

## Three new species of *Eremophila* (Scrophulariaceae) from the goldfields of Western Australia

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### SHORT COMMUNICATION

***Eremophila isolata*** Buirchell, *sp. nov.*

*Type:* West of Plumridge Lakes, Western Australia [precise locality withheld for conservation reasons], 1 June 2014, B. Buirchell BB323 (*holo:* PERTH 08656711; *iso:* AD, MEL).

*Eremophila* sp. *Tropicana* (B. Buirchell BB323), Western Australian Herbarium, in *Florabase*, <https://florabase.dbca.wa.gov.au/> [accessed 8 October 2024].

*Illustrations.* A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia revised second edition* p. 343 (2021), as *E. sp. Tropicana*.

A small much-branched *shrub* 0.4–0.6 m high, 0.5–1.0 m wide. *Branches* terete, non-tuberculate, with indumentum of white eglandular hairs. *Leaves* blue-green, alternate; *lamina* linear-oblongate, 5–9 mm long, 1.5–2.5 mm wide with an indumentum of white eglandular hairs; margins entire; apex obtuse. *Flowers* 1 per axil; pedicel terete, straight, 2–4 mm long, with an indumentum of white eglandular hairs. *Sepals* 5, green, narrow-lanceolate, 7–8 mm long, 0.5–1.0 mm wide, acute, attenuate, equal, half the length of the corolla, not enlarging after flowering; outer surface with an indumentum of long white eglandular hairs, becoming shorter near the apex, intermixed with short glandular hairs; inner surface with an indumentum of eglandular and glandular hairs. *Corolla* zygomorphic, 12–14 mm long, mostly purple, pale underneath; medial lobe of lower lip thrust up between lateral lobes and closing the throat; outer surface with indumentum of eglandular hairs; inner surface glabrous; throat hairy, especially on the upper surface; inner surface of corolla tube covered in purple spots. *Stamens* 4, enclosed, filaments glabrous, anthers glabrous. *Ovary* indumentum of eglandular hairs mixed with short glandular hairs. *Style* with eglandular hairs. *Seeds* not observed. (Figure 1)

*Diagnostic features.* *Eremophila isolata* may be distinguished from all other members of the genus by the following combination of characters: a small much branched shrub 0.4–0.6 m high; leaves green, linear-lanceolate with an indumentum of white eglandular hairs; pedicel 2–4 mm long, with an indumentum of white eglandular hairs; sepals narrow-lanceolate, 7–8 mm long, 0.5–1.0 mm wide, corolla zygomorphic, outer surface mostly purple with medial lobe of lower lip thrust up against the lateral lobes and closing the throat; ovary with long eglandular hairs mixed with short glandular hairs.

*Other specimens examined.* Known only from the type.

*Phenology.* Known to flower in June but may flower at other times in response to significant rainfall.





**Figure 1.** *Eremophila isolata*. A – habit; B – flowering branch showing the blue-green hairy leaves, hairy narrow sepals, and purple corolla with white on the lower lobes; C – habitat (*E. isolata* in the foreground). Photographs by B.J. Buirchell.

*Distribution and habitat.* Known from a single location in the Great Victoria Desert west of Plumridge Lakes, growing in orange-red sandy loam soils in an open tall shrubland of *Eremophila platythamnus* subsp. *platythamnus*, *E. scoparia*, *Eucalyptus hypolaena* and scattered *Senna*, *Acacia*, *Halgania* and *Triodia* species. The area has been extensively searched using nearby accessible tracks and no further populations have been located.



*Conservation status.* Listed as Priority One under Conservation Codes for Western Australian Flora (Western Australian Herbarium 1998–) under the name *E. sp. Tropicana* (B. Buirchell BB 323). The species is currently known from a single site and may have specific habitat requirements. Further surveys are required in the area, which is under threat from mining exploration and other mining activities.

*Etymology.* The specific epithet is derived from the Latin *isolatus* (isolated), referring to its remote and restricted habitat and distribution.

*Affinities.* The species is related to *Eremophila perglandulosa* Chinnock, *E. battii* F.Muell. and *E. spinescens* Chinnock but may be distinguished from all of these in having only eglandular hairs rather than a mix of glandular and eglandular hairs on the leaves and pedicels.

***Eremophila serotina* Buirchell & A.P.Br., *sp. nov.***

*Type:* West side of track, c. 3.8 km SSE of North West Peak, Mt Manning Range, Western Australia, 6 November 1995, N. Gibson & B. Moyle 3402 (*holo:* PERTH 05325153; *iso:* AD, CANB, MEL).

*Eremophila sp.* Mt Jackson (G.J. Keighery 4372), Western Australian Herbarium, in *Florabase*, <https://florabase.dbca.wa.gov.au/> [accessed 31 October 2024].

*Illustrations.* A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia revised second edition* p. 334 (2021) as *E. sp.* Mt Jackson.

