population failed to recover. [See [Saving six unique plants in six unique locations | Parks Australia](#)]

***Pomaderris delicata* (Delicate Pomaderris)** is a shrub 1 - 2 m tall. Its leaves are ellipse-shaped (to 3 cm long and 1.5 cm wide). The under-surfaces of leaves are covered with grey star-shaped hairs and a few simple hairs on the veins. The spring flowers are golden yellow and have petals (unlike some other *Pomaderris* species).

The name, *delicata*, refers to the "dainty appearance of the plant"

This species is protected in the Pomaderris Nature Reserve on Mountain Ash Drive to the east of Goulburn. It also occurs in the roadside verge on Cullulla Road and in Nadgigomar Reserve (both to the west of Nerriga). The last is a translocation site.

Seeds in the wild are rare and usually not viable. In the Pomaderris Project, cuttings were taken from wild plants in 2014 and grown together in a caged area (this is a seed orchard). A pilot seed orchard, with no controls on cross-pollination, produced about 200,000 seeds whereas only about 100 seeds

were able to be collected from the wild. Some plants grown from these seed orchard seeds were reintroduced to the wild where they grew successfully.

Stop 8 Two Grevilleas at the junction of track with main path and bitumen road. *Grevillea* species exhibit 3 main inflorescence structures:

1. A cylindrical to ovoid raceme (with flowers emerging around a 360° radius) e.g. *G. flexuosa*, 'Lady O'.
2. A single-sided raceme (with flowers produced on only one side, resembling a tooth-brush), e.g. stop 10 plants
3. A condensed or clustered raceme (usually as long as it is wide, with species referred to as the spider-flowers), e.g. *G. juniperina*

Theme Point:

- Pollination. *Grevilleas* are good bird-attracting plants as copious quantities of nectar are produced.

Individual *Grevillea* flowers are composed of 1 carpel (female part) where the style and stigma protrude out; 4 stamens hidden away in the perianth; and the perianth (petals and sepals collectively) which connects to a pedicel. Proteaceae flowers do not have any discernible petals or sepals (having only one whorl) and so these are referred to as "tepals" of which there are 4. *For a description of pollination in Grevilleas see [Grevillea - Australian Native Plants Society \(Australia\) \(anpsa.org.au\)](http://anpsa.org.au)*

***Grevillea juniperina* (Juniper-leaved Grevillea, prickly spider flower)**

Primarily on the NSW central coast as well as all the tablelands regions, and up into south-eastern Queensland. There are a range of forms from different areas, seven subspecies. Flower colour may be greenish-yellow, yellow, apricot, pink or red. Individual flowers are to 40 mm long.

The name *juniperina* alludes to its juniper-like foliage.

See [Grevillea juniperina | Australian Plants Society \(austplants.com.au\)](http://austplants.com.au)

***Grevillea flexuosa* (Zig-zag grevillea)**

Is a threatened species growing in WA and is found naturally in the south-west region, north-east of Perth, typically growing in Jarrah Forest. Its stems literally get tangled in themselves and the leaves are stiff and spikey so they can almost grab onto other plants to hoist themselves towards the sunlight and it is very flexible. Zigzag refers to unusual leaf shape.

Stop 9 Comparison of Three Types of Proteaceae : Grevillea, Hakea, Isopogon

Theme points:

- All three have flowers that cluster
- All three are pollinated by birds using the method described at stop 8
- *Grevillea* flowers tend to be on the ends of twigs or branches, *hakea* on bare wood. *Isopogon* has sessile flowers (attached directly by the base, not raised upon a stalk or peduncle) in flattened spherical heads.
- Some *hakeas* are prickly like this one and make good refuges for small animals and birds.

Grevillea 'Lady O' is a hybrid whose parents are a *Grevillea victoriae* (from Vic and NSW) and *Grevillea rhyolitica*, a rare plant that occurs naturally in the sub coastal montane areas of the NSW south coast, from NW to SW of Moruya in the Dampier State Forest and Deua National Park.

In this cultivar, the carpels are to 25 mm long, bright red with red tips. The perianths are bright red with hints of yellow at the tips. The flowers are rich in nectar and are a magnet for honeyeaters.

***Hakea rostrata* (Beaked hakea)** is prickly and makes a good barrier plant and bird refuge. The inflorescence consists of 1-10 flowers. Comes from SA and Vic.

***Isopogon asper* (Coneflower)** is endemic to the south-west WA and grows along sandplains and jarrah forests from just south of Perth north as far as Geraldton.

