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**Featuring pea
flowers**

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Australian Plants





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Cover: *Chorizema cordatum* by Heather Miles

This issue has been compiled by Shirley McLaran, leader of the ANPSA Pea Flower Study Group

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Editorial

Merle Thompson OAM

While most of us are interested in all Australian native plants, some develop a special interest in one family or one group of genera.

The ANPSA Study Groups provide the opportunity for those with such special interests to delve more deeply into them and to share their special knowledge and passion.

In *Australian Plants*, Winter 2023, Vol 32, No. 255. Shirley McLaran discussed her special interest in pea flowers and why she re-established a study group. Her focus on pea flowers is more specific than what was covered in the previous group. Nevertheless, she has a major challenge. As she writes on the next page, there are over 1,100 native plants species with pea flowers.

As editor, I greatly value the input of Study Groups in extending the reach of their Group by providing issues or articles for this journal. Much of the content in this issue has been drawn from the Pea Flower Study Group's newsletters.

Within Family or Genera-based study groups there is a range of particular interests:

- Botanical: the taxonomy, identification and morphological descriptions of species.
- Locating and mapping the distribution of species including those which are rare, localised or threatened.
- Studying the geological and geographic relationships between species and their environments.
- Enjoying seeing the plants in their natural habitat.
- Striving to protect plants and their habitats.
- Learning about natural propagation and distribution and how to propagate for horticultural or ex situ conservation.
- Using the species horticulturally in private or public gardens.
- Photographing plants and their flowers or producing wonderful depictions of them in botanical art or illustration.

In this issue we have covered a number of these areas and encourage you to extend your own interests. Membership of most Study Groups is free and is open to members of those organisations which comprise the Australian Native Plants Society Australia. Go to ANPSA.org.au to learn more or to join a study group.

We pay tribute to Jim Barrow of WA who has recently passed away. Jim contributed many articles and several issues to the journal.



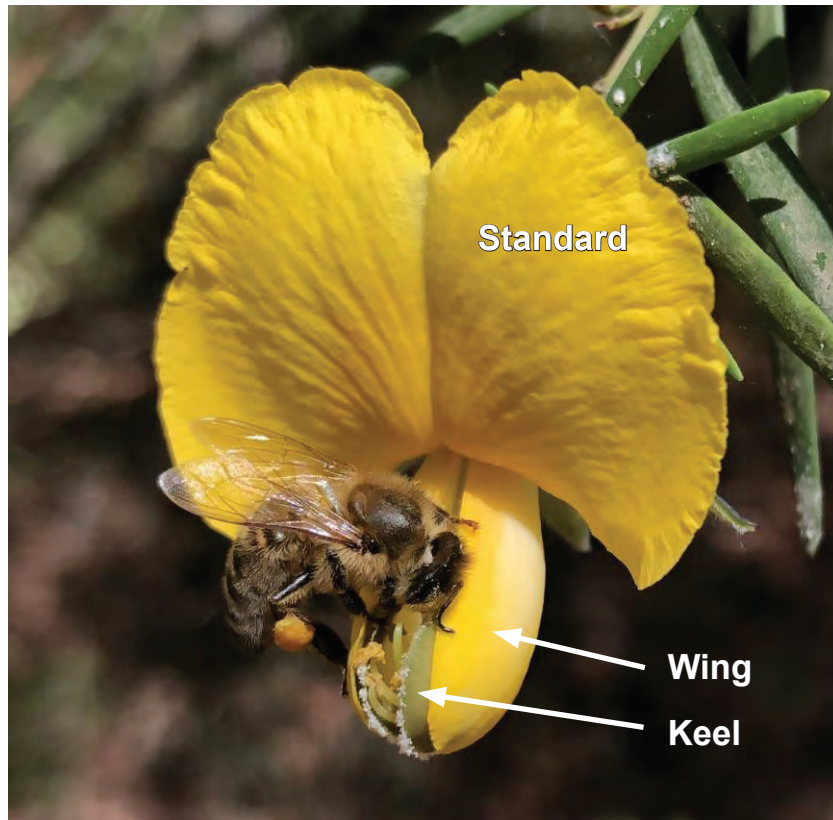
Recognising a Pea Flower

Words and photos by Shirley McLaran.

Shirley is leader of the Australian Pea Flower Study Group

While all plants in the Fabaceae family are legumes, only plants in the subfamily Faboideae have pea flowers. There are over 1,100 native plant species with pea flowers. Being able to recognise a pea flower gives you a starting point for identifying the plant.

A pea flower consists of five irregularly shaped petals: an upper petal (the standard), two lateral petals (wings) and two innermost lower petals mostly fused together (the keel). The fused lower petals enclose the reproductive organs – ten stamens (male) that are either free or variously joined; and a solitary carpel (female). In bud, the standard encloses the wings, and the wings enclose the keel.



Gompholobium latifolium

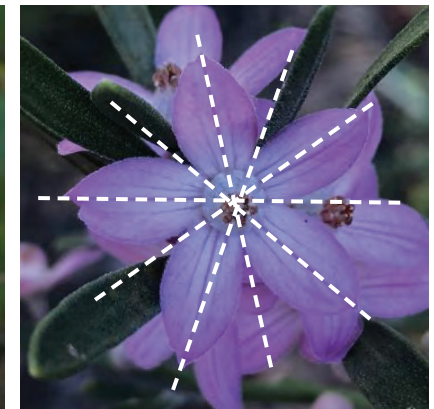


Side view of *Gompholobium latifolium*. The keel encloses the stamens and carpel.

A pea flower has bilateral symmetry, that is, only one plane can divide the flower into mirror images – left and right halves. In comparison, flowers with radial symmetry have roughly identical parts occurring at regular intervals around the centre of the flower.



Platylobium formosum, a pea flower with left and right halves

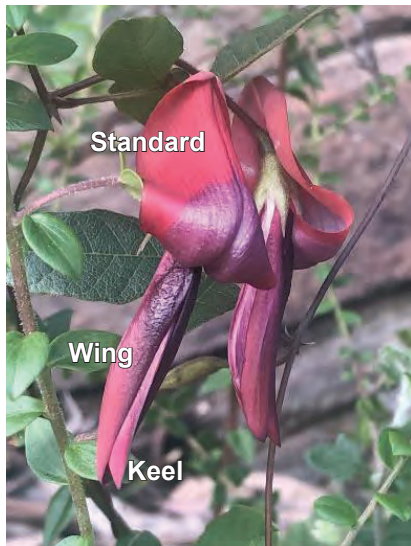


Eriostemon australasius is radially symmetric.





