

SHORT COMMUNICATION

***Eremophila buirchellii* and *E. calcicola* (Scrophulariaceae), two new species from Western Australia**

Two new species of *Eremophila* R.Br. are described and illustrated herein. Their relationships with related species and conservation status is also discussed.

Eremophila buirchellii A.P.Br., *sp. nov.*

Type: Mount Augustus, Western Australia [precise locality withheld for conservation reasons], 31 July 2009, *B. Buirchell* BB 205 (*holo:* PERTH 08527687).

Eremophila sp. Mt Augustus (*B. Buirchell* BB 205), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed January 2016].

Illustrations. A.P. Brown & B.J. Buirchell, *A Field Guide to the Eremophilas of W. Austral.*, p. 306 (2011) [as *E.* sp. Mt Augustus].

An erect, much-branched shrub, 1–2 m high, 0.8–1.2 m wide. *Branches* grey, terete, sparsely tuberculate, old and young parts with dense, grey-white dendritic hairs. *Leaves* grey to grey-green, alternate, spreading or reflexed, clustered at ends of branches; lamina oblanceolate, (6–)10–23 mm long, 2.5–5 mm wide, the upper and lower surfaces with dense, grey-white dendritic hairs; apex acute to acuminate; margin entire; petiole 1–2 mm long, bases persistent. *Flowers* 1 per axil; pedicel terete, slightly curved, 4–7 mm long, with grey-white dendritic hairs. *Sepals* 5, valvate, oblanceolate, subequal, prominently splayed outwards, 7–10 mm long, 3–4 mm wide, not enlarging after flowering; outer surface grey-green to burgundy, with dense, grey-white dendritic hairs; inner surface grey-green to burgundy, with dendritic hairs in the distal third, glabrous below except along margins. *Corolla* slightly zygomorphic, broadly campanulate, 8–12 mm long, 9–14 mm wide; outer and inner surface sub-glabrous with rare, scattered glandular hairs; tube pink or pinkish white, unspotted; lobes pink or pinkish white, unspotted, subequal, spreading. *Stamens* 4, slightly exerted and evenly distributed rather than in a single cluster; filaments glabrous; anthers glabrous. *Ovary* ovoid, 2–3 mm long, 1.2–1.5 mm wide, glabrous; style 13–16 mm long, glabrous. *Fruit* not seen. (Figure 1)

Diagnostic features. *Eremophila buirchellii* can be distinguished from other members of the genus by the following combination of characters: erect habit (up to 2 m high at maturity); branches, leaves and outer sepal surfaces with dense, grey-white dendritic hairs; prominently splayed grey-green to burgundy sepals; pink or pinkish white, unspotted, broadly campanulate corolla and slightly exerted evenly distributed stamens.

Other specimen examined. WESTERN AUSTRALIA: [locality withheld for conservation reasons] 4 July 1998, *B. Buirchell* BB 70 (PERTH).

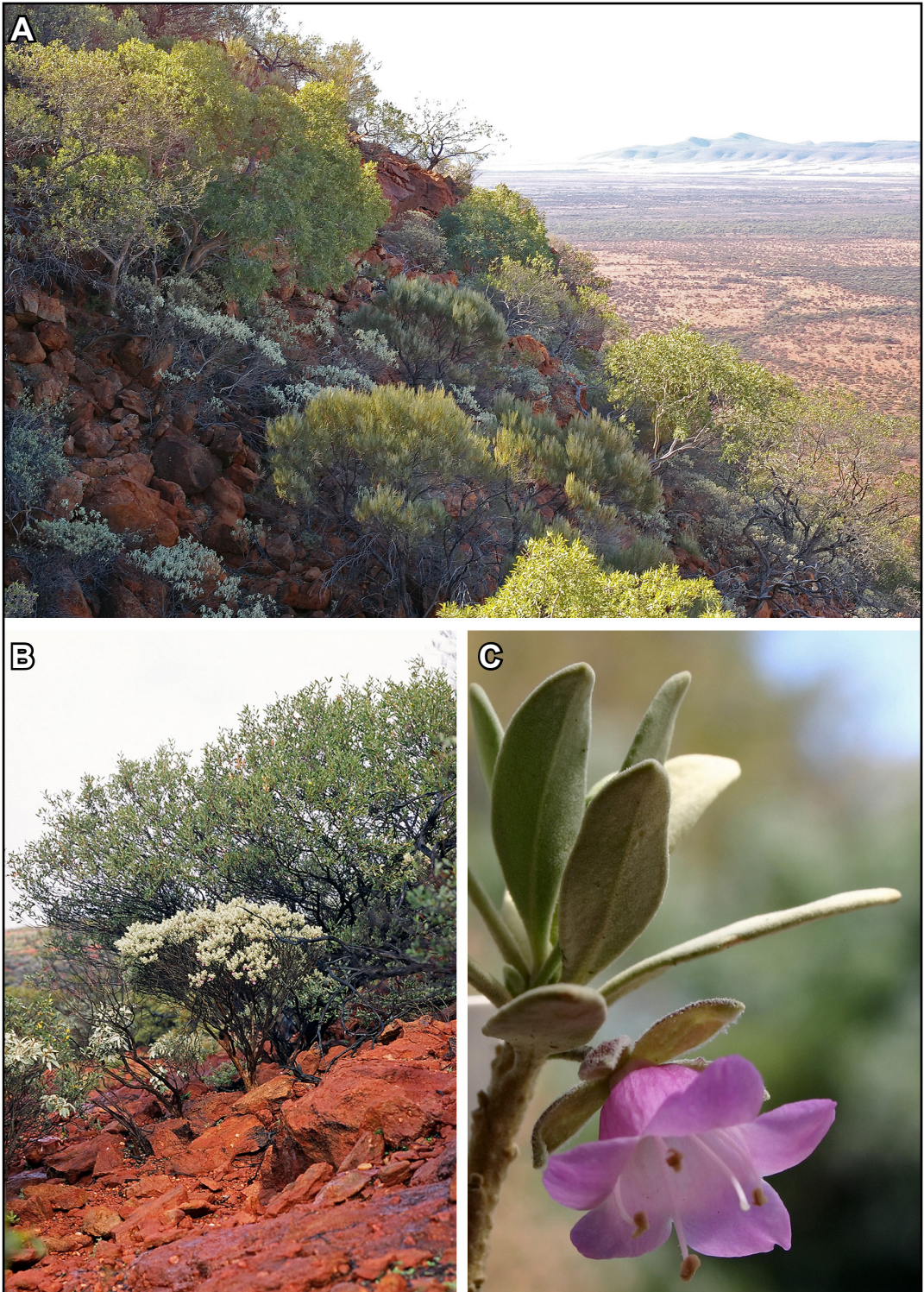


Figure 1. *Eremophila buirchellii*. A – habitat; B – plant showing the grey to grey-green foliage and erect habit of the species; C – flower showing the oblanceolate, subequal sepals and broadly campanulate, pink or pinkish white, unspotted corolla. Photographs by B. Buirchell.

Distribution and habitat. Confined to Mt Augustus in the Gascoyne bioregion (Department of the Environment 2013), where it grows on steep rocky slopes with *Acacia* and *Eucalyptus* spp., *Eremophila latrobei* and native grasses.

Phenology. Predominantly flowers from June to August.

Conservation status. Listed by Jones (2015) as Priority Two under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the name *Eremophila* sp. Mt Augustus (B. Buirchell BB 205). The species is confined to Mount Augustus National Park where it comprises two populations a few hundred metres apart, together totalling *c.* 50 plants.

Etymology. Named in honour of Dr Bevan Buirchell who discovered the species in 1998 and who has contributed greatly to the understanding of *Eremophila* in Western Australia through many years of intensive field and herbarium studies.

Affinities. *Eremophila buirchellii* belongs to *E.* sect. *Eriocalyx* Benth., which comprises 30 species, 24 of which are endemic to Western Australia. Within this section, *E. buirchellii* appears most closely related to *E. forrestii* F.Muell. and is a similarly much-branched shrub to 2 m high with branches, leaves and outer sepal surfaces covered with dense, grey-white dendritic hairs. It differs, however, in its leaves clustered at ends of branches (scattered in *E. forrestii*), its broadly campanulate, sub-glabrous, unspotted corolla (tubular and sparsely to densely pubescent and faintly to prominently spotted in *E. forrestii*) and its glabrous staminal filaments (pubescent in *E. forrestii*). Although these species occur near one another no apparent hybrids have been found.

Eremophila buirchellii appears more distantly related to *E. latrobei* F.Muell. and like that species is an erect, much-branched shrub with leaves clustered at the ends of branches. It differs, however, in its dendritic leaf hairs (stellate, glandular or glabrescent in *E. latrobei*), its dendritic sepal hairs (absent or stellate in *E. latrobei*), its broadly campanulate, sub-glabrous corolla (tubular and sparsely glandular hairy in *E. latrobei*) and its prominently spreading subequal corolla lobes (scarcely spreading and unequal in *E. latrobei*). Although these species are sympatric on the slopes of Mt Augustus they are not known to intergrade and no apparent hybrids have been found.

The only other species in *E.* sect. *Eriocalyx* that occurs near *E. buirchellii* is *E. conferta* Chinnock, which is readily distinguished from *E. buirchellii* by its lilac to pale purple corolla.

Eremophila calcicola R.W.Davis, *sp. nov.*

Type: [Boraminya] Western Australia [precise locality withheld for conservation reasons], 1 May 2004, R. Davis RD 10665 (*holo:* PERTH 06770770; *iso:* CANB).

Eremophila sp. Parmango Road (J. Start D5-46), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed January 2016].

Illustrations. A.P. Brown & B.J. Buirchell, *A Field Guide to the Eremophilas of W. Austral.*, p. 312 (2011) [as *E.* sp. Parmango Road].

A low, compact shrub, 0.25–0.8(–1) m high, 0.6–2 m wide. *Branches* green-brown, terete to slightly flattened, not viscid, with sparse glandular hairs and white stellate hairs. *Leaves* bright green, alternate,

ascending to slightly spreading, not clustered at ends of branches; lamina elliptical to oblanceolate, 20–80 mm long, 3–15 mm wide, glabrescent, with rare scattered glandular hairs and white stellate hairs, mostly on leaf margins; apex acuminate; margin entire; petiole absent. *Flowers* 1 per axil; pedicel terete, sigmoidally curved, 14–17 mm long, with scattered glandular hairs and white stellate hairs. *Sepals* 5, imbricate, triangular, subequal, splayed slightly outwards, lateral lobes slightly larger and broader, 3.8–5.3 mm long, 1.2–1.6 mm wide, not enlarging after flowering; outer surface green, with sparse glandular hairs and white stellate hairs; inner surface green, with scattered glandular hairs. *Corolla* strongly zygomorphic, bilabiate, 14–19 mm long, 5.3–5.6(–6) mm wide; outer surface subglabrous with scattered glandular hairs and sparse stellate hairs on upper corolla lobes; inner surface with a few, scattered glandular hairs; tube green, unspotted with a dark purple-brown tip in bud; lobes green, unspotted, unequal, recurved. *Stamens* 4, prominently exserted, paired and attached at the base of the lateral portions of the tube; filaments with sparse glandular hairs; anthers glabrous. *Ovary* ovoid, 2–3 mm long, 1.1–1.3 mm wide, glabrous; style 30–33 mm long, glabrous. *Fruit* globose, 4.2–4.4 mm long, 4.4–4.6 mm wide, glabrous. (Figure 2)

Diagnostic features. *Eremophila calcicola* can be distinguished from other members of the genus by the following combination of characters: low-growing habit (usually less than 0.8 m high at maturity); branches with glandular and stellate hairs; large, bright green, glabrescent leaves, lamina 20–80 mm long, 3–15 mm wide; terete, sigmoidally curved pedicel; imbricate, triangular, subequal sepals; green, strongly zygomorphic corolla and prominently exserted stamens.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 2 Oct. 2003, B. Archer 2402 (MEL, PERTH); 4 July 2006, R. Davis RD 11107 (PERTH); 28 Sep. 2003, J. Start D5-46 (PERTH).

Distribution and habitat. Found south of Balladonia in the Mallee bioregion (Department of the Environment 2013), growing on calcareous sandy loams in open Mallee woodlands.

Phenology. Predominantly flowers from May to October.

Conservation status. Listed by Jones (2015) as Priority Two under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the name *Eremophila* sp. Parmango Road (J. Start D5-46). There are four collections of this species lodged in PERTH, three of which were made within a few hundred metres of each other on road reserve and adjacent Unallocated Crown Land. The fourth collection was made some 34 km south-west of the other collections in a rolled fire break on the edge of Clyde Hill Nature Reserve.

Etymology. From the Latin *calx* (lime or limestone) and *-cola* (-dweller), in reference to its preference for calcareous soils.

Affinities. *Eremophila calcicola* belongs to *E.* sect. *Stenochilus* (R.Br.) F.Muell., which comprises 13 species, eight of which are endemic to Western Australia. Within this section, *E. calcicola* appears most closely related to *E. decipiens* Ostenf. and has a similarly terete, long, sigmoidally curved pedicel, imbricate, triangular, subequal sepals, a strongly zygomorphic corolla and prominently exserted stamens. It differs, however, in its non-resinous vegetative and floral parts (distinctly resinous in *E. decipiens*), its bright green, glabrescent, usually larger leaves 20–80 mm long × 3–15 mm wide (glandular-pubescent to stellate-pubescent and 15–46 mm long × 1.5–8.8 mm wide in *E. decipiens*), its green corolla (green-red when immature, maturing to red or red-orange in *E. decipiens*) and its



Figure 2. *Eremophila calcicola*. A – plants one year post-fire showing the bright green leaf colour and compact, low-growing habit of the species; B – flower showing the triangular, subequal sepals and zygomorphic, green, subglabrous corolla. Photographs by A. Brown (A) and J. and J. Start (B).

inner corolla surface with a few scattered glandular hairs (glandular-pubescent in *E. decipiens*). It also differs in being a short-lived perennial (*E. decipiens* is a long-lived perennial). Although these species are sympatric they are not known to intergrade and no apparent hybrids have been found.

Other species in *E.* sect. *Stenochilus* that occur with or near *E. calcicola* are *E. denticulata* F.Muell., *E. glabra* (R.Br.) Ostenf. and *E. subfloccosa* Benth. *Eremophila calcicola* may be distinguished from *E. denticulata* by its low, spreading habit 0.25–0.8(–1) m high (*E. denticulata* is a taller, more erect species 1–3 m high) and green, rather than red or pink flowers. From *E. glabra* and *E. subfloccosa*, *E. calcicola* may be distinguished by its long, sigmoidally curved pedicel.

Notes. *Eremophila calcicola* is a low-growing, short-lived perennial shrub, germinating from soil-stored seed in response to physical disturbance and wildfires.

Acknowledgements

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