- Isopogon means equally bearded, which refers to the nut that is hairy all over. Flowering occurs from June to October and the fruit is a hairy nut, fused in a spherical head up to 20 mm (0.79 in) in diameter.
- When the fruit is ripe, the bracts, or cone scales, fall away. This species has lignotubers and so can resprout after fire. Cones turn grey to grey brown when ripe and lose their old floral parts. They are usually ripe six months after flowering. *This example in a pot has several woody fruits.*
- This isopogon is classified as "not threatened" by the Government of Western Australia Department of Parks and Wildlife.
- Flowers are sessile, i.e. attached directly by the base, not raised upon a stalk or peduncle.

https://en.wikipedia.org/wiki/Isopogon_asper [Isopogon asper R.Br. \(dpaw.wa.gov.au\)](http://dpaw.wa.gov.au)

Stop 10 *Grevillea hookeriana*, or *Grevillea wilkinsonii* (Tumut Grevillea)

Theme point:

- Both plants have the toothbrush form of grevillea flower, where the individual flowers are arranged in a terminal one-sided raceme.

Grevillea hookeriana is widespread in heath and shrubland in the south-west of WA. Flower colour varies from dark red to almost black. There is some confusion regarding *G.hookeriana* in the horticultural trade. A plant with bright red toothbrush flowers has been sold under this name for many years. However, it has been established that this is a plant of hybrid origin which may or may not have *G.hookeriana* in its parentage. It is now more commonly available as Grevillea 'Red Hooks'.

Grevillea wilkinsonii (Tumut Grevillea) was first discovered along the banks of the Goobarragandra river near Tumut, NSW in 1991 by Tom Wilkinson, after whom it is named. This is the only area in which it occurs. It is listed as endangered.

Stop 11 *Hakea macraeana* (Willow Needlewood) is found on the south coast, southern tablelands of New South Wales and northern Victoria. Two plants here.

Theme points:

- Flowers that cluster (racemes or bracts)
- Heavily perfumed to attract insects for pollination

Like banksias, hakeas belong to the family Proteaceae. The approximately 150 species of ***Hakea*** are all endemic to Australia and are found in all states, while three species are listed for the ACT in Flora of the ACT, Burbidge and Gray, 1979. The majority of species occur in the south-west of WA. Their flowers and inflorescences are similar to those of grevilleas, but hakeas produce woody fruits which are retained on the plant whereas grevillea fruits are non-woody, release seeds as they mature and disappear quickly. Also, *Hakea* inflorescences tend to be borne lower down on stems than those of *Grevillea*.

See http://www.flora.sa.gov.au/lucid_keys/Hakea/index.shtml and

<https://en.wikipedia.org/wiki/Hakea#:~:text=Hakea%20is%20a%20genus%20of,case%20they%20are%20sometimes%20divided.>

This hakea is strongly perfumed. Scent is a signal that directs pollinators to a particular flower whose nectar and/or pollen is the reward. Species pollinated by bees and flies have sweet scents, whereas those pollinated by beetles have strong musty, spicy, or fruity odours. By providing species-specific signals, flower fragrances facilitate an insect's ability to learn particular food sources, thereby increasing its foraging efficiency. At the same time, successful pollen transfer (and thus, sexual reproduction) is ensured, which is beneficial to plants.

Plants tend to have their scent output at maximal levels only when the flowers are ready for pollination and when its potential pollinators are active as well. Plants that maximize their output during the day are primarily pollinated by bees or butterflies, whereas those that release their fragrance mostly at night are pollinated by moth and bats.

[Why do flowers have scents? - Scientific American](#)

The species name honours George Macrae, who aided the original collector William Baeuerlen who worked with Ferdinand von Mueller (government botanist in the Colony of Victoria in the mid to late 1880s).

- a rounded plant that will develop into a tall shrub or small tree reaching a height of four metres. Growth habit is graceful and willowy. Leaves are bright green, terete (circular cross-section) and tipped with a sharp point.
- Flowers are white, carried in racemes and cover the branches during the flowering period that extends from August to October. Woody, persistent, egg-shaped fruits, covered in warty lumps, follow the flowers. Each fruit holds two winged seeds. Both growth habit and flowers are attractive features. *Hakea macraeana*

Stop 12 – Two Acacias NB use these two or two from stop 14

Theme point:

- Comparison of ball-shaped and rod-shaped flowers
- See others at stop 14

***Acacia havilandiorum* (Needle wattle, Havilands wattle)** has Discontinuous distribution, from the Eyre Peninsula, SA, to near Gilgandra, NSW, but found mainly in the Flinders Ra., SA, and Griffith–Cobar area of NSW. In Victoria known only from west of Horsham in the NW. Grows chiefly in sandy or loamy red soils in mallee and woodland communities on rocky hillsides and ridges.