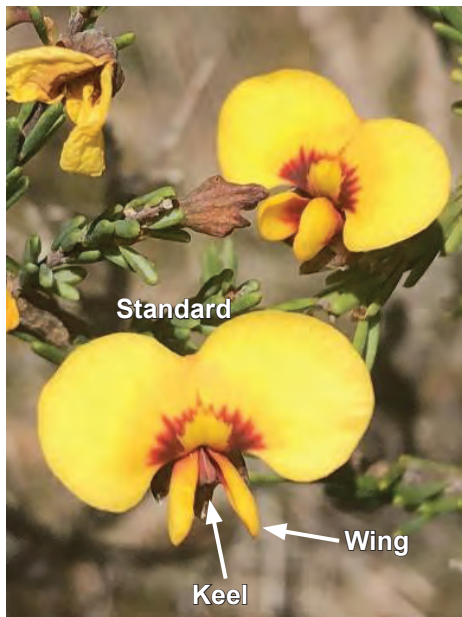
The pea-flowered legumes of Australia are very diverse. Below are a few species showing variation in the standard, wings and keel.



The showy flowers of *Kennedia rubicunda* have an elongated standard, and long wings and keel.



The flowers of *Bossiaea carinalis* have reduced standards and wing petals, and elongated keels.



In the genus *Dillwynia*, the standard is much broader than it is long, and the keel is shorter than or equal to the wings. The keel of this *Dillwynia ramosissima* is not as long as the wings.

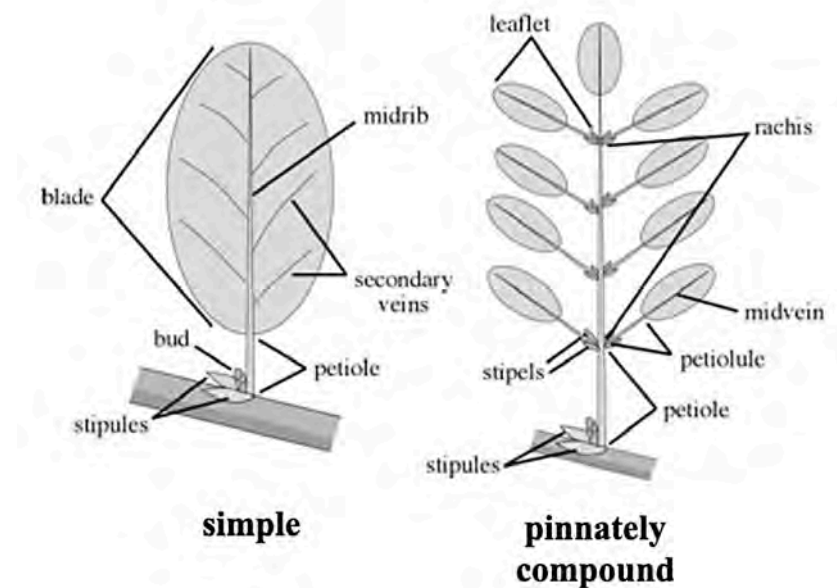
Fascinating Foliage

Words and photos by Shirley McLaran except where noted

The purpose of this article is to introduce you to the diversity of foliage and some fascinating features to look for – although not confined to pea flowers, stipules, phyllodes and cladodes may help to identify the genus of a pea flower. But first, we'll start with the basics of leaf structure.

A leaf may be simple or compound; and there is the overall shape, margin, base, apex and venation of the leaf or leaflet to consider. Other important characters are the arrangement of leaves on the stem; whether the leaves are stalked (petiolate) or sessile (no petiole); whether stipules are present; and whether the surface is smooth, rough, scaly or hairy – there are many types of surface coverings.

A simple leaf bears a single continuous blade, while a compound leaf is divided into two or more leaflets. A leaf which is highly divided is simple as long as the divisions are not discrete leaflets. A compound leaf which has been reduced to a single leaflet is called unifoliate. It can usually be recognised by the jointed or articulated petiole. Refer to 'An Introduction to the genus *Bossiaea* Vent.' article in this issue for more information on unifoliate leaves.



Portion of Figure 9.9 Leaf types/parts from Simpson, Plant Systematics, 2010.





Stipules

Stipules are appendages typically occurring in pairs on either side of the leaf stalk at the base, described by their size, shape and position. Stipules at the base of a leaf are considered part of the anatomy of a leaf*, and, like leaves, the presence or absence of stipules, their characteristics and their position, are useful in identifying the genus or species. A stipule can be fused to the stem, or to the other stipule at the same node.

*Bracteoles, a floral structure, can also have stipules.

Pea flowers are not the only plants that have stipules, and not all pea flowers have stipules. Also, the presence or absence of stipules isn't an 'all or nothing' character for a genus. In the genus *Daviesia*, stipules maybe minute or absent. Stipules don't always remain attached to the plant – they sometimes fall off before the leaf unfolds or immediately after the leaf unfolds. A leaf is described as exstipulate if stipules are entirely absent.

Form reflects function, for example, leaf-like stipules are generally used to photosynthesise, and spiny stipules are used to deter herbivores. Some examples of persistent stipules, those that remain on the plant, are given below.

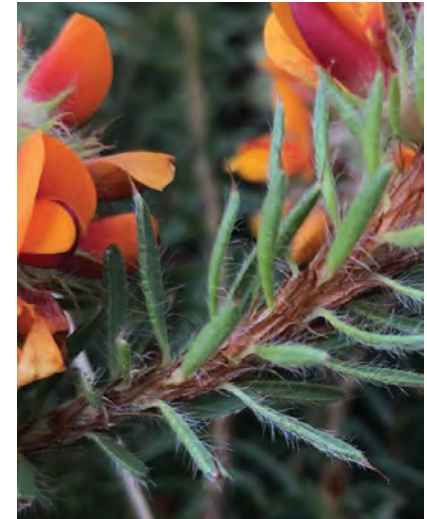
Stipules in the genus *Podolobium* are spiny. *Podolobium ilicifolium* has rigid curved spinose stipules 1–3 mm long, while *Podolobium aciculiferum* stipules are needle-like and 5–7 mm long.

The presence of fused stipules is a distinguishing feature in the genus *Pultenaea*. *Pultenaea* stipules are dry and membranous; and are fused for part or most of their length behind the leaf stalk. The length and

appearance of stipules in this genus vary considerably. *Pultenaea daphnoides* has small black stipules 1–2mm long. They are not as conspicuous as the brown stipules on *Pultenaea westonii* that grow up to 7mm long, partially obscuring the stem. *Pultenaea flexilis* stipules are 2–4mm long.



Pultenaea daphnoides



Pultenaea westonii



Podolobium ilicifolium



Podolobium aciculiferum



Pultenaea flexilis. Image: Thomas Mesaglio (CC BY) <https://inaturalist.ala.org.au/observations/171319103>





Leaves of *Gastrolobium* usually have stipules which are free of one another. *Gastrolobium stipulare* is named for its prominent erect stipules, up to 12mm long.

A stipule may resemble a leaf and therefore is generally used to photosynthesise. *Bossiaea stephensonii* has large, erect, triangular



Gastrolobium stipulare

stipules that are leaf-like in appearance. Despite their size, these stipules are often overlooked. As the stipules become degraded with age, they turn brown.



Bossiaea stephensonii

Stipule-like appendages at the base of leaflets on compound and unifoliate leaves are called stipels. Genera exhibiting stipels include *Kennedia*, *Glycine* and *Hardenbergia*.