Broom like *shrub* 2–5 m high, c. 1.5 m wide. *Branches* glandular-papillate, warty, resinous. *Leaves* 18–45 mm long, 0.8–1.2 mm wide, green, linear, terete, ventrally grooved, uncinat, glabrous, warty. *Flowers* 1–4 per axil, pedicels ridged, resinous, 3–4 mm long, curved, glabrous. *Sepals* valvate, resinous, 2.4–3.5 mm long, 0.5–1 mm wide, linear-oblongate, acute; outer surface glandular-papillate, ciliate with eglandular hairs; inner surface glabrous. *Corolla* zygomorphic, 9–12 mm long, white to pale pink; outer surface with indumentum of short glandular and longer eglandular hairs; margins of lobes covered in longer eglandular hairs, the inner surfaces of the lowermost lobe and the tube below it and around the filament bases villous with eglandular hairs, otherwise glabrous. *Stamens* 4 enclosed; filaments glabrous; anthers glabrous. *Ovary* indumentum of sparse short glandular and longer eglandular hairs. *Style* indumentum of scattered eglandular hairs with denser glandular hairs near base. (Figure 2)

*Diagnostic features.* *Eremophila serotina* may be distinguished from all other members of the genus by the following combination of characters: stems and leaves warty; leaves ventrally grooved, uncinat, glabrous; sepals linear-lanceolate, glabrous; corolla with short glandular and long eglandular hairs; ovary with short glandular and a scattering of longer eglandular hairs.

*Other specimens examined.* WESTERN AUSTRALIA: 1 km N of I261 Diemals Stn, 1 Dec. 1992, D.A. Blood 3374 (PERTH 04220811); between Portman Iron ore haul road and Marda Tank area on Mt Jackson Stn, S of Mt Jackson, 3 Nov. 2004, V. Clarke 533 (PERTH 08091986); 46 km NNE of Kalgoorlie, adjacent to Goldfields Hwy, 30 Oct. 2006, G. Cockerton & D. True WB 12808 (PERTH 08630836); Mt Jackson, 25 Nov. 1981, G.J. Keighery 4372 (PERTH 03900630); Johnston Ra, adjacent to survey site DIEM05, on Diemals Stn, c. 4.3 km SW of Teds Camp Bore and 6.1 km ENE of Diemals Homestead, c. 149 km N of Bullfinch, 4 Aug. 2007, A. Markey & S. Dillon 5821 (PERTH 07839073); Northern Yerilgee Greenstone Belt, Lake Giles East, survey site GILE48, c. 21.2 km SE of Johnson Soak and 2.3 km N of spot height 508 m, c. 106 km WSW of Menzies, 29 Sep. 2007, A. Markey & S. Dillon 6104 (PERTH 07838719); Northern Yerilgee Greenstone Belt, Lake Giles East, survey site GILE40, c. 19.9 km ESE of Johnson Soak and 8.7 km NNE of spot height 508 m, c. 102 km W of Menzies, 27 Sep. 2007, A. Markey & S. Dillon 6105 (PERTH 07838727); Northern Yerilgee Greenstone Belt, Lake Giles East, survey site GILE21, c. 9.9 km NNE of Johnson Soak and 6 km W of spot height 477 m, c. 113 km W of Menzies, 23 Sep. 2007, A. Markey & S. Dillon 6106 (PERTH 07838735); Mt Jackson, 4 Nov. 2000,



**Figure 2.** *Eremophila serotina*. A – habitat (*E. serotina* in the foreground); B – flowering branch showing the white to pale pink flowers and small sepals. Photographs by A. Brown.

*E. Mattiske* 178-328 LM (PERTH 06351131); Jackson Ra, N of Marda Dam, 16 May 2004, *S. McNee* LCS 14310 (PERTH 08035024); Credo Stn, 4 Nov. 1988, *H. Pringle* HP2224 (CANB 511915, PERTH 03856631); Ora Banda, 4 Nov. 2005, *E. Reid* s.n. (PERTH 07308868); Grants Patch Mine, 4 Nov. 2005, *E. Reid* s.n. (PERTH 07308876); 57 km S of Menzies, 18 Sep. 1999, *R.T. Schuh*, *G. Cassis* & *R. Silveira* 40 (PERTH 05612624); 32.8 km SSE of Goongarrie Stn, 16 Jan. 2008, *J. Williams* 8 (PERTH 07881584).

*Phenology.* Flowers October to December.

*Distribution and habitat.* Found from the Mt Jackson area eastwards to north of Kalgoorlie, growing in red clay, greenstone gravel or brown calcareous loams in open mixed woodland of *Eucalyptus* species over *Exocarpos aphyllus*, *Olearia muelleri* and *Acacia* species.

*Conservation status.* Not considered at risk. An abundant species in its known habitat, although growing in a region subject to mining activities.

*Etymology.* The specific epithet is derived from the Latin *serotinus* (late coming), referring to the late flowering period compared to most other *Eremophila* species in the Goldfields.