The ball shaped (inflorescences) are actually clusters of tiny flowers. Individual flowers can be seen on buds. Following flowering it produces long thin papery seed pods up to 9 cm long. Named after Edwin Haviland (1823–1908) who was a Sydney businessman interested in plants, and his son Francis Ernest (1858–1945) who was Archdeacon of Bourke (1904–1923).

***Acacia clelandii* (Umbrella mulga)** is Common in Gawler Ranges in SA and rare in some adjoining parts of WA. Habitat data are scanty, but the species is recorded from sandy soil, including dunes, and rocky hills.

The cylindrical flower-spikes (rods) can be 10 to 25 mm long.

Stop 13 *Telopea speciosissima* ‘Corroboree’ (Waratah)

Good to point this out before you get here to emphasise ‘seen from afar’. This is a cultivar of the NSW floral emblem, the actual Waratah.

Telopea is an eastern Australian genus of five species (*T. aspera* New England waratah, *T. mangaensis* Monga Waratah, *T. oreades* Victorian waratah, *T. truncata* Tasmanian waratah). Several *Telopea* cultivars, some merely colour forms of straight species and some hybrids between *T.*

mongaensis and *T. speciosissima* are beginning to be available at local nurseries.

Waratah is fairly widespread on the central coast and adjoining mountains of New South Wales, occurring from the Gibraltar Range, north of Sydney, to Conjola in the south. It grows mainly in the shrub understorey in open forest developed on sandstone and adjoining volcanic formations, from sea level to above 1000 metres in the Blue Mountains.

They are grown in Israel, New Zealand and Hawaii for the cut flower trade and also California.

Theme points:

- Plant named for the flower. *Telopea* is derived from the Greek '*telopos*', meaning 'seen from afar', *speciosissima* means very beautiful. 'Waratah' is the Aboriginal name for the species, and was adopted by early settlers at Port Jackson.
- A member of the Proteaceae family, its flower heads are clusters of flowers like Grevilleas, Banksia, Hakeas and Isopogons.
- Possible pollinators are birds (such as honeyeaters), eastern pygmy possums and various insects

Stop 14 Two Acacias (alternative to stop 12)

Theme points:

- Comparison of ball-shaped and rod-shaped flowers
- *Pollination*
Bees, other insects, birds and animals consume the Acacia pollen which is a rich source of protein. Thrips and mites feed on the flowers and some beetles and wasps prey on these smaller insects; in doing so they may become incidental pollinators. The main pollinators seem to be bees, both native and European. An example of interdependence of plants and animals.
- *Nectar glands*
Unlike other types of flowering trees, the attractive acacia flowers don't produce nectar. The nectary glands on the phyllodes or leaves secrete sweet nectar that attracts ants, bees, and butterflies. Acacias are essentially insect pollinated; beetles, wasps and bees being mostly involved. Occasionally birds and mammals may be implicated and although ants may be sometimes observed on the flowers they are probably not effective pollinators.

***Acacia cognata* (Bower wattle, River wattle, Narrow-leaved bower wattle)** occurs in south-eastern Australia on the coastal plain and adjacent foothills of the Great Divide from near Nowra, NSW, Sth to near Orbost, Vic. Widely cultivated, especially various cultivars such as popular dwarf or low growing forms. Taller forms are used as hedging and screening plants. The weeping habit is attractive to landscaping and as a feature plant.

The inflorescences are round and pale lemon-yellow with 10 – 17 flowers.

Alternatively, there is an unlabelled Acacia at the end of the Rock Garden with yellow ball flowers.

***Acacia longifolia* subsp. *sophorae* (Coast Wattle)** is found in coastal and near-coastal districts of mainland Australia from SE Queensland to Eyre Peninsula in South Australia, and in similar habitats in Tasmania. This is one of two subspecies of *Acacia longifolia* which is also known as Sydney golden wattle or Sallow wattle. The other subspecies is *A. longifolia* subsp. *longifolia*.

The yellow inflorescences as spikes or rods up to 5 cm long. It is easy to see the nectar glands on the phyllodes of this species.

Stop 15 *Olearia viscidula* (Viscid daisy bush or Wallaby weed) is a species in the Asteraceae family and is endemic to eastern NSW, south of the Nandewar Ranges. It grows in tall eucalypt forest and rainforest as well as dry sclerophyll forest and woodland.

The species name *viscidula* means "slightly sticky" and refers to the stems and new growth being sometimes covered in resin.