Unifoliate leaf of *Hardenbergia violacea* displaying stipules and stipels.



Trifoliate leaf of *Kennedia rubicunda*. The individual leaflets have stipels.





Phyllodes and Cladodes

Some pea-flowered plants have reduced leaves or lack true leaves entirely. Instead, their petioles or stems are modified to function like leaves. Phyllodes are modified petioles with a leaf-like appearance, while cladodes are modified stems that are often winged or angular. The modifications are an adaption to reduce water loss in arid conditions.

Plants of some genera may produce leaves on seedlings and juvenile stages, however, in *Daviesia* no leaves are found at any stage. The genus displays a wide variety of phyllodes, many of which are pungent pointed.



Daviesia apiculata



Daviesia incrassate
subsp. *reversifolia*



Daviesia pachyphylla



Daviesia striata. Image: Thomas Mesaglio (CC BY) <https://inaturalist.ala.org.au/observations/188873598>





Jacksonia is another genus with reduced leaves and modified stems giving plants a spindly broom-like appearance.



Jacksonia compressa

Many *Bossiaea* species have winged cladodes, and other species bear leaves on flattened stems. Foliage in *Bossiaea* is examined in more detail in 'An Introduction to the genus *Bossiaea* Vent.' in this issue.

I find the foliage of pea-flowered plants as fascinating as the colourful irregularly shaped flowers and pods of all shapes and sizes. The flowering season is often over far too soon, but sometimes the foliage is sufficient to identify the plant as a member of the subfamily Faboideae all year round.

References

- Chandler, G., Crisp, M., Cayzer, L., & Bayer, R. J. (2002). Monograph of *Gastrolobium* (Fabaceae: Mirbelieae). *Australian Systematic Botany*, 15, 1-116.
- Crisp, M. D., Cayzer, L., Chandler, G. T., & Cook, L. G. (2017). A monograph of *Daviesia* (Mirbelieae, Faboideae, Fabaceae). *Phytotaxa*, 300(1), 1-116. doi.org/10.11646/phytotaxa.300.1.1
- PlantNET Glossary (The NSW Plant Information Network System). Royal Botanic Gardens and Domain Trust, Sydney. plantnet.rbgsyd.nsw.gov.au [accessed July 2024]
- Simpson, M. G. (2010) *Plant Systematics* Second Edition Elsevier

Diversity of Pods in the Subfamily Faboideae

Words and photos by Shirley McLaran

Pea-flowered plants are recognisable by their distinctive floral structure; however, there aren't always flowers to assist in identifying a plant. Fruit in the subfamily Faboideae is a pod containing one or more seeds and they are morphologically diverse across genera. There are several characters to look for in a pod to aid in identifying the genus, the most conspicuous being the size, shape, and whether the surface is smooth or hairy. The number of ovules in a pod may also help distinguish genera – the developing seeds (ovules) can often be seen by holding an immature pod up to the light. Seed of some genera have arils, a fleshy appendage that assists in dispersal by encouraging animals to transport the seed. Pods that open on maturity to release seeds are described as being dehiscent.

Table 1: Descriptions of pods of more widely known genera.

Genus	Fruit description
<i>Aotus</i>	Ovoid, flat or inflated, usually hairy; seed without an aril
<i>Bossiaea</i>	Compressed; valves dehiscent on maturity; seed has a hooded cap-like aril
<i>Daviesia</i>	Triangular, compressed or inflated; seed has an aril
<i>Dillwynia</i>	Ovoid or globose, inflated; seed has an aril
<i>Gompholobium</i>	Globose or oblong, turgid; seed without an aril
<i>Goodia</i>	Oblong, compressed; seed has an aril
<i>Hovea</i>	Ellipsoid, laterally compressed, inflated; seed has an aril
<i>Jacksonia</i>	Ovoid or oblong, flat or inflated; seed without an aril
<i>Mirbelia</i>	Ovoid, inflated; divided longitudinally
<i>Oxylobium</i>	Ovoid or oblong, inflated, pubescent
<i>Phyllota</i>	Ovoid, inflated; one or two seeds without an aril
<i>Platylobium</i>	Flat, oblong, winged on the upper join; two valves roll back on maturity; seed has an aril
<i>Pultenaea</i>	Ovoid, flat or inflated; rarely more than two seeds; seed has an aril
<i>Sophora</i>	Strongly constricted between seeds (moniliform)
<i>Sphaerolobium</i>	Small, globe-like, stalkless; seed with an aril





Platylobium formosum pods are flat, broad and oblong with a wing along the upper edge. Left: Immature pod with undeveloped seeds. Centre: Inside of a mature pod containing seeds with arils. Right: Dehiscent pod with valves rolled back.



Sophora tomentosa pods (above) are moniliform, that is, strongly constricted between seeds resembling a string of beads. They are also tomentose, being covered with dense intertwined hairs; and indehiscent, not opening at maturity. Instead, they are released by predation or decomposition.



Hairy egg-shaped pods of *Aotus ericoides*. Seed does not have an aril.



The open pods of *Pultenaea retusa*. Seeds have been released.



Obliquely triangular pods of *Daviesia acicularis*. Seed has an aril.



Dillwynia species have small egg-shaped pods. The seeds may be smooth or ornamented and have an aril.





The swollen ovoid pods of *Hovea linearis* are claspied by a hairy brown calyx. On maturity, the seeds are ejected explosively.



The pods of *Mirbelia rubiifolia* are inflated and divided into two cells by a partition.



The turgid pods of *Gompholobium latifolium* are slightly flattened. Gompholobium pods contain two or more seeds.



Short oblong pods of *Oxylobium robustum*. The fruit is hairy with a curved, pointed apex.

The triangular fruits of *Daviesia* are very distinctive and take on a different appearance as they mature and dehisce, the valves twisting to form a cone, as can be seen in *Daviesia ulicifolia* below on the right. A single ovule is clearly visible in the immature pods on the left. The photos are not from the same plant.



The aptly named Few-seeded Bossiaea, *Bossiaea oligosperma*, with pods containing one or two seeds.

References

Fairley, A., & Moore, P. (2010). *Native Plants of the Sydney Region*. Jacana Books, Crows Nest, NSW.

PlantNet (The NSW Plant Information Network System). Royal Botanic Gardens and Domain Trust, Sydney. plantnet.rbgsyd.nsw.gov.au [accessed July 2024]

Woolcock, D. (1989), *A Fieldguide to Native Peaflowers of Victoria and Southeastern Australia*, Kangaroo Press in association with The Society for Growing Australian Plants-NSW, Kenthurst, NSW.





An introduction to the genus *Bossiaea* Vent.

Words by Shirley McLaran, photos by Shirley McLaran unless noted.

