

New species of *Eremophila* (Scrophulariaceae): thirteen geographically restricted species from Western Australia

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Abstract

Buirchell B.J. & Brown A.P. New species of *Eremophila* (Scrophulariaceae): thirteen geographically restricted species from Western Australia. *Nuytsia* 27: 253–283 (2016). Thirteen geographically restricted species of *Eremophila* R.Br. (*E. ballythunnensis* Buirchell & A.P.Br., *E. capricornica* Buirchell & A.P.Br., *E. daddii* Buirchell & A.P.Br., *E. ferricola* Buirchell & A.P.Br., *E. hamulata* Buirchell & A.P.Br., *E. jamesiorum* Buirchell & A.P.Br., *E. laccata* Buirchell & A.P.Br., *E. pusilliflora* Buirchell & A.P.Br., *E. regia* Buirchell & A.P.Br., *E. resiliens* Buirchell & A.P.Br., *E. scrobiculata* Buirchell & A.P.Br., *E. victoriae* Buirchell & A.P.Br. and *E. yinnetharrensensis* Buirchell & A.P.Br.) are described and illustrated and their relationships with related species and conservation status are discussed.

Introduction

Commonly known as poverty bushes, emu bushes and native fuchsias, *Eremophila* R.Br. species are among the best known members of the tribe Myoporeae Rchb. (formerly the family Myoporaceae), a group of plants largely confined to Australia and the South Pacific islands but also found in South Africa, Asia, Hawaii and the West Indies. Now a tribe within the Scrophulariaceae (Olmstead *et al.* 2001; Tank *et al.* 2006), the Myoporeae comprises seven genera, these being *Bontia* L., *Calamphoreus* Chinnock, *Diocirea* Chinnock, *Eremophila*, *Glycocystis* Chinnock, *Myoporum* R.Br. and *Pentacoelium* Sieb. & Zucc. *Eremophila* is the largest of these genera and in the 206 years that have elapsed since Robert Brown named *E. oppositifolia* R.Br. in 1810, 219 additional currently accepted species have been formally named. They are particularly abundant in Western Australia, where at least 183 named species are recognised, with about 82 per cent of these endemic, and over 100 have been named in the last ten years (Chinnock 2007; Chinnock & Doley 2011; Brown & Buirchell 2007, 2011).

We present here 13 new species, the majority of which appear to be highly geographically restricted. Most are found in very specific habitats and have a limited opportunity to migrate outside their current ranges.

Following from Brown and Buirchell (2007), this is the second in a series of papers in which we will together and separately formally describe many new species of *Eremophila* in Western Australia.

Methods

Studies of wild populations in the field and dried specimens held at the Western Australian Herbarium (PERTH) enabled morphological comparisons between proposed new species and related, currently named species. Field studies also provided information on biology, ecology and phenology for each of the new species. Several species described herein are known only from the type. Although additional populations have been located, specimens have not as of yet been collected from them. Terminology follows Chinnock (2007) and measurements are based on dried material. Glandular hairs are simple and branched hairs are eglandular unless otherwise stated. Maps are based on specimens held at PERTH and field observations.

Taxonomy

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

Type: [east of Ballythunna] Western Australia [precise locality withheld for conservation reasons], 16 August 2009, R. Davis 11395 (*holo:* PERTH 08142459; *iso:* CANB, MEL).

Eremophila sp. Ballythunna (R. Davis 11395), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

Illustration. A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia* p. 291 (2011), as *E. sp.* Ballythunna.

A low-growing, open *shrub* 10–40 cm high, 25–60 cm wide. *Branches* terete, dark grey, tuberculate with dendritic hairs mostly found on younger parts and present but less obvious on older parts; old leaf scars present. *Leaves* alternate, scattered or clustered towards the ends of branches, sessile, oblanceolate, grey-green, 4–12 mm long, 2–5 mm wide, the upper and lower surfaces covered in dendritic hairs, margins revolute. *Flowers* 1 per axil; pedicel 5–7 mm long, straight, with short dendritic hairs and longer dendritic hairs that increase in density towards the apex. *Sepals* 5, valvate, equal, lanceolate, green, turning burgundy with age, 8–12 mm long, 2–3 mm wide, not enlarging after anthesis; outer surface with dense, short dendritic hairs and scattered longer dendritic hairs especially on the margins; inner surface with scattered short glandular hairs and fewer longer dendritic hairs mainly at the distal end. *Corolla* purple, 14–20 mm long, outer and inner surfaces glabrous; lobes acute. *Stamens* 4, enclosed; filaments glabrous; anthers glabrous with some glandular hairs near the midline. *Ovary* glabrous. *Style* glabrous. *Fruit* not seen. (Figure 1)