The bush resprouts from a lignotuber after bushfire.

Theme point:

- Daisy flower, disc florets are cream and the ray florets are white.

This is a good place to show the daisy diagram.

https://en.wikipedia.org/wiki/Olearia_viscidula

Stop 16 (Two plants) Lovely contrast of mauve and yellow flowers.

***Prostanthera rotundifolia* (Round-leafed mint bush, Native oregano)** grows wild in temperate regions of SA, NSW, Vic and Tas.

There are about 90 species of *prostanthera* (mint bushes), all of which are endemic to Australia. They are bushy, evergreen shrubs, usually with strongly aromatic leaves, and 2-lipped, 5-lobed flowers.

Uses: The dried and ground leaves can be used as a herb, especially with poultry, pork, lamb and in salads. It also goes well in desserts and cakes. It is less sweet in flavour than common oregano with earthier tones and a slightly citric tang. It had aboriginal medicinal uses. [See Bush tucker walks plant details [Bush Tucker - Detail v4.2.doc \(live.com\)](#) and also [Tucker Bush Native Oregano 25g - Tucker Bush](#)]

Theme point:

- Petals fused together to form a bell-shaped tube.

***Ranunculus Collinus* (Strawberry buttercup)** is found in woodland, grassland, and moist areas, and bogs in the Kosciuszko National Park, ACT, and Blue Mountains. This is a perennial herb.

The *Ranunculus* bulbs that are often grown in home gardens are *Ranunculus asiaticus*.

NB: All native plants on unleased land in the ACT are protected.

Theme point:

- Perennial herb with small flower stalks and glossy standard flowers with 5–11 petals each 5–10 mm long, Sepals spreading, rarely turned back.

PlantNET description: <http://plantnet.rbgsyd.nsw.gov.au/cgi-bin/NSWfl.pl?page=nswfl&lvl=sp&name=Ranunculus~collinus> (accessed 4 February, 2021)

Stop 17 *Dendrobium kingianum/Thelychiton kingianus* (Pink Rock Orchid) Flowers are white to deep purple but usually pink. Grows on rocks or occasionally on soil and very rarely on trees in open forest to woodland and in exposed situations from near sea level to c. 1000 m altitude; north from the Hunter R in NSW into Qld.

Theme points:

- Forms of orchid flower
- Pollination of orchids
- Growth habits of orchids

Orchids survive where they receive suitable light, sufficient moisture and unimpeded air movement. Some species favour the trunks and larger branches of rainforest trees, whereas others grow on the small outer branches and twigs (these are often termed twig epiphytes).

Many of the epiphytic species which occur in rainforest also grow as lithophytes on boulders, rock outcrops and cliff faces within the rainforest itself or along its margins. Nutrients for epiphytic orchids mainly come from mineral dust, organic detritus, animal droppings and other collecting among on their supporting surfaces.

Stop 18 *Indigofera australis* (Australian Indigo) is an open erect spreading shrub, widespread in southern Australia from the south-east of Western Australia to north-east Queensland.

It is a member of the pea family and grows well in most soils and prefers a semi or dappled shaded position.

The name *Indigofera* is neo-Latin for “bearing Indigo”, which is a purple dye originally obtained from some *Indigofera* species (leaves and stem).

The Australian aborigines crushed the leaves and added these to water to kill or stun fish and eels. The plant contains cyanide but stock graze it without ill effect. The fruits are thin pods that become firm and are red-brown at maturity. Each pod contains up to 10 grey-brown seeds. After fire, regeneration from seed is prolific but it can also regrow from rootstocks.

Theme point:

- Pea flower Good place to show the pea flower diagram
- This is a legume. Legumes are notable in that most of them have symbiotic nitrogen-fixing bacteria in structures called root nodules. For that reason, they play a key role in crop rotation.

Stop19 *Thelychiton speciosus* (syn *Dendrobium speciosum*) (Rock orchid, Cane orchid, Rock lily)

Theme point;

- Name ‘speciosus’ means beautiful in reference to the flowers.
- Pollination of orchids
- Growth habits of orchids

Orchids are the largest of all flowering plant families, with over 26,000 species worldwide. And they hold the world record for having the smallest seeds of all flowering plants. A typical orchid seed is merely the size of a speck of dust. *They can be this small because they have no endosperm and therefore generally are unable to germinate on their own. They need a fungus to assist; some can use many types of fungi while others need a specific fungus.* [Orchid seeds: Nature’s tiny treasures | Kew](#)

And vanilla pods, which are the seed pod of an orchid, are one of the most expensive culinary items in the world.

