





Eremophilas

lovers of lonely
desert places

Eremophila species abound on desolate rocky hills, open spinifex plains, sparse woodlands, barren dry watercourses and inland sand dunes that stretch to the horizon, where the only signs of human habitation are occasional fence-lines, rusted remains of vehicles or rough winding tracks that meander into the distance. Aptly, their generic name, when translated, means 'lover of lonely or desert places'.

Text by Andrew Brown and Bevan Buirchell
Photos by Andrew Brown

Commonly known as poverty bushes, emu bushes and native fuchsias, *Eremophila* species are the best known members of the Myoporaceae family, a group of plants largely confined to Australia that also includes the genera *Bontia*, *Calamphoreus*, *Diocirea* and *Myoporum*. Many species are cultivated and readily available from native plant nurseries. With their colourful flowers, forms and range of growth habits, they are a valuable addition to any garden.

Bounty for botanists

In the 196 years that have elapsed since Robert Brown named *Eremophila oppositifolia* in 1810, more than 250 different species have been discovered. They are particularly abundant in Western Australia, where at least 200 species are found and about 80 per cent are confined to the State. Less than half of these are named, however, South Australian botanist Bob Chinnock, who has previously named 19 *Eremophila* species, will soon formally describe a further 94 species, 88 of which are found in WA.



Prior to modern times, the most influential naturalist to take a keen interest in the genus was Ferdinand von Mueller. Mueller lived at a time when teams of explorers crossed the continent and collected the many new flora species that they encountered. From these collecting trips Mueller described 40 *Eremophila* species, 39 of which are found in WA. Round-leaved eremophila (*Eremophila muelleriana*) was named in his honour. Mueller was fascinated by eremophilas. In 1858, he wrote:

"A traveller in the extensive Desert-tracts of Australia is often well rewarded for his

toils and privations by the enjoyment which the sight of the varied works of the Creator must ever cause to contemplative minds; more especially when it is observed that, with the increase of the country's barrenness, variety and beauty in the vegetation increase in proportion.

"Prominent amongst the attractive plants to be met with in the solitudes of the interior are those of the Myoporinous order, and amongst these again are the genera, *Stenochilus*, *Eremophila* and *Pholidia*, comprising forms exquisitely ornamental." [Both *Stenochilus* and *Pholidia* are now considered synonymous with *Eremophila*.]

Anyone who has travelled to the interior of Australia, where the large colourful flowers of eremophilas are a particularly noticeable part of the landscape, cannot help but agree with Mueller.

Other notable naturalists who named species of *Eremophila* include George Bentham, Robert Brown, Ludwig Diels, William Fitzgerald, Charles Gardner, Ludwig Kraenzlin and Spencer Moore.

Previous page

Main In good seasons, many eremophilas such as wedge-leaved poverty bush (*E. cuneifolia*) burst into bloom, with plants covered in large, attractive flowers.

Above left Western weeooka (*E. oppositifolia* subsp. *augustifolia*).

Above The pink-flowered cumquat eremophila (*E. denticulata* subsp. *trisulcata* ms) is known from a few populations north-east of Esperance and is declared rare.

Left Native fuchsia (*Eremophila latrobei*).





Above Some eremophilas have prominently spotted flowers, such as this form of Wilcox bush (*E. forrestii*) found south-east of Exmouth.

Right Poverty bush (*Eremophila alternifolia*) was amongst the first species to be named when Robert Brown described the genus in 1810.



New discoveries

Given the remote distributions of most *Eremophila* species, new ones are regularly discovered. Some 40 new species, and many more subspecies, have been discovered during the past 10 years, with eight previously unrecorded species found in 2005 alone. One of these, *Eremophila* sp. Wanna, was discovered on a single rocky hill in Wanna Station (recently acquired by CALM, one of the Department of Environment and Conservation's predecessors), north-west of Mount Augustus (see 'Wanna know a secret?', *LANDSCOPE*, Autumn 2005).

