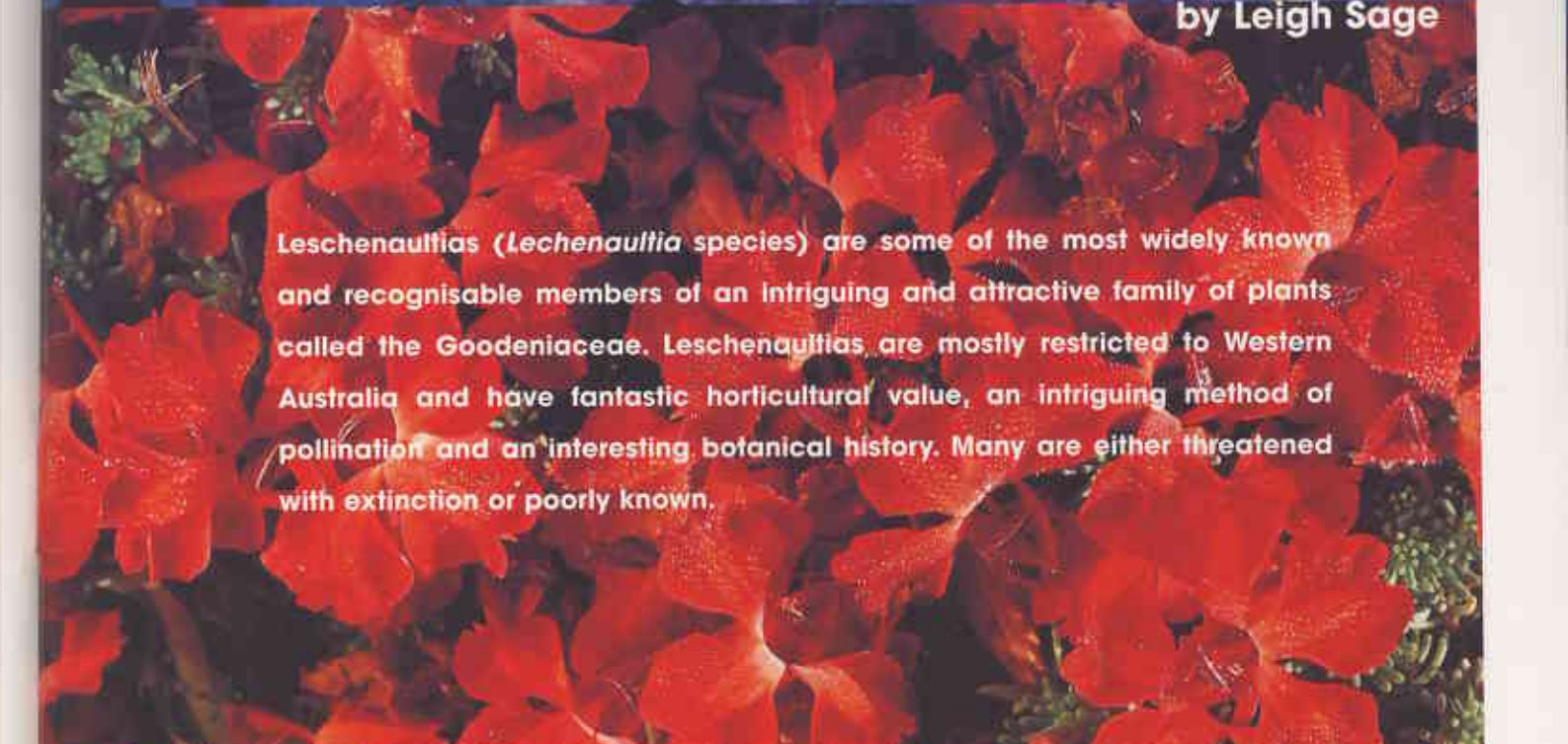




# Leschenaultias

true blue Australians

by Leigh Sage



Leschenaultias (*Lechenaultia* species) are some of the most widely known and recognisable members of an intriguing and attractive family of plants called the Goodeniaceae. Leschenaultias are mostly restricted to Western Australia and have fantastic horticultural value, an intriguing method of pollination and an interesting botanical history. Many are either threatened with extinction or poorly known.