- Orchid flowers are amazingly varied and complex but they have the same basic structure.
- Orchids have three petals, one of which has been highly specialised to become the lip (or labellum). Its purpose is to attract and provide a landing platform for the insect pollinators, and it is sometimes larger and more colourful than the other petals.
- There are also typically three sepals which are often confused for petals but are actually the remains of the bud.
- In the centre is the column where the combined reproductive organs are housed.
- *Thelychiton* is a genus of orchids with 26 species, characterised by their striking colours and floral fragrance.
- *Thelychiton speciosus*, commonly known as rock orchids or cane orchids, is a species of highly variable Australian orchids. Its varieties can be found in a range of habitats as an epiphyte (on branches or trunks of trees) or a lithophyte (growing on a rock). It has a

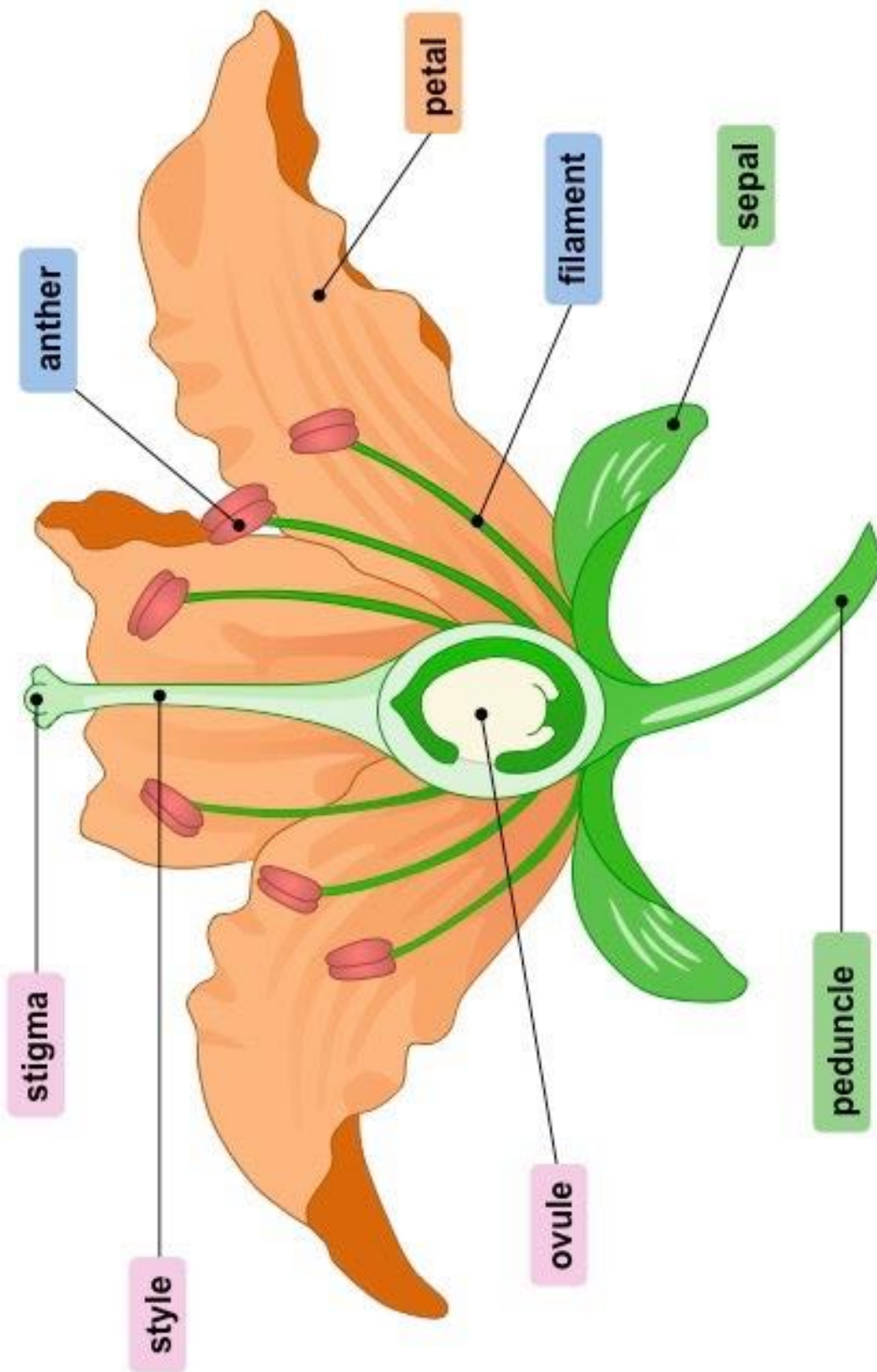
continuous distribution along the east coast of Australia and in distinct populations along the Tropic of Capricorn.