Other recently discovered species include *E. sp.* Warriedar, which occupies rocky hills west of Paynes Find and has very large, attractive blue, mauve and brown flowers, and *E. sp.* Landor, which is confined to rocky plains below a low range of hills north of Landor Station and has unusual red tubular flowers.

Desert delights

In WA, the main area of distribution encompasses the southern Pilbara, Gascoyne, Murchison, Goldfields, the interior and the Nullarbor. More than 155 species are found in these regions and, in some places, are easily the most dominant shrubby plants. Eremophilas are also common in the deserts of South Australia and the Northern Territory and extend east into Queensland, Victoria and New South Wales.

Less well known is that 28 species occur in the WA Wheatbelt and that two (*E. glabra* subsp. *albicans* ms and *E. glabra* subsp. *chlorella* ms) grow naturally in the Perth area. The former is cultivated and its grey-coloured foliage and ground-hugging habit make it ideal for planting on verges.

In the Meekatharra-Wiluna area, there are more than 50 species, and they are among the most common shrubs to be seen. Here, in late July 2004, some 30 species were found in flower during a single day of survey. One of the most beautiful and common was showy poverty bush (*E. spectabilis*), which formed pure thickets under mulga (*Acacia aneura*), with harlequin fuchsia bush (*E. linearis*), frontage poverty bush (*E. malacoides* ms), Wiluna poverty bush (*E. enata* ms), Wilcox bush (*E. forrestii*), Batt's poverty bush (*E. battii*), burra (*E. fraseri*), native fuchsia (*E. latrobei*) and crowded-leaved poverty bush (*E. congesta* ms) growing nearby.

Eremophilas are not known to occur naturally in the high rainfall south-west corner of WA, and there are only a few known from the Kimberley. Eremophilas occupy a variety of habitats, from rocky hilltops and saline washes to sand dunes and hardpan flats. They can grow as solitary plants or in dense thickets—pure groves of the large, dark green leaved burra and red-flowered poverty bush (*E. ramiflora*) resemble

strange inland orange orchards.

Some species are confined to single ranges of hills, granite outcrops or salt lake margins. Rare poverty bush (*Eremophila mirabilis* ms), for instance, is known from just two breakaways near Menzies and north of Mullewa, with the Mullewa form perhaps representing a distinct subspecies.

Mysterious origins

Many *Eremophila* species hybridise. Some hybrid offspring are so distinctive that they were thought to be new species when first encountered. *Eremophila lachnocalyx* x *phyllopoda*, for instance, was given the manuscript name *E. retropila*. *E. accrescens* ms is almost certainly a hybrid between wedge-leaved poverty bush (*E. cuneifolia*) and stony poverty bush (*E. phyllopoda* ms). Slender flowered poverty bush (*E. graciliflora*) is only known from the type collection made from the Murchison River area by Augustus Oldfield prior to 1859. It is now suspected to be a hybrid between berrigan (*E. longifolia*) and Young's poverty bush (*E. youngii*).

Eremophilas vary from prostrate ground covers, such as snake eremophila (*E. serpens*), to small or large shrubs and medium-sized trees. Perhaps the most well known tree species is pixie bush (*E. oldfieldii*), which is common in the northern WA Wheatbelt.



Flowers

All *Eremophila* flowers have an inner, often tubular, corolla (petals) of five fused segments and an outer calyx (sepals) of five, usually spreading, segments. There is often more than one flower in each leaf axil. Flowers may or may not be held on a stalk. Cumquat eremophila (*E. denticulata* subsp. *trisulcata* ms) has a long S-shaped flower stalk, while Veronica eremophila (*E. veronica* ms) has almost no stalk at all.