**T**he Goodeniaceae family is known for its colourful and attractive flowers. Apart from *Lechenaultia*, ten other genera make up this diverse family. They include *Goodenia*, *Dampiera*, *Velleia*, *Scaevola* and *Anthotium*, collectively totalling more than 400 individual species. A few species occur throughout the Pacific and into Asia but this is primarily an Australian group of plants that forms a common component of our native flora.

Of the 26 species known within the genus *Lechenaultia*, 20 are endemic to south-western Australia. Most of these occur on the sandplain heaths and shrublands of the South West Botanical Province. There are two tropical species (*L. filiformis* and *L. ovata*), two central Australian species (*L. aphylla* and *L. lutescens*) and one species found in eastern central Australia (*L. divaricata*). An addition to this is an intriguing recently discovered grass-like species from the Gibson Desert. All are perennial subshrubs (low plants with a woody



base) or herbs. They are distinguished by having a corolla (floral tube with lobed petals) that is split on one side to the ovary, an indusium (modified style end or pollen cup) with two lips and an elongated fruit that breaks up into single-seeded articles. The genus has very attractive, showy and colourful flowers with high horticultural value.

## DIVERSE SPECIES

Species such as wreath lechenaultia (*L. macrantha*) are often drawcards for wildflower enthusiasts and tourists visiting Western Australia for the spectacular floral displays that occur in our bushland during spring. As its common name suggests, wreath lechenaultia is a wreath-like, almost prostrate perennial shrub reminiscent of the floral wreaths used in memorial services. The species produces large yellow and pink or yellow and red photogenic flowers—the largest flowers of any lechenaultia.

Red lechenaultia (*L. formosa*) is a small subshrub that occurs in two forms in the wild. The Avon Wheatbelt form is prostrate and the south coast (from Albany to east of Esperance) form is erect. Red lechenaultia has primarily red flowers, but yellow, orange and cream shades also occur.



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**From top:** Blue lechenaultia, a common component of the jarrah forest, can produce magnificent floral displays in spring.

Photo – Andrew Brown

There are two forms of red lechenaultia in the wild, a prostrate form in the Wheatbelt and an erect shrub near the south coast.

Photo – Bill Bachman

Wreath lechenaultia has the largest and possibly the most spectacular flowers of the genus.

Photo – G Saueracker/Lochman Transparencies



**Above:** Scarlet lechenaultia is currently listed as threatened by the Department of Conservation and Land Management.

Photo – Andrew Brown

**Above left:** Blue lechenaultia.

A number of lechenaultia species have been found to be insect pollinated (though more likely by native bees than beetles).

Photo – Ann Storrie

**Left:** Heath lechenaultia. An atypical collection of this species was mistakenly identified and named as a new species of Ericaceae.

Photo – Babs & Bert Wells

Aboriginal people are said to have called blue leschenaultia (*L. biloba*) 'the floor of the sky', a most appropriate name as during spring, in parts of the Darling Range near Perth, the ground is carpeted with the blue flowers of this magnificent species. It grows mostly in the jarrah forest and throughout the south-west, producing attractive floral displays when found in dense clumps (often with suckering roots). The flower colour is primarily blue, but white variants also occur in this diffuse perennial subshrub.