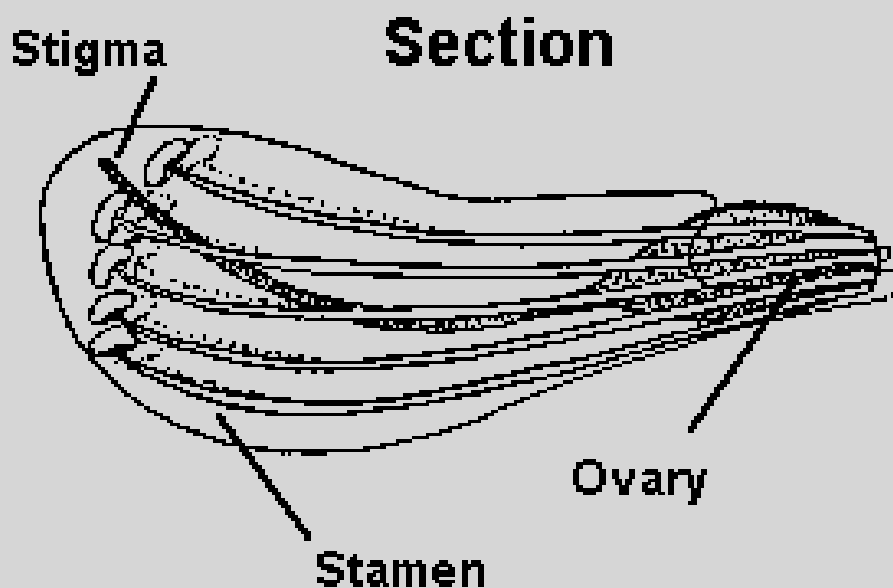
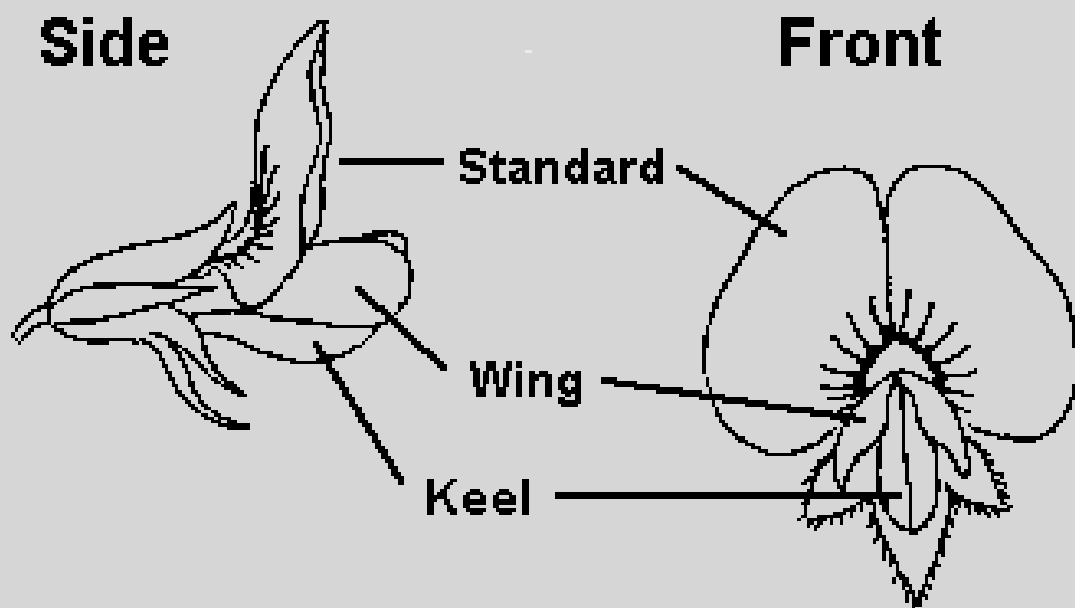
- In nature *T. speciosus* is usually found growing on rocks on sandstone or granite in damper sclerophyll forest or occasionally rainforest or growing as an epiphyte (from the trunk or branches of another plants. Its intolerance to frost means its distribution is limited in Victoria to far East Gippsland and near to the coast in NSW. In QLD its distribution can venture further inland
- The yellow/red stem is not a stem at all. It is a modified stem that is really a pseudobulb, highly variable in length but broadest at the base, tapering to the apex. Its function is to store water for this species which is an epiphyte or lithophyte without an established root system. It often has to survive periods of no rain and as an epiphyte, it has no functioning roots to collect water from the soil.
- Racemes of showy cream flowers that are borne from the plant's crown of 2-5 dark-green leaves. The lower petal, the labellum, is attractively spotted with purple. But the flowering stem of the plant produces up to 120 of these flowers many of which may be open at once, producing a spectacular floral show. In its cooler distribution flowering occurs from September to October, though this may be earlier in warmer places.
- In places *T. speciosus* populations have been devastated by illegal orchid poachers, but it remains common in many areas.
- Thelychiton, which is derived from the Greek thelys, female and chiton, dress, refers to the column hooding the stigma; speciosus means beautiful and is in reference to the flowers.

<https://www.orchidplantcare.info/characteristics-of-the-orchid-flower/>

***Dockrillia teretifolia* (Rat's tail orchid, Thin pencil orchid, Bridal veil orchid)** *An epiphyte it grows almost exclusively on *Casuarina glauca* but uncommonly also recorded from rainforest trees, chiefly in coastal districts north from near Bega up to Cooktown and inland to the upper Hunter Valley. *Dockrillia* has been split off from *Dendrobium* and is made up of the orchids with more-or-less cylindrically shaped leaves.*

Standard Flower Parts

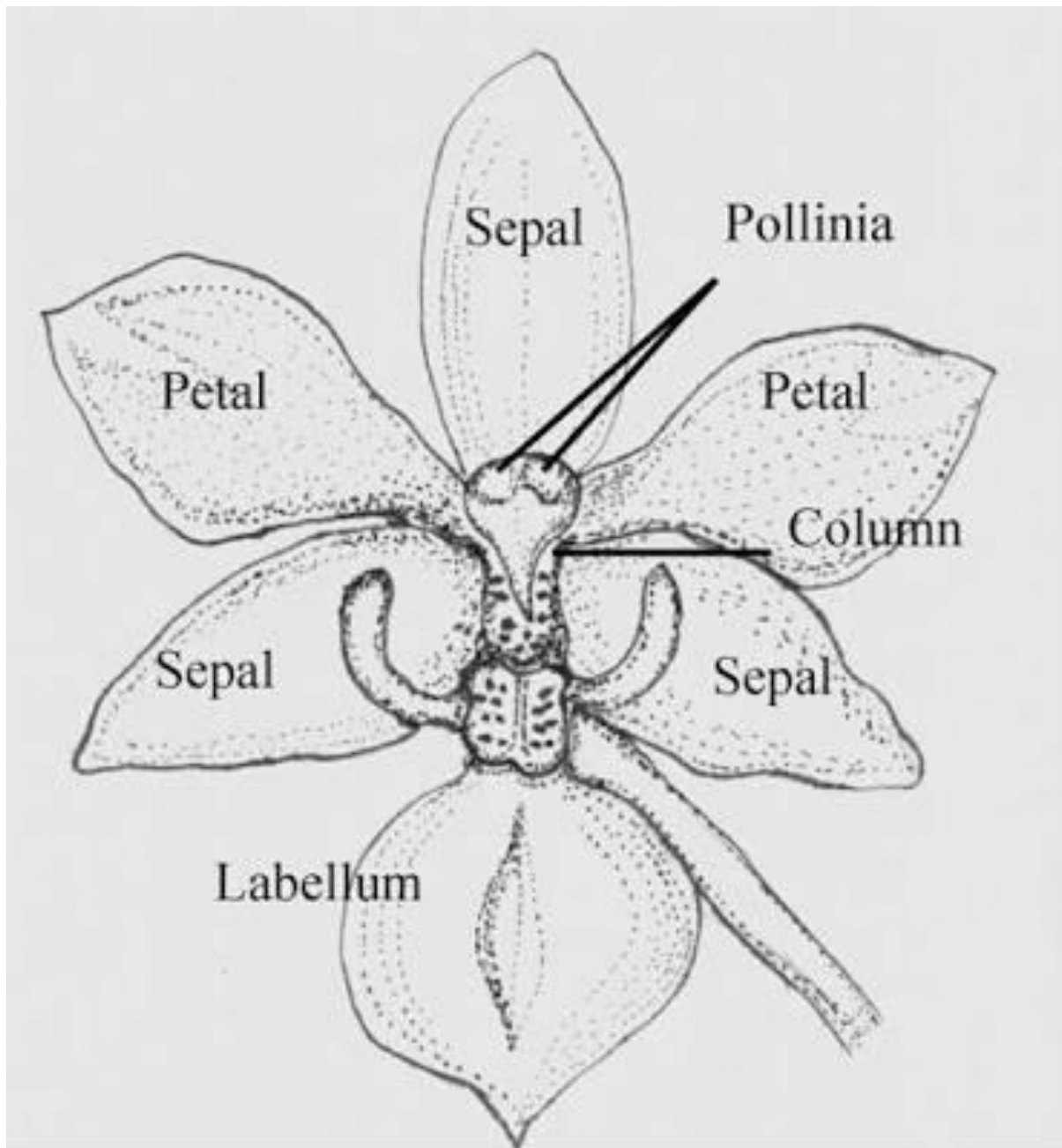


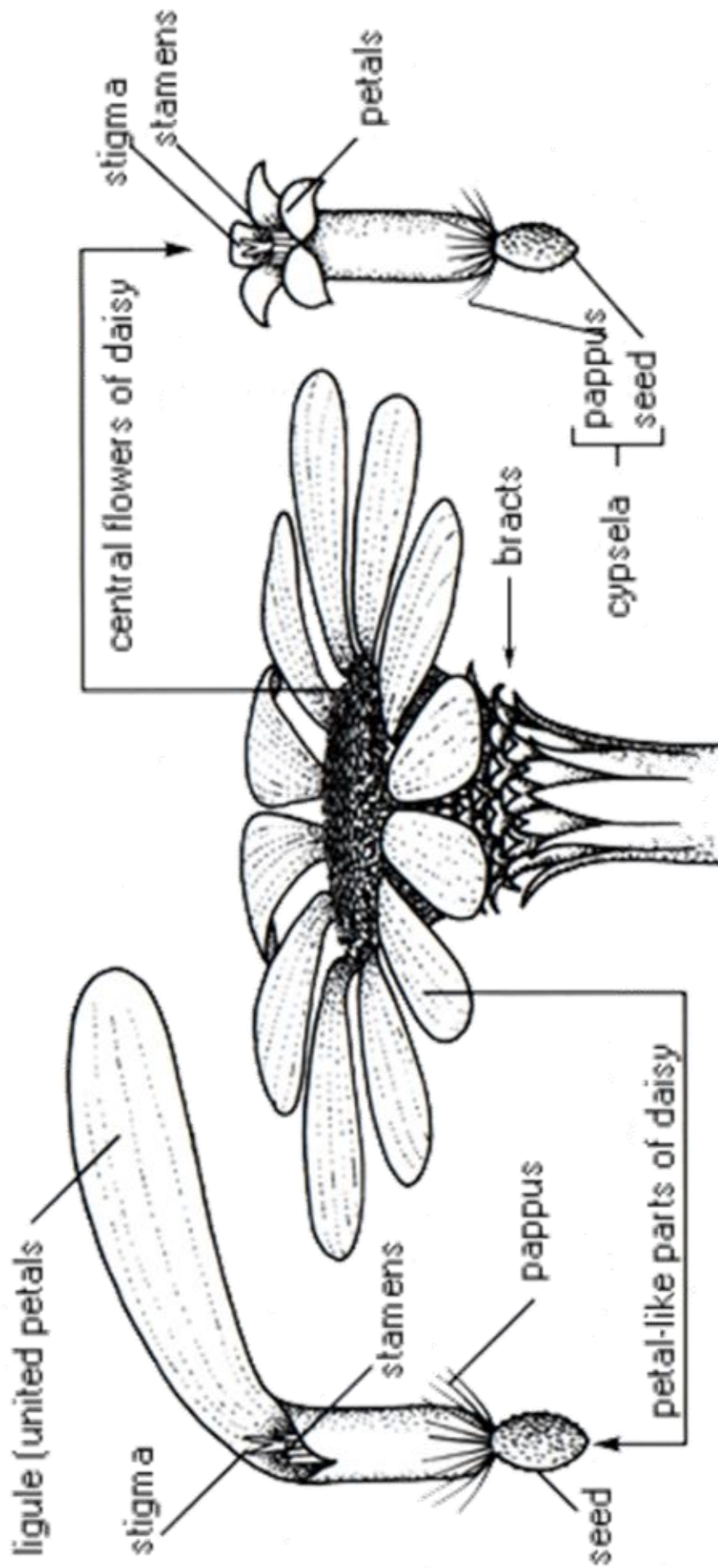


A typical "pea" flower

(Woolcock; "Australian Plants", (12) 95

Orchid Flower Structure





A daisy flower (Asteraceae) — a composite head of many small flowers