Bossiaea is a morphologically diverse genus of shrubs, subshrubs and small trees, endemic to Australia, occurring in all states and mainland territories, from sea level to 1,500m. Diversity is greatest in the southwest of Western Australia and the southeast of Australia. The habitats they occupy are also diverse. The genus name honours Joseph Hugues Boissieu La Martinière, a botanist on La Pérouse's expedition to Australia (1785–1788). The genus was formally described in 1800 by Frenchman Étienne Pierre Ventenat. *Bossiaea heterophylla* was the first species described.

Distribution and habitat

There are approximately 80 species in the genus with half occurring in Western Australia and the other half in the remainder of Australia (referred to hereafter as the eastern Australian species). Of the species found in Western Australia, *Bossiaea walkeri* extends across southern Australia into South Australia, New South Wales and Victoria and *Bossiaea bossiaeoides* extends across northern Australia into the Northern Territory and Queensland. Many of the Western Australian species occupy heathland and understorey of eucalypt-dominated woodland, while some species are associated with salt lake systems. The eastern Australian species are mostly understorey shrubs of open forests and woodlands in regions with an annual rainfall greater than 500mm. The arid land species, *Bossiaea walkeri*, is the exception. *Bossiaea* is absent from Central Australia. Four species occur in south-eastern New South Wales and Victoria at moderate to high altitudes.

Flowers

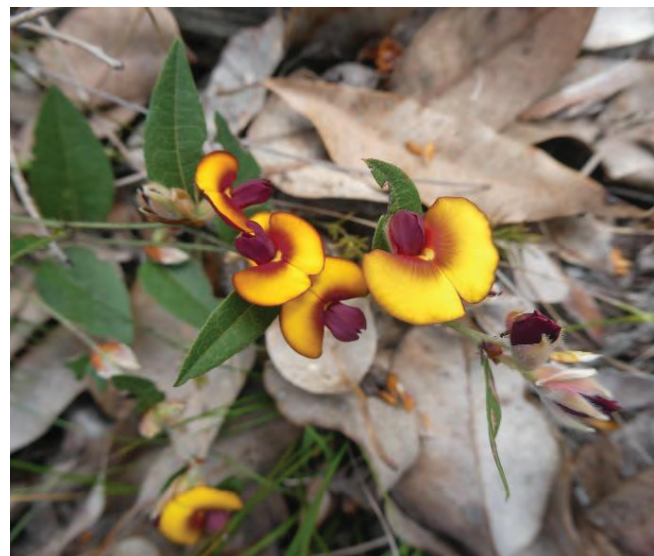
Many species of *Bossiaea* wear the 'egg and bacon' label, that is, the petals are yellow or orange-yellow with red markings and occasionally elements of pink, purple, burgundy, brown or green. Some species are uniformly coloured.

In four Western Australian species, *Bossiaea cucullata*, *Bossiaea dentata*, *Bossiaea preissii* and *Bossiaea walkeri*, the flowers are pendulous, the apex of the standard pointing downwards towards the ground. With the exception of *Bossiaea preissii*, the standard and wing petals are reduced in size and the keel petals are elongated and typically pink, red or burgundy which suggests that they are adapted for pollination by birds. *Bossiaea rupicola* (Qld and NSW) and *Bossiaea carinalis* (Qld) also have red flowers with elongated keels and reduced standards and wing petals, but the flowers are not pendulous.

In genera belonging to the Bossiaeeae tribe, the stalks of the stamens (filaments) are fused into a sheath that is open on the upper side, with anthers alternately long and short. In comparison, genera in the Mirbelieae tribe have free stamens.



Bossiaea dentata, Lucky Bay, Western Australia.



Bossiaea ornata,
Sullivan Rock,
Western Australia.



Foliage

Species can be divided into two groups, by the presence or absence of leaves.

Generally, if leaves are present, stipules are also present at the base of the leaf stalk. Leaves are commonly unifoliate, arranged distichously on the stem. Several species have distinctly opposite leaves with widely spaced nodes including *Bossiaea aquifolium*, *Bossiaea dentata* and *Bossiaea webbii* in Western Australia; and *Bossiaea cordigera*, *Bossiaea kiamensis* and *Bossiaea lenticularis* in the eastern states. Where leaves are present, branches may be terete or compressed. The presence of spines at the end of branchlets is another diagnostic character. Leaf blades are highly variable in shape.

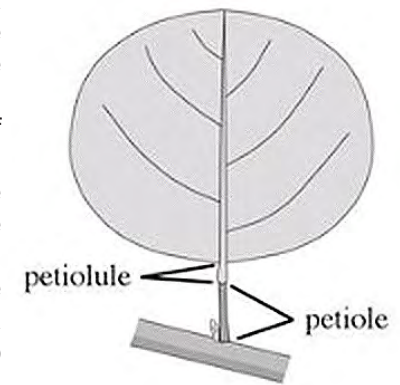
In leafless species, flowers are borne at axillary nodes along the cladodes and stipules are united to form a scale. Branches and branchlets of leafless species are mostly broadly winged and are called cladodes. There are 25 leafless species, 13 in Western Australia and 12 in eastern Australia.



Cladodes of *Bossiaea bracteosa*, a leafless species, Alpine National Park, Victoria.
Image: Chris Clarke (CC BY) <https://inaturalist.ala.org.au/observations/47234231>

Unifoliate leaf

A unifoliate leaf appears to be a simple leaf but is actually a single leaflet attached to the tip of the petiole (stalk of the leaf). It is understood to be an ancestrally compound leaf reduced to a single leaflet. This type of leaf is recognisable by the articulation (joint) between petiole and petiolule (stalk of the leaflet). The articulation may be geniculate (bent like a knee); marked by a change in diameter from petiole to petiolule; or obscure. In addition, the articulation may be spurred or ridged. *Bossiaea stephensoni* and *Bossiaea kiamensis* are two examples of geniculate articulation with a spur.



unifoliate

Portion of Figure 9.9 Leaf types/parts from Simpson, *Plant Systematics*, 2010.



Distichous foliage of *Bossiaea heterophylla*. The leaves are arranged in two rows on opposite sides of a stem and in the same plane.





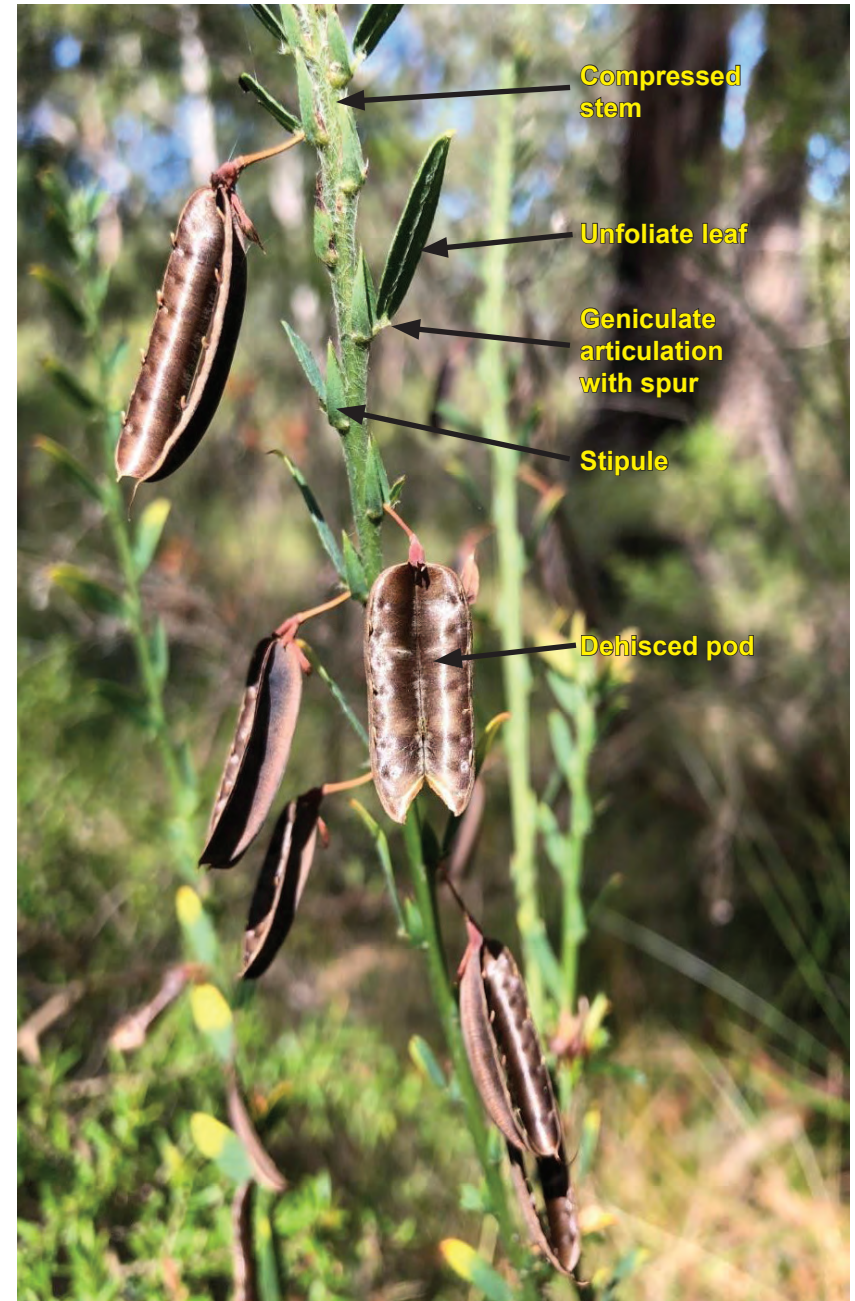
Fruit

Fruits are flattened pods, oblong to circular, with a thickened upper suture. On maturity, the valves of the pod roll back lengthwise to release the seeds. The seeds are plump with a small hilum and a hooded cap-like aril. In some species the valves remain on the plant and are present in the next flowering period exposing the silvery inner surface.



Above: Fruit of *Bossiaea heterophylla*.

Left: Hairy fruit of *Bossiaea ornata*.



Bossiaea stephensonii exhibiting some of the characters discussed in the preceding pages.





Bossiaea linophylla in cultivation. Chris Larkin's garden, Victoria.



Bossiaea rhombifolia in coastal heath, Lake Macquarie, NSW



Above: *Bossiaea rupicola*, Mount French, Queensland. The keel is much longer than the standard and wings. Flowers are produced in winter.



Left: *Bossiaea obcordata*, Torrington SCA, New South Wales, has heartshaped leaves and spinescent branchlets.

References

- McDougall, K. L. (2009) Four new species related to *Bossiaea bracteosa* F. Muell. ex Benth. in southeastern Australia Telopea 12(3)
- Ross, J. H. (2006) A Conspectus of the Western Australian *Bossiaea* species (Bossiaeeae: Fabaceae) Muelleria 23
- Simpson, M. G. (2010) Plant Systematics Second Edition Elsevier
- Thompson, I. R. (2012) A revision of eastern Australian *Bossiaea* (Fabaceae: Bossiaeeae) Muelleria 30(2)





Bossiaea – distinctive plants in a garden

Bill Handke OAM, ACT

Bill Handke, a keen native gardener, has been involved in environmental and natural resources management issues throughout his career and in retirement. He is currently involved, with other volunteers, in developing the Regional Botanic Garden of Southern Tablelands plants at the National Arboretum in Canberra.

Bossiaea plants have a very different look to that of most native peas – and other plants. While there is much variation across the pea family, Bossiaea species with flattened branches stand out as unusual, while the various prostrate bossiaeas are colourful fillers between other garden plants.

In my garden in Canberra I have 49 pea species, which include ten Bossiaea species (with multiple specimens of some of them).

Those Bossiaea with flattened branches include *Bossiaea grayi* (Murrumbidgee Bossiaea), a rare and threatened species that only occurs along a small section of the Murrumbidgee River within the ACT and nearby NSW; *Bossiaea riparia* (River Leafless Bossiaea) which grows in exposed spots in the higher parts of the ACT and in the ranges to the south; *Bossiaea scolopendria* (Plank Bossiaea) an erect open plant that grows around the Gosford district; and *Bossiaea walkeri* (Cactus Bossiaea) a stiff tall shrub that grows in dry mallee country in western NSW, Victoria, South Australia and Western Australia. Bossiaea with flattened branches are generally 'stiff' plants.



Bossiaea grayi



Bossiaea walkeri

Then there are a number of prostrate species: *Bossiaea prostrata* (Creeping Bossiaea), a low spreading plant with weak trailing branches mostly found east of the Dividing Range in NSW but also through southern Victoria, Tasmania and South Australia; *Bossiaea buxifolia* (Matted Bossiaea), another widespread prostrate woodland plant that looks similar to *Bossiaea prostrata* but has smaller more densely-packed leaves; and *Bossiaea cordigera* (Wiry Bossiaea), a plant from the hills north of Melbourne and northern Tasmania that has a stiff wiry form.

Three others in the garden have very different forms—their common names are very apt. They are *Bossiaea foliosa* (Leafy Bossiaea) a tall shrub that grows in higher areas, often in dense stands under gums, has tiny densely-packed leaves and stand-out bright yellow flowers; *Bossiaea cinerea* (Showy Bossiaea) with wedge-shaped leaves growing in sandy heath, woodland or forest south of Bega and southern Victoria, widespread in Tasmania and in south-east South Australia, preferring some shade; and *Bossiaea linophylla* (Narrow-leaf Bossiaea) a tall thinly-leafed shrub from south-west Western Australia.

Unlike many native peas, these Bossiaea tolerate, perhaps enjoy, moist soils – even *Bossiaea walkeri* from dry inland areas has responded with a burst of growth during a very wet winter and spring. But severe frosty winters can be a trial for both *Bossiaea prostrata* and *Bossiaea buxifolia* if not under the protection of some over-storey. *Bossiaea buxifolia* growing in a nature reserve a few hundred metres from where I live, are all under the protection of eucalypts.

This genus of plants is a delight in nature, and in a garden.



Bossiaea buxifolia



Bossiaea foliosa





Native Pea Plantings in the Southern Tablelands Ecosystems Park

Bill Handke OAM, ACT

First published in ANPS Canberra Region Journal March 2023

The Southern Tablelands region of New South Wales has 129 native pea species, across 28 genera. They are a colourful part of late winter, spring and early summer throughout the region's bushland, with pea-flowers of yellow, orange, red, pink, mauve and purple. They can be groundcovers, creepers and climbers, mid to tall-sized shrubs and even small trees; the leaves can be broad or narrow, tiny or large, short or long, spiky, pinnate or needle-like.

The Southern Tablelands Ecosystems Park (STEP) is being developed by a community group as a regional botanic garden of Southern Tableland's species at Forest 20, National Arboretum Canberra. Unlike the Arboretum's other forests, Forest 20 contains 16 species of eucalypt in bands across the landscape, with a diverse understorey that includes various pea species. The development of the new entrance to STEP provided the opportunity to give a dedicated area to these striking plants: a Parade of Peas.



The Parade of Peas
at the entrance to
STEP.

The Parade of Peas in front of the small retaining wall near the new entrance has a range of pea species – 33 species so far – giving visitors an opportunity to see their variety and features displayed together, as well as providing the 'wow' factor upon arrival. Another ten species of native peas are scattered throughout STEP.

Seeds of a further eight species are under propagation. Thanks to Lyndal and Nola, a number of these are being propagated with the assistance of members of the Australian Native Plants Society Canberra (ANPSC) Propagation Group. Any surplus to STEP's requirements will be available for ANPSC to sell. Some additional seeds have been provided by the Australian National Botanic Gardens for STEP to propagate themselves — some to be included as part of a new section within STEP of Rare, Endangered and Vulnerable Southern Tableland plant species.

The Parade of Peas is the latest of eight focal points in STEP, besides the prime Central Garden, to enjoy. The focal points are: The Clearing, The Wetlands, The She-oak Nook, The Bush Tucker Garden, The Kurrajong Rock Rest, The Wattle Walk, The Gallery of Grasses, and the Parade of Peas.

Table 1: Species planted in the Parade of Peas

<i>Aotus ericoides</i>	Common Aotus
<i>Bossiaea foliosa</i>	Leafy Bossiaea
<i>Bossiaea heterophylla</i>	Variable Bossiaea
<i>Bossiaea prostrata</i>	Creeping Bossiaea
<i>Bossiaea riparia</i>	River Leafless Bossiaea
<i>Daviesia acicularis</i>	Sharp Bitter-pea
<i>Daviesia genistifolia</i>	Spiny Bitter-pea
<i>Daviesia latifolia</i>	Hop Bitter-pea
<i>Daviesia mimosoides</i>	Narrow-leaf Bitter-pea
<i>Daviesia ulicifolia</i>	Gorse Bitter-pea
<i>Dillwynia ramosissima</i>	Bushy Parrot-pea
<i>Dillwynia retorta</i>	Heathy Parrot-pea
<i>Dillwynia sieberi</i>	Sieber's Parrot-pea
<i>Dillwynia trichopoda</i>	





<i>Glycine clandestina</i>	Twining Glycine
<i>Glycine tabacina</i>	Glycine Pea
<i>Gompholobium minus</i>	Dwarf Wedge-pea
<i>Gompholobium virgatum</i>	Leafy Wedge-pea
<i>Indigofera australis</i>	Austral Indigo
<i>Kennedia prostrata</i>	Running Postman
<i>Lotus australis</i>	Austral Trefoil
<i>Mirbelia platylobioides</i>	Large-flowered Mirbelia
<i>Oxylobium oxylobioides</i>	Mountain Mirbelia
<i>Platylobium formosum</i>	Handsome Flat Pea
<i>Pultenaea daphnoides</i>	Large-leaf Bush-pea
<i>Pultenaea flexilis</i>	Graceful Bush-pea
<i>Pultenaea microphylla</i>	Spreading Bush-pea
<i>Pultenaea pedunculata</i>	Matted Bush-pea
<i>Pultenaea polifolia</i>	Dusky Bush-pea
<i>Pultenaea procumbens</i>	Heathy Bush-pea
<i>Pultenaea retusa</i>	Notched Bush-pea
<i>Pultenaea spinosa</i>	Spiny Bush-pea
<i>Swainsona galegifolia</i>	Smooth Darling Pea



Bossiaea grayi



Oxylobium oxylobioides

Table 2: Species planted elsewhere in STEP

<i>Bossiaea grayi</i>	Murrumbidgee Bossiaea
<i>Cullen microcephalum</i>	Dusky Scurf Pea
<i>Cullen tenax</i>	Tough Scurf-pea/ Emu-foot
<i>Goodia lotifolia</i>	Golden Tip
<i>Hardenbergia violacea</i>	False Sarsaparilla/ Purple Coral-pea
<i>Hovea linearis</i>	Common Hovea
<i>Indigofera adesmiifolia</i>	Tick Indigo
<i>Jacksonia scoparia</i>	Dogwood
<i>Oxylobium ellipticum</i>	Shaggy Golden-pea
<i>Pultenaea scabra</i>	Rough Bush-pea

Table 3: Future plantings under propagation

<i>Bossiaea bombayensis</i>	Bombay Bossiaea
<i>Daviesia leptophylla</i>	Slender Bitter-pea
<i>Daviesia wyattiana</i>	Long-leaf Bitter-pea
<i>Dillwynia phyllicoides</i>	Small-leaf Parrot-pea
<i>Gompholobium aspalathoides</i>	Inland Wedge-pea
<i>Hovea rosmarinifolia</i>	Mountain Beauty
<i>Pultenaea altissima</i>	Tall Bush-pea
<i>Swainsona recta</i>	Small Purple-pea



Growing Pea Flowers in the Adelaide Hills

Words by Hans Griesser. Photos by Hans except where noted.

Hans Griesser is a recently retired academic scientist and currently President of the Australian Plants Society SA Region. He has established a large garden in the Adelaide Hills; unable to choose between so many attractive genera, he is growing, or trying to grow with varying success, a wide range of plants from most states.

After migrating to Australia, I went on many bushwalks through landscapes and vegetation so fascinatingly different to my native Switzerland. I well remember one of the floral attractions, which my Australian friends called 'egg and bacon' flowers. At the time that was sufficient identification for me. Now, many years later, I am taking a deeper interest in those fascinating plants that brighten up the local scrub in spring, as well as pea flowers from other parts of Australia. I have found many of them to be very rewarding garden subjects and most of them have required little or no additional watering even in their first year in the ground (average rainfall about 650 mm over the last ten years). The most spectacular pea flower plant I have grown successfully undoubtedly is *Hovea pungens*. Its deep royal blue flowers are just amazing and when in flower the bush stands out among its surroundings. After the oldest plant flowered for the first time, I couldn't resist raising more plants from seed. That oldest plant is in a protected situation among other shrubs (but enough space to avoid excessive shading) and underneath some tall gum trees, which provide filtered



Far left: *Hovea pungens*

Left: *Hovea elliptica*



Far left:
Bossiaea aquifolium

Left: *Daviesia ulicifolia* subsp.
incarnata

light as well as protection from the frost, which can at times be quite hard here. I suspect that the trees and neighbouring plants also provide the benefit of drawing enough water from the somewhat heavy loamy soil to avoid it getting too wet in winter for Western Australia natives. Almost as impressive is *Hovea elliptica*. Its flowers are a slightly lighter shade but likewise stand out. This plant, too, is in a protected situation, guided by the desire to approximate its natural habitat. It grows much faster than *Hovea pungens*. *Hovea lanceolata* also does well here. One plant flowered well and lived for more than ten years, despite somewhat heavy soil in that area. When it got a bit straggly, my son Hannes and I replaced it with a seedling, and just for fun grew additional seedlings for elsewhere in the garden. No space problem with our acreage.

Other Western Australian natives that have also grown and flowered well are *Bossiaea aquifolium*, *Bossiaea dentata*, and *Callistachys lanceolata*, as has *Daviesia latifolia* from Victoria. However, most of my pea flowers are local South Australian natives. *Kennedia prostrata* (Running postman) is a delight the way it spreads among other shrubs, preferring some light shade but sending long trailers out into sunlight and showing off its bright red flowers. I use it extensively as a ground cover. Three plants of *Templetonia retusa* grow out in the open in full sunlight and tolerate the local frosts, whilst other South Australian pea flowers grow well and flower reliably in the filtered light underneath gum trees: *Daviesia leptophylla*, *Daviesia ulicifolia* subsp. *incarnata*, *Dillwynia hispida*, *Eutaxia diffusa*, *Eutaxia microphylla*, *Indigofera*





australis, *Platylobium obtusangulum*, *Pultenaea acerosa*, *Pultenaea daphnoides*, *Pultenaea hispidula*, *Pultenaea largiflorens*, *Pultenaea laxiflora*, *Pultenaea pedunculata*, as well as one plant that might be *Pultenaea trinervis*. On the other hand, despite being local, two species *Daviesia brevifolia* and *Gompholobium ecostatum*, have proved difficult. Perhaps it is because they tend to grow in light sandy soil. I managed to successfully grow a plant of *Daviesia brevifolia* to flowering in a bed by adding extra sand to lighten the soil. Recently, I added *Bossiaea prostrata*, *Pultenaea kraehenbuehlii* and *Pultenaea tenuifolia* to my collection of South Australian pea flowers. In addition, *Pultenaea subspicata*, *Bossiaea foliosa*, *Mirbelia dilatata*, *Gompholobium scabrum*, and *Gompholobium knightianum* have been planted out to add to my growing collection of pea flowers from other states.

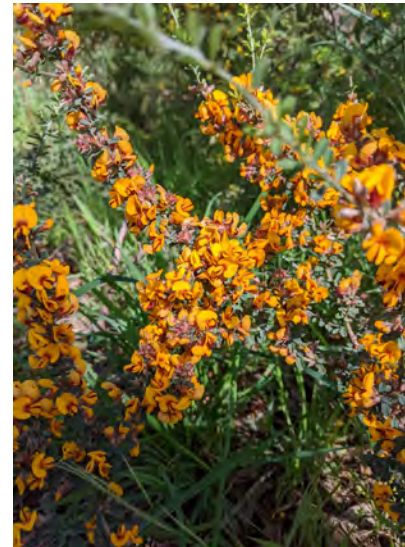


Pultenaea pedunculata



Kennedia prostrata

It is unfortunate that pea flower plants are very rarely available in general nurseries, but I have found that providing damping off can be minimised, even the Western Australian species are raised easily from seed. For the local species, a great source is the Kersbrook Landcare nursery, which grows most of the local pea flower species every year for use in revegetation projects and sale to the public. Still, I would like to grow a greater range and it would be fabulous if expert-identified seeds were more readily available.



Pultenaea largiflorens Image: Hannes Griesser



Dillwynia hispida



Hans examining *Pultenaea kraehenbuehlii* in the Tothill Range, South Australia. Image: Stefani Griesser





Pea Forage 2023 – Central Coast NSW

Words and photos by Shirley McLaran (Saturday) and Karlo Taliana (Sunday)

The inaugural Pea Forage was held on the New South Wales Central Coast over the weekend of August 19 and 20, 2023. Most participants came from the Central Coast, Sydney and Hunter regions. It was lovely to also see intrepid foragers from Queensland, ACT and Victoria.

On Saturday, all three walks were on Hawkesbury Sandstone within Brisbane Water National Park and easily accessible. We met at Warrah Trig for two walks. First up, was an out and back along a firetrail to Warrah Lookout overlooking the Hawkesbury River. The area on the right had been burnt for hazard reduction about four weeks earlier. Only a few species were found on this track:

Dillwynia floribunda was just coming into flower with buds extending well down the branches, amongst the twisted crowded leaves. *Dillwynia* leaves are generally terete with a groove along the upper surface. This species of *Dillwynia* occurs in heath in Queensland and New South Wales, north from Ulladulla.

Hovea linearis, a small subshrub, displayed immature fruits. It mainly occurs on the NSW coast between Nowra and Newcastle as well as in the Blackdown Tableland in Queensland, on sands derived from sandstone.



Hovea linearis

Gompholobium grandiflorum, an erect glabrous shrub growing to 1 metre tall, was covered in buds. The trifoliate leaves have narrow, linear leaflets with a pointed tip. It occurs on sandstone, on the coast and ranges from Nowra to Newcastle.



Gompholobium grandiflorum

At the second location, we walked a short distance through woodland from Warrah Trig Road to a sandstone platform.



The rock platform below Warrah Trig Road.



Under the canopy of Eucalypts, *Phyllota phyllicoides*, *Gompholobium grandiflorum*, and *Bossiaea stephensonii* were flowering.

Phyllota phyllicoides is a bushy erect shrub to 1.5 metres tall with flowers crowded towards the end of branches. It occurs in heath and dry sclerophyll forest on sandstone, from Ulladulla in NSW to Shoalwater Bay in Queensland.

Bossiaea stephensonii was at the end of its short flowering period. It is an erect shrub to 1 metre tall with hairy flattened stems and is readily identified by its large leaf-like stipules. Growing in open forest on sandstone, it is common in Royal National Park, and also occurs sporadically from north of the Hawkesbury River to Port Macquarie.

Out on the platform, *Pultenaea rosmarinifolia* appeared to hug the edges. The dense terminal inflorescences are surrounded by persistent bracts. It occurs on sandstone north of the Hawkesbury and around Jervis Bay.

Beneath the Eucalypts at the end of the exposed rock, Dillwynias (possibly *Dillwynia floribunda*) were flowering. The species has not been confirmed. The sessile yellow and red flowers extended down the branches.

The leafless weeping form of *Viminaria juncea* stood out in the damper areas even though it wasn't yet flowering.