Red, purple, lilac and blue are the most common flower colours and include the red-flowered slender fuchsia bush (*E. decipiens*), purple-flowered round leaf poverty bush (*E. strongylophylla*), lilac-flowered desert fuchsia (*E. gilesii*) and blue-flowered sand dune poverty bush (*E. gibsonii*). There are also white-flowered species, such as broom poverty bush (*E. interstans*), and even green-flowered species such as Champion eremophila (*E. virens*) and wavy-leaved eremophila (*E. serrulata*). Some species also have flowers with spectacular combinations of colours. Rare poverty bush (*E. mirabilis* ms) has pink-and-white flowers with prominent purple blotches and showy poverty bush (*E. flaccida* ms) has blue, brown and mauve-pink flowers. The most beautiful are the ones with additional markings, like the spots on some forms of Wilcox bush or the purple, brown and cream combinations found in burra.

There are five basic flower shapes within the genus. Most common are the flowers with two petals above and three below, such as in small-leaved poverty bush (*E. exilifolia*). Some 132 WA species have this flower shape. In this group, the



Top left Some eremophilas are confined to rare habitats, with rare poverty bush (*E. mirabilis* ms) known from just two widely separated breakaways.

Centre left Perhaps one of the most commonly encountered and beautiful *Eremophila* species is burra (*E. fraseri*).

Left Some eremophilas are now common in cultivation. An example is the lipstick plant (*Eremophila maculata* subsp. *brevifolia*).

Right Red rods (*Eremophila calorhabdos*).

stamens are generally retained within the corolla but the style is usually slightly longer than the upper petals. Another 30 species from WA have flowers with four petals above and one prominently reflexed petal below and stamens that are always much longer than the corolla. An example is common emu bush. Species with this flower shape were at one time included in *Stenochilus*.

The other three flower shapes, which are essentially variations of the above two, are much rarer and, when combined, comprise just 36 WA species. They include bell-flowered poverty bush (*E. campanulata* ms), which has unusual bell-shaped flowers, native fuchsia, which has tubular flowers with the petals bent slightly back at the tip, and burra, which has very showy, brightly coloured flowers with the four upper petals and one large lower petal bent back away from the corolla tube.

Reproduction

Approximately 75 per cent of *Eremophila* species are pollinated by insects, with the rest pollinated by birds. The flowers of bird pollinated species contain rich sugary nectar at the base of a long flower tube (corolla). In their effort to extract the nectar, birds are dusted with pollen on their forehead and napes by the strategically located, and usually strongly protruding, stamens. Insects are the vectors responsible for pollinating *Eremophila* species that have much shorter floral tubes, shorter stamens and, in general, flower colours ranging from the blue to violet end of the spectrum.

Once fertilised, eremophilas produce a fleshy fruit enclosing 2-12 seeds. In nature, this fruit drops to the ground, dries out and remains dormant for many years until a disturbance such as fire or heavy rainfall stimulates germination. It is not therefore uncommon to find that many, or even most, plants in a population are around the same age, having germinated at the same time.



Growing eremophilas from seed is notoriously difficult, and often prone to failure. Most success has been from cuttings and many common species are now grown by nurseries using this method. Some intrepid growers have even managed to graft their favourite eremophila onto a stronger rootstock such as native juniper (*Myoporum insulare*). Once established, eremophilas are very drought tolerant and rarely require much watering. The flowers of some species produce nectar and are excellent for attracting birds.

Colour and plant form variations of common emu bush and lipstick plant (*E. maculata*) are often available from nurseries and make great additions to a native garden. Slender fuchsia bush (*E. decipiens*), Fitzgerald eremophila (*E. denticulata*), prostrate eremophila (*E. biserrata*), showy eremophila (*E. racemosa*) and Murchison River poverty bush (*E. laanii*) are also available.

Traditional use

Eremophila species have been used in Aboriginal tribal life in both cultural



and medicinal roles. Plant material has been used in ceremonial rites and extracts of plant parts have been used as liniments, medicines and antiseptics. The resin exuded from some species has also been used as sealants and adhesives. For example, berrigan (*E. longifolia*) was important to the Adnyamathanha people of the northern Flinders Ranges in South Australia, as reported by Rosemary Pedler in the Eremophila Study Group Newsletter, December 1994:

“A very common and widespread species, it was of considerable importance to them. The foliage was used to cover the dead before burial which did not take place immediately after death. The relatives would visit the dead person from time to time to observe what was happening to the covering leaves, and there was significance in the way in which the leaves lay. The body was buried at a depth of about an arm's length after about a month and was again laid on and covered by the varti-varka foliage (*Eremophila longifolia*).

Also used for medicinal purposes, the bark of trunks was scraped off, reduced to ash and then mixed with emu oil. This preparation was then used for all manner of skin complaints with excellent results, according to several people in the group. This is still being used today.

I was also told by one of the men that the smoke from varti-varka was used in the initiation ceremony of young boys. This aspect is in the past as the last fully initiated Adnyamathanha man is very elderly now.”

During recent studies, many species were found to contain chemicals that may be of great pharmaceutical value for the treatment of colds, cancers and other ailments.



Top left Pixie bush (*E. oldfieldii*) is a common tree species of WA's northern Wheatbelt.

Photo – Marie Lochman

Centre left Club-leaved eremophila (*Eremophila clavata*).

Left Crimson eremophila (*E. punicea*).

Right Round leaf poverty bush (*E. strongylophylla*).

Below right *Veronica eremophila* (*E. veronica*) is an example of a species that grows in pure populations, forming a dominant understorey plant.

Bottom right More than 50 eremophila species can be found in the Wiluna area. One of the most common is showy poverty bush (*E. spectabilis*).

Rarities and delights

Although most *Eremophila* species are common and widespread, 15 are listed as declared rare flora (nine of these are critically endangered), and a further 52 species are on the Department of Environment and Conservation's (DEC's) Priority Flora list. Their presence on these lists is largely due to land clearing and other human influenced factors, rather than the species being naturally rare. In particular, *Eremophila* species that are restricted to the WA Wheatbelt have suffered badly from land clearing, grazing and salinity.

All declared rare species are protected by legislation but, due to their limited habitat (some are now known from just a few narrow road reserves or a couple of hills), are especially vulnerable to grazing, disease, old age, poor recruitment and accidental destruction. DEC has prepared interim recovery plans for these species and implemented measures to ensure their long-term conservation. Despite much of the Wheatbelt having now been cleared, several presumed extinct *Eremophila* species, including rough emu bush (*E. scaberrima*) (see 'Endangered', *LANDSCOPE*, Summer 2003) and varnish-leaved poverty bush (*E. vernicosa* ms), have been rediscovered following searches of remnant bushland.

Other Wheatbelt species are still quite common. Drummond's eremophila (*E. drummondii*), named by Ferdinand von Mueller in 1868 from specimens collected by James Drummond, is encountered fairly often. This attractive species has blue to mauve flowers that appear in late winter and early spring. Western weeooka (*E. oppositifolia*), George's poverty bush (*E.*



georgei) and Lehmann's poverty bush (*E. lehmanniana*) are also common in the Wheatbelt.

Looking for eremophilas can be very rewarding, taking you to some of the most remote parts of WA where, in good seasons, salt lakes and rock pools fill with water, fields of annuals bloom en masse and eremophilas abound. So, when next travelling our outback areas, or even Wheatbelt areas closer to home, look out for our fabulous *Eremophila* species. You are bound to be fascinated by their remarkable adaptations, shapes and forms, not to mention their attractive flowers that, just a few weeks following rain, transform the landscape into a kaleidoscope of colour.



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- 51 Manypeaks rising from the ashes
When large numbers of threatened noisy scrub-birds and western whipbirds perished in a wildfire at Mount Manypeaks scientists also gained some valuable insights.
- 56 Slithering diversity
WA is blessed with a great variety of snakes, from tiny worm-like blind snakes to enormous olive pythons more than five metres long.

Regulars

- 3 Contributors and Editor's letter
- 9 Bookmarks
Exposing Nature: a Guide to Wildlife Photography
Perth Plants
Desert Peoples, Archaeological Perspectives
- 18 Endangered
Wagin banksia
- 30 Feature park
Cape Range National Park
- 62 Urban Antics
Diggers and plungers

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