Phenology. Predominantly flowers between June and August but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Found in the upper Murchison area from east of Ballythunna Homestead to near Bilung Pool on the Mullewa–Carnarvon Road (Figure 2), growing in shallow, brown, loamy clay soils on the slopes of rocky quartzite rises with *Acacia* spp., *Eremophila forrestii* F.Muell., *E. latrobei* F.Muell. and *E. spathulata* W.V.Fitzg. East of Ballythunna Homestead it is also found with *Eremophila* sp. Byro (R. Wait 6128/97).

Conservation status. Listed by Jones (2015) as Priority One under Department of Parks and Wildlife

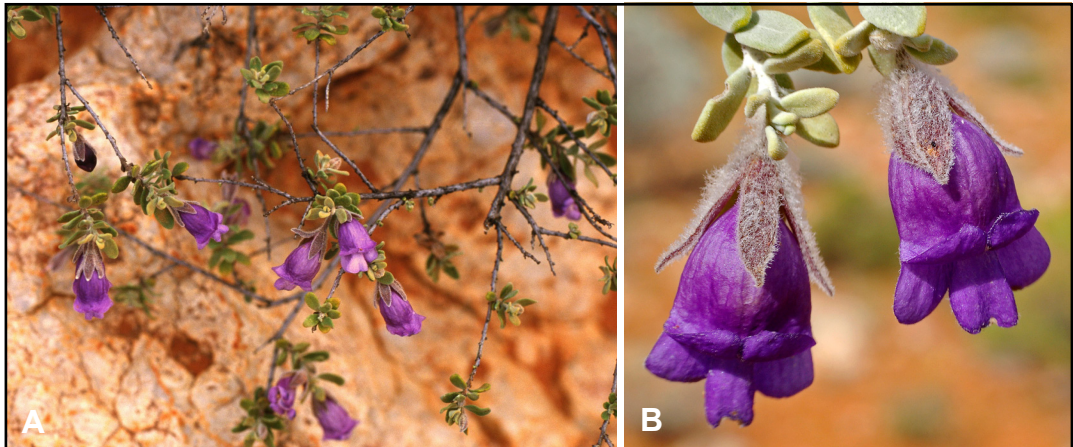


Figure 1. *Eremophila ballythunnensis*. A – plant showing the fine branches and grey-green leaves; B – flowers showing the purple corolla. Photographs by B. Buirchell (A) and A. Brown (B).