*Affinities.* *Eremophila serotina* is related to *E. interstans* (S.Moore) Diels but may be distinguished from that species by its warty branches (*cf.* lacking warts), a mixture of eglandular and glandular hairs on the corolla (hairs eglandular only) and short glandular hairs mixed with sparse, longer eglandular hairs on the ovary (*cf.* glabrous). It is also related to *E. paisleyi* F.Muell but has narrower leaves 0.8–1.2 mm wide (*cf.* 1.1–5 mm wide) and a hairy ovary (*cf.* glabrous). From the also related *E. caperata* Chinnock, *E. serotina* may be distinguished by its glabrous leaves (*cf.* hairy) and its linear lanceolate sepals (*cf.* obovate to cuneate).

***Eremophila lasiocarpa*** Buirchell, *sp. nov.*

*Type:* Lake Carey, Western Australia [precise locality withheld for conservation reasons], 14 October 2018, *E. Mattiske* LM197 (*holo:* PERTH 09089977; *iso:* AD).



*Eremophila* sp. Lake Carey (E. Mattiske LM197), Western Australian Herbarium, in *Florabase*, <https://florabase.dbca.wa.gov.au/> [accessed 8 October 2024].

Erect broom-like *shrub* 1–2 m high, 0.5–2 m wide. *Branches* grey or light brown, erect, terete, glabrous, with tubercles arranged in rows below leaf bases, especially on younger parts. *Leaves* light green, alternate, petiolate, thickened, v-shaped in cross section or with a deep adaxial groove, mucronate, glabrous; *lamina* linear to oblanceolate 7–12 mm long, 0.8–1.8 mm wide, margins entire. *Flowers* 1–2 per axil, pedicellate; pedicel terete, 3–5 mm long, glabrous, light green. *Sepals* 5, green with a pink tinge, imbricate, subequal, oblanceolate, 5–6 mm long, 1.5–2.5 mm wide, obtuse; outer surface mostly glabrous but with an indumentum of eglandular hairs on the margins; inner surface with indumentum of glandular hairs. *Corolla* zygomorphic, 8–11 mm long, pale cream to pink, unspotted; outer and inner surfaces covered in fine eglandular hairs. *Stamens* 4, enclosed; filaments glabrous; anthers glabrous. *Ovary* villous, covered with erect long eglandular hairs. *Style* glabrous. *Seeds* not observed. (Figure 3)

*Diagnostic features.* *Eremophila lasiocarpa* may be distinguished from all members of the genus by the following combination of characters: an erect broom like shrub to 2 m high; leaves thickened, linear to oblanceolate, v-shaped in cross section or with a deep adaxial groove, 7–12 mm long; sepals imbricate, subequal, oblanceolate, green with a pink tinge; corolla pale cream to pink covered with eglandular hairs; ovary villous with erect, long, eglandular hairs; style glabrous.

*Other specimens examined.* WESTERN AUSTRALIA. [localities withheld for conservation reasons] 25 Oct. 2020, *A. Dent* BW016 (PERTH 09288422); 25 Oct. 2020, *A. Dent* BW017 (PERTH 09288414); 11 Oct. 2018, *E. Mattiske* LM049 (PERTH 09089985); 15 Oct. 2009, *A.A Mitchell*, *A.L. Payne* & *A. McR. Holm* 9369 (PERTH 09464506).

*Phenology.* Known to flower in September and October but may flower at other times in response to significant rainfall.

*Distribution and habitat.* Found on the lower slopes of hills on the western side of Lake Carey, north-east of Kalgoorlie. Growing in red clay loam soils with rocky surface in sparse vegetation dominated by *Eremophila lasiocarpa* and including *Acacia aneura* and chenopods.

*Conservation status.* Listed as Priority One under Conservation Codes for Western Australian Flora (Western Australian Herbarium 1998–) under the name *E. sp. Lake Carey* (E. Mattiske LM197). Only known from a few collections in an area subject to mining and mining exploration.

*Etymology.* The specific epithet is derived From the Greek *lasio*- (hairy, woolly) and *-carpus* (-fruited), in reference to the long hairs on the fruit.

*Affinities.* *Eremophila lasiocarpa* is related to *E. micrantha* Chinnock, *E. paisleyi* Chinnock and *E. falcata* Chinnock but may be distinguished from *E. micrantha* by its shorter leaves 7–12 mm long (*cf.* 18–25 mm long), its longer oblanceolate sepals 5–6 mm long (*cf.* lanceolate and 1.6–3 mm long) and longer pale cream to pink corolla 7–12 mm long (*cf.* white and 5–6.5 mm long). From *E. paisleyi* and *E. falcata* it may be distinguished by its shorter leaves 7–12 mm long (*cf.* 21–46 mm long and 19–31 mm long, respectively) and the lack of glandular hairs on the corolla and ovary.





**Figure 3.** *Eremophila lasiocarpa*. A – plant and habitat (*E. lasiocarpa* in the foreground); B – post-flowering plant showing the thickened leaves and fruit and the villous ovaries; C – an herbarium specimen indicating a flowering branch. Photographs by B.J. Buirchell.



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### **References**

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