As we headed back to our vehicles, seeing Waratahs in flower that early in the year was a bonus.



Phyllota phyllicoides



Dillwynia sp.

After lunch, we walked the two-kilometre Girrakool Loop track at Somersby. Several additional pea species were flowering here, along with *Pultenaea rosmarinifolia* and *Gompholobium grandiflorum* that were seen earlier in the day.



Bossiaea scolopendria is a leafless species with winged, flattened stems. It grows to 1.5 metres tall, mostly on Hawkesbury Sandstone, between Jervis Bay and Somersby.

Gompholobium glabratum

Dillwynia sericea is an erect shrub 0.5 to 1 metre high. Leaves can be tuberculate or smooth, glabrous or hairy, but they are not twisted lengthwise.

Gompholobium glabratum is a small shrub to 30cm tall with pale yellow flowers and pinnate blue-green leaves with 5–7 leaflets.

Hovea linearis (in fruit on earlier walk) grows to about 1 metre tall. Mauve flowers are produced in pairs in the leaf axils.



Bossiaea scolopendria



Pultenaea rosmarinifolia

Species not flowering on the day include *Bossiaea obcordata*, *Pultenaea flexilis*, *Pultenaea tuberculata* and *Pultenaea ferruginea*. This track is a delightful walk and there were many other non-peas that also captured our interest. Read on for Karlo's account of the Sunday walks.



Wyrabalong Coastal Walk starting from Crackneck Lookout by Karlo Taliana

Our second day began on a sunny morning from Crackneck Lookout which allowed for views looking north across Bateau Bay. This easy-walking flat track (1.5km return) took us along the ridge line of the coastal dunes with occasional water views.



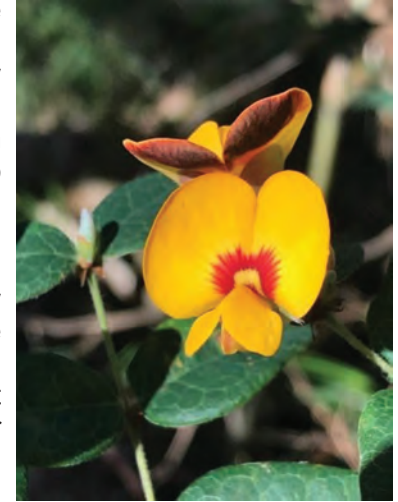
Looking north across Bateau Bay from Crackneck Lookout.

Hardenbergia violacea (False Sarsaparilla, Purple Coral pea) was the first pea found scrambling among the understory flora. This species may be seen growing as a climber or scrambling shrub with purple flowers on long racemes. Dark, glossy green leaves, 75–100mm in length, are egg-shaped to narrow lance-shaped with strong venation. It occurs naturally over a wide distribution in Queensland, New South Wales, Victoria, Tasmania and South Australia in a variety of habitats both coastal and montane, often in heathland or open woodland respectively.



Hardenbergia violacea

Platylobium formosum (Handsome Flat-pea) was also common along this walk, occurring mostly as a straggly understory shrub to 1–5 metres high with wiry stems. Leaves, 30–75mm long by 15–40mm wide, are ovate to heart-shaped, and strongly-veined, being reticulate on their upper surface. Bright yellow flowers with a red centre, 8–15mm long, may be solitary or paired in the axils. Inflorescence scales are hairy all over. Flowers are followed by flat seed pods about 20–40mm long [Greek *platys*, flat or broad and *lobus*, a pod]. This species can be found in open forest and heath areas from Jervis Bay in New South Wales to south-east Queensland.



Platylobium formosum flower.



Platylobium formosum bud.

Another widespread heathland species found was *Aotus ericoides* (Common Aotus), a species most commonly seen on our walk growing 1–2 metres high. Dull green leaves, about 10 mm long, with recurved margins and pointed tips occur in irregular whorls on long stems bearing yellow flowers that often occur in groups more terminally. The flowers are attached on short petioles (1–2 mm long). Bracteoles are absent (*Aotus* = 'no ears'). This species occurs commonly in dry sclerophyll forests on sandstone occurring in Queensland, South Australia, Victoria and Tasmania. In New South Wales, it can be found on the coast and in the Southern Highlands.





Aotus ericoides.



Foragers in Bouddi National Park with *Aotus ericoides* in the foreground. Photo: Cath Cooper.

Bombi Moor Fire trail, Bouddi NP (via MacMasters Beach) by Karlo Taliana

Our late morning walk became our first chance to see *Gompholobium latifolium* (Golden Glory pea) after having seen the more common *Gompholobium grandiflorum* on the previous day. Its yellow flowers were much larger in comparison (30 mm in diameter), often solitary but may occur in groups of 2–3. The keel of *Gompholobium latifolium* flowers are characteristically hairy. Trifoliate leaves are 25–50 mm long and 2–6mm wide and darker on the upper surface. Flowers are followed by ovoid-shaped pods 18 mm long. *Gompholobium latifolium* grows in dry sclerophyll forest in more sandy soils in Queensland and New South Wales but is uncommon in Victoria. Shrubs have an open growth habit and may reach up to 3 metres high.



Gompholobium latifolium flower showing hairy keel.



Gompholobium latifolium leaves.

We also had our first look at *Pultenaea daphnoides* (Large-leaf Bush pea), a shrub that grows up to 2 metres high by 1 metre wide. Dark green leaves are alternate and obovate (widest at apex), 4cm long by 1cm wide – the apex of each leaf ending in a sharp point (mucro). Stipules are small reaching up to 2mm long. Deep yellow flowers with red striations present in terminal umbel-like heads, about 3cm by 3cm. The seed pods are small and flattened to about 7mm long. This species occurs in both open forest and heath areas through all eastern States.





Pultenaea daphnoides



Returning from Bombi Moor in Bouddi National Park, the last walk of the pea forage. The tracks had recently been graded.

Pea flowers in Queensland

Compiled by MerleThompson OAM, editor

Glenn Leiper, former president of Native Plants Queensland, is an avid bushwalker and explorer as well as being extremely knowledgeable on the plant species of Queensland. Members in Queensland enjoy Glenn's descriptions of his adventures and the plants he encounters in nearly every issue of their journal.

In a recent journal Glenn reported on a walk along the Daves Creek track in the Lamington National Park not far from the New South Wales border. On this walk he encountered six species of pea flowers and is sharing his photographs of them.

Glenn wrote that the Daves Creek is dominated by (high altitude) montane heath and some eucalypt forest as well. These are the only pea species on the track, although there was probably one of the *Callerya* species (vines) in the rainforest earlier along the track.

Photos of *Gompholobium latifolium* appear earlier in this issue.



Gompholobium sp. Daves Ck





Pultenaea pycnocephala



Above: *Pultenaea retusa*



Oxylobium arborescens



Left: *Sphaerolobium minus*





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Sturt's Desert Pea, *Swainsona formosa*, Flinders Ranges, South Australia. Image: Jane Canaway