Other *Lechenaultia* species of similar form include: Goldfields blue leschenaultia (*L. brevifolia*), which has blue flowers and a white centre; free-flowering leschenaultia (*L. floribunda*) with its pale blue or white flowers; a recently recognised species from the eastern Avon Wheatbelt with white or pale blue flowers (*L. "galactites"*); claw leschenaultia (*L. heteromera*), displaying blue or blue and white flowers; and scarlet leschenaultia (*L. laricina*) with scarlet to orange flowers. These species can produce magnificent floral displays,

## HISTORY

Robert Brown, the naturalist-botanist on Matthew Flinders expedition, first named *Lechenaultia* in 1810 after Jean-Bapiste Louis-Claude-Theodore Leschenault de Tour. Leschenault was a naturalist-botanist on Nicholas Baudin's expedition of 1800 to 1804, visiting Cape Naturaliste, the Swan River and Shark Bay in WA. Brown and Leschenault met at Encounter Bay in South Australia while both were on their respective epic voyages. Unfortunately, Brown misspelt Leschenault in naming the genus, believing that the 's' would be absent according to the typical French spelling. George Bentham, the author of the first published *Flora of Australia*, added the 's' in 1837 in an attempt at a correction, and this spelling continued until the middle of last century when the original was restored. The accepted rules of naming plant species state that the *published spelling holds priority over* any later changes or attempts at correction. Common names have no such rules and the use of the 's' is acceptable. Brown holds a high place in Australian botany, being the first to collect and name many hundreds of



species. In naming *Lechenaultia* in 1810, he described crowded leschenaultia (*L. expansa*), slender leschenaultia (*L. filiformis*), heath leschenaultia (*L. tubiflora*) and red leschenaultia.

In 1923, Charles Gardner, WA's pre-eminent botanist during the first half of the twentieth century, gave the name *Ericopsis formosus* to what he thought was a new species of the Ericaceae family. No other species of Ericaceae is known to occur in this State, so imagine Gardner's excitement when he *believed that he had discovered the first and only one*. Ericaceae are common in South Africa and Europe. Unfortunately, Gardner had collected an atypical form of heath leschenaultia without fruit, which would have alluded to the actual identity of the species.

Wreath leschenaultia, pictured in the foreground, is a major drawcard for tourists keen to visit the spring time floral displays in Western Australia. Photo - Neville Passmore

## CLEVER SEX

"Dear Jim . . . I would very much like to know whether the flowers of *Lechenaultia* (or other Goodeniaceae) are visited by Bees or other insects . . ." asked the famous naturalist Charles Darwin in a letter to James Drummond, the first Colonial botanist in WA. Darwin's interest in the pollinators involved in fertilising *Lechenaultia* and the Goodeniaceae was an interesting question. In recent years, botanists have discovered it is carried out by insects in some species and birds in others. Yellow leschenaultia (*L. linarioides*), for example,



is thought to be bird pollinated and blue lechenaultia is thought to be insect pollinated. The white centre of its blue flower helps the bee to find the nectar at the base of the tubular petals.

The mechanism involved in delivering pollen to the visiting insect or bird pollinator is via the pollen indusium (or cup) in the Goodeniaceae. This structure is located at the top of the style and forms a cup with two lips surrounding the surface of the stigma. Before the flower opens, pollen is received into the indusium from the maturing anthers as the style grows and pushes forward. The pollen stored in the indusium is held until a pollinator visits the flower. The pollen load is deposited on the pollinator as it brushes against the opening of the indusium on entering the flower. The maturing stigma then continues to grow out through the indusium ready to receive pollen from another plant when brought by another pollinator. In *Lechenaultia*, however, the process seems to be slightly different, with the pollen usually being deposited on the outside of the indusium. But the specific mechanism of the process in the *Lechenaultia* is still poorly known.

## ORIGINS

Evolutionary studies in *Lechenaultia* have shown that the central Australian species and the tropical species most likely have their origin in the south-west of WA. This is also believed to be true of the related genus *Dampiera*, and initial studies indicate the same for *Goodenia*. The South West Botanical Province is a world 'hot spot' of plant diversity, and this is reflected in the high numbers of *Lechenaultia* and the Goodeniaceae in general that are found

**Top left:** Kalbarri lechenaultia, restricted to rocky ledges and gullies in the Kalbarri area, is listed as threatened by the Department of Conservation and Land Management.  
Photo – Andrew Brown

**Above left:** Barrens lechenaultia is entirely restricted to the Fitzgerald River National Park.  
Photo – Babs & Bert Wells

**Left:** A hybrid lechenaultia from breeding work by the Botanic Gardens and Parks Authority.  
Photo – Neville Passmore





only in this region. More than 60 per cent of *Goodenia*, 90 per cent of *Dampiera* and 95 per cent of *Scaevola* species have natural distributions that are restricted to WA.

### HORTICULTURAL VALUE

Because of their bright, showy and colourful flowers, many species of *Lechenaultia* have high horticultural value. Blue leschenaultia, free-flowering leschenaultia, red leschenaultia, hairy leschenaultia (*L. hirsuta*), wreath leschenaultia, heath leschenaultia and *Lechenaultia* hybrids have all been cultivated commercially. Forms of blue leschenaultia and red leschenaultia have proved to be the most popular and reliable. The Botanic Gardens and Parks Authority has been developing a number of new hybrids for the commercial market based on the species of *Lechenaultia* in the park's living collection. Commercial response to the new hybrids is being tested throughout Australia, and in Europe and America. Four or five varieties are expected to remain viable for marketing at the end of the year.

### CONSERVATION STATUS

Currently, Kalbarri leschenaultia (*L. chlorantha*), scarlet leschenaultia

and cushion leschenaultia (*L. pulvinaris*) are listed as threatened by the Department of Conservation and Land Management. Wingless leschenaultia (*L. acutiloba*), white leschenaultia (*L. "galactites"*), Irwin leschenaultia (*L. longiloba*) and Barrens leschenaultia (*L. superba*) have priority conservation status listing. This means that these species are possibly threatened, but require further survey and assessment in the wild. The higher the priority, the greater the urgency needed to survey these species. Cushion leschenaultia and scarlet leschenaultia have been the subject of translocation efforts by departmental scientists in recent years in the Avon Wheatbelt bioregion, in an attempt to increase the number of plants in the wild. This involves collecting seed, cultivating the species in a nursery and establishing the cultivated plants in the field as a viable population.

### MORE WORK TO DO

The attractive and interesting genus *Lechenaultia* and the Goodeniaceae family in general still remain poorly known and understood in many areas. Examples of the benefits of research into the family include the compounds that were found in the related currant bush

**Above left:** Hairy leschenaultia (*L. hirsuta*) is a straggling shrub producing bright red flowers. It occurs between Perth and Shark Bay. Photo - Babs & Bert Wells

**Above:** Yellow leschenaultia (*L. linarioides*) is a commonly encountered, mostly coastal species producing large attractive yellow and red flowers. Photo - Andrew Davoll/Lochman Transparencies

(*Scaevola spinescens*), and a species of *Goodenia* that have potential uses in the treatment of cancer and diabetes. Future work in the related *Lechenaultia* species may also prove to be fruitful and, hopefully, will help with the conservation of this wonderful group of plants.



Winner of the 1998 Alex Harris Medal for excellence in science and environment reporting

# LANDSCOPE



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Within 40 years, the numbat has risen from near extinction to endangered with 10 populations in WA and interstate. See 'Numbats Forever' (page 17).



The forces that shaped the geology and landforms of the south-west began more than 3,500 million years ago. Read the fascinating story on page 10.



The Marine Community Monitoring Program is a new and ambitious program to involve the community in keeping our oceans clean. See page 35.



Shark Bay Marine Park provides spectacular opportunities for divers and snorkellers. No wonder it is called Bay of Delights. See page 23.



The history of Aboriginal occupation in the Leeuwin-Naturaliste region spans 50,000 years. Find out more in 'History from the Caves' (page 40).

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## C O V E R

Leschenaultias are some of the most widely known and recognisable plants in Western Australia. They have fantastic horticultural value and provide glorious floral displays. The wreath leschenaultia is a favourite with visitors during our wildflower season. See page 23.



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