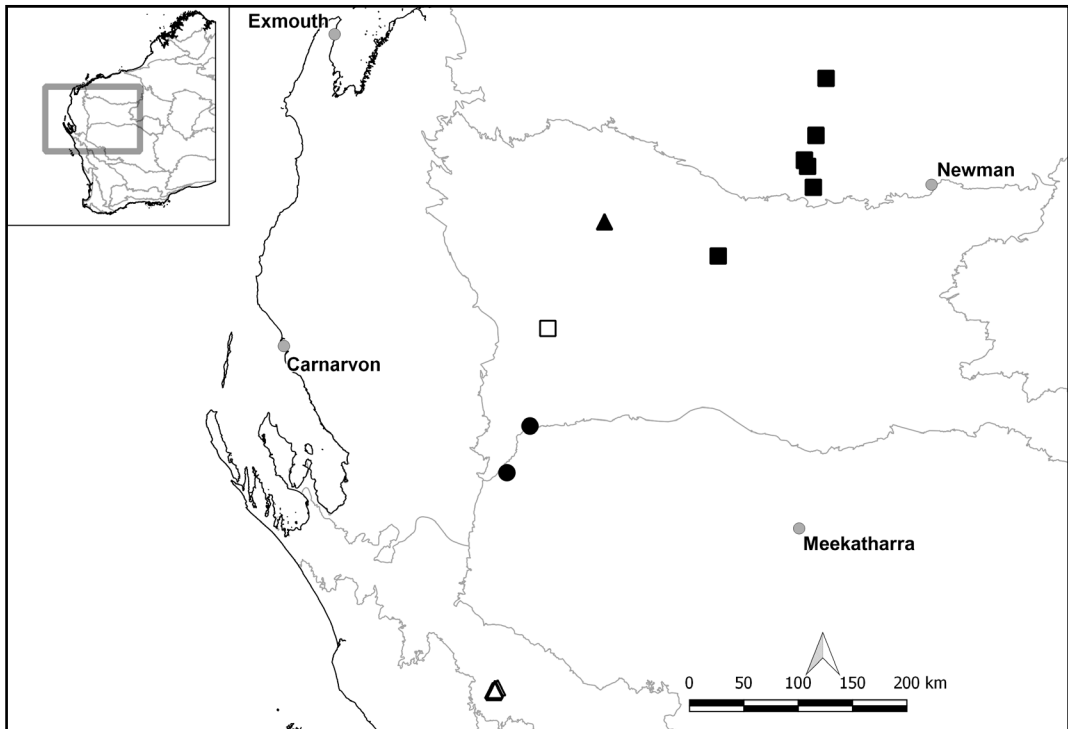


Figure 2. Distribution of *Eremophila ballythunnensis* (●), *E. ferricola* (△), *E. pusilliflora* (■), *E. scrobiculata* (▲) and *E. yinnetharrensis* (□) in Western Australia.

Conservation Codes for Western Australian Flora, under the phrase name *E. sp.* Ballythunna (R. Davis 11395). Although sometimes locally common, the species is mostly found in rare, scattered populations over a fairly narrow geographic range in habitat that is potentially threatened by pastoral activities.

Etymology. Named after Ballythunna Station where it was first observed.

Affinities. *Eremophila ballythunnensis* appears most closely related to *E. yinnetharrensensis* Buirchell & A.P.Br. from which it may be distinguished by its lower-growing habit, shorter pedicels and glabrous corolla (Table 1). These species are not known to occur near one another, with *E. ballythunnensis* found some 150 km south of *E. yinnetharrensensis*. *Eremophila ballythunnensis* is more distantly related to *E. muelleriana* C.A.Gardner from which it may be distinguished by its usually lower growing habit, smaller leaves, smaller sepals and glabrous, purple corolla (Table 1). *Eremophila ballythunnensis* is in *E. sect. Eriocalyx* Benth.

Table 1. Characters that differentiate *Eremophila ballythunnensis* from related species.

Character	<i>E. ballythunnensis</i>	<i>E. yinnetharrensensis</i>	<i>E. muelleriana</i>
Height	10–40 cm	150–300 cm	30–210 cm
Stem hairs	dendritic or absent	dendritic	dendritic and obscure short glandular
Leaf dimensions	4–12 × 2–5 mm	4–13 × 1–4 mm	7.5–19 × 6–12 mm
Pedicel length	5–7 mm	8–11 mm	6–12 mm
Sepal length	8–12 mm	9–14 mm	12–22 mm
Corolla hairs (on outer surface)	absent	dendritic	glandular
Corolla colour	purple	purple	burgundy

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

Type: towards Jigalong, Western Australia [precise locality withheld for conservation reasons], 24 July 2009, B. Buirchell BB 204 (*holo:* PERTH 08527601; *iso:* CANB).

Eremophila sp. Jigalong (B. Buirchell BB 204), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

Illustration. A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia* p. 297 (2011), as *E. sp.* Jigalong.

A small *shrub* 50–75 cm high, 50–75 cm wide. *Branches* terete, with woolly dendritic hairs; old leaf scars present. *Leaves* alternate, clustered towards the ends of branches, sessile, oblanceolate, grey, 8–12 mm long, 3–4 mm wide, acute with a prominent ridge, upper and lower surfaces with dendritic hairs, the margins entire. *Flowers* 1 per axil; pedicel 2–3 mm long, straight, rounded in cross section, with woolly dendritic indumentum. *Sepals* 5, valvate, equal, lanceolate, dark green to grey, 6–9 mm long, 1.5–3 mm wide, acute, sometimes reflexed, not enