



GROWING & KNOWING
GREVILLEAS

BY JOHN MASON AND STAFF OF ACS DISTANCE EDUCATION

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CHAPTER 1 CLASSIFICATION

Grevilleas include trees, shrubs and groundcovers. Almost all are indigenous to Australia with a few originating from surrounding areas such as Papua New Guinea, Indonesia (Celebes) and New Caledonia. They are chiefly grown for their attractive foliage and flowers which are produced in a number of different forms.

The first known examples of grevilleas in cultivation were collected on Cook's voyage to Australia in 1770. They were initially, and unofficially, given the genus name "*Leucadendroides*" because of the plant's similarity to *Leucadendron*. Early botanists then reclassified grevilleas as belonging to the genus, "*Embothrium*".

Eventually the name "*Grevillea*" was established, after Charles Francis Greville, a British member of parliament, and one of the founders of the Royal Horticultural Society in the UK.

There were 248 recognised species

according to D. J. McGillivray, 1993. Other experts provide varying estimates on the number of species, with some suggesting there may be many more. Roger Elliott and David Jones suggested 251 species in their 1990 edition of "Encyclopedia of Australian Plants". John W. Wrigley and Murray Fagg, in "Banksias, Waratahs & Grevilleas (1988)", recognise the fact that many growers still use names that might not be used by botanists and, as such, recognise some 273 species. We could probably assume from these conflicting reports that there are at least 250 species, and most likely more than this.



Fruits developing on a grevillea after the flowers are dying off

Characteristics

Grevilleas are a diverse group of plants, both in terms of appearance and adaptability to different climates. The following information helps you to understand key characteristics that may be used to differentiate one species from another.





A miniature form of Grevillea lanigera; a widely cultivated species in temperate climates

Roots

Grevilleas usually have a deep tap root and widespread lateral roots close to the soil's surface. Many grevilleas are capable of generating above-ground stems from their lateral roots which is known as root-suckering. In some Grevillea species, such as *G. nematophylla*, lateral roots can store large amounts of water. These species grow mostly in arid regions.

Grevilleas have developed proteoid roots - a clustered root system which increases nutrient uptake. Proteoid roots are dense groups of rootlets which emerge from lateral roots. The rootlets are covered in root hairs, greatly increasing the root surface area. Proteoid roots are short-lived and may occur only seasonally.

Generative Habit Forms

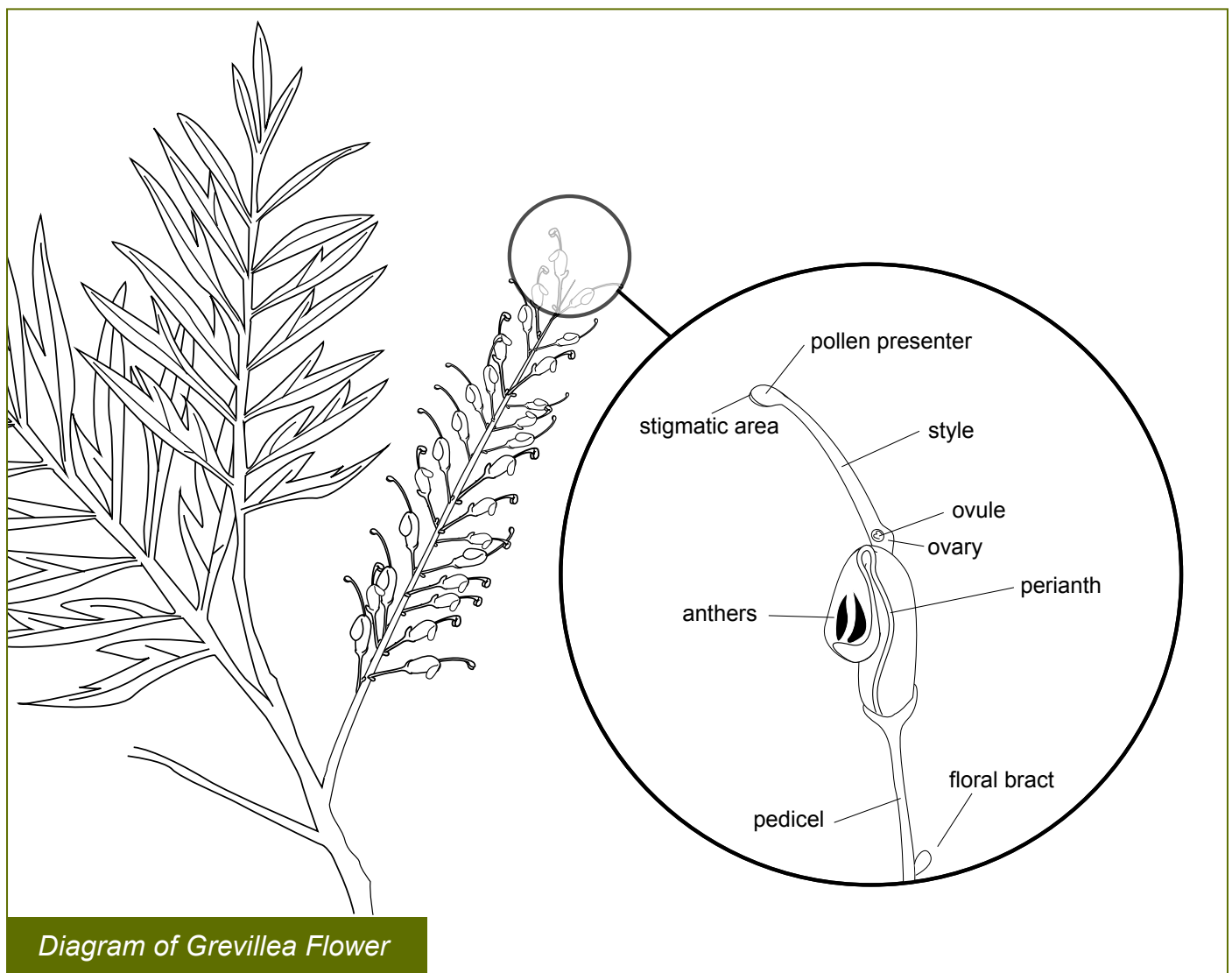
Three generative habit forms of grevilleas can be distinguished: root-suckering, lignotuberous and stenobasic.

- The term **root-suckering** refers to plants which generate above-ground stems from lateral roots.
- **Lignotuberous** refers to plants with a broad woody stem base from which new shoots emerge after a fire or in response to mechanical injury, attack from pathogens or pests, or sometimes seasonal changes.
- **Stenobasic** is applied to plants that are neither root-suckering nor lignotuberous but which have a single main dominant stem or trunk and a 'normal' root system.

Foliage

Branchlets can be hairy or glabrous (i.e. have no hairs). Leaves are usually arranged alternately. The leaf shape varies greatly, ranging from linear to oblong, ovate, obovate, lanceolate, or falcate, and from elliptic to almost round. Leaves may be simple or divided, with orders of division ranging from divided once to three times. Leaf lobe

divisions may be shallow to deep. The leaf tip varies from aristate to acuminate to obtuse. The leaf margin is recurved in most species. Leaf indentation is common. The leaf base is usually wedge-shaped. In most species a petiole attaches the leaves to the stem, whereas some species have almost sessile leaves. Leaves are usually leathery (sclerophyllous).



Flowers

Flowers are small and occur in clusters. There are sometimes well over 100 individual flowers clustered into a single flower head. Grevilleas are often called “spider flowers” because the styles

of the flower develop from a round inflorescence, not unlike the legs of a spider.

In most *Grevillea* species one bract subtends two flowers. This arrangement is known as the grevilleoid pair. Solitary

flowers exist in some *Grevillea* species, however these are rare. Inflorescences consisting of more than one flower pair aggregated on an axis or rachis are called conflorescences. These may be simple or branched.

The flowers are tubular at the base. The perianth usually consists of four tepals. In most *Grevillea* species the perianth is irregularly shaped. The dorsal tepals are usually longer than the ventral ones, causing the limb to curve. Hairs may be present on the surface of the perianth.

Anthers are usually yellow, occasionally reddish brown. Styles are straight or curved, sometimes hooked. The style length varies greatly. Species that are pollinated by large birds, e.g. *G. banksii*, have relatively long styles. In many *Grevillea* species, the colour of the styles determines the predominant flower colour, rather than the colour of the perianth. The most common flower colours in Grevilleas are red, pink, orange, yellow, white and green.



Close up of a cluster of grevillea flowers on a flower head

Fruit

Fruits are normally leathery follicles, i.e. pod-like fruits, which contain one or two seeds and dehisce (open) at maturity. *G. candicans* is a rare exception which has an achene fruit.

Seeds are normally winged, and the seed body at one end can vary in shape from rounded to linear, and most commonly flattened. The seeds are dispersed by wind, birds, water or ants. The seeds are attractive to a range of ant species due to the wing which contains proteins, carbohydrates, fats and micronutrients.

Grouping the Species

There are a variety of different ways that different “experts” have classified species of *Grevillea*, into groups; as a way of helping identify and understand the differences between the species. Here are some of those classification systems.

a) Grouping According to Type of Flower

One way of classifying Grevilleas is according to the different types of flower heads:

- The **erect cluster** - flowers occur as an upright cluster at the end (or tip) of a branch or stem. The styles point in all directions - 360 degrees, like the bristles at the end of a bottlebrush e.g. *Grevillea buxifolia*.
- The **toothbrush flower** - the styles point in basically the same direction, like the bristles on a toothbrush. Flowers occur at the ends of stems or branches e.g. *Grevillea hookeriana* and *Grevillea acanthifolia*.

- The **pendant cluster** - where flowers occur at both growth tips (i.e. ends of foliage) and along the branches in a spider-like form (i.e. styles pointing in all directions), like the end of a rounded bottlebrush e.g. *Grevillea victoriae*.
- The **cylinder type** flower head - where flowers occur at both growth tips and around the stem. Flower heads tend towards the shape of a cylinder like the middle of a bottlebrush e.g. *Grevillea banksii*.
- The **soft feathery** flower type - these are formed in loose open terminal spikes.



Grevillea Ned Kelly, is a hybrid created between *G. bipinnatifida* and *G. banksii*. Also known as *G.'s Hybrid*, this is one of many *G. banksii* hybrids, which are widely cultivated from northern to southern regions of Australia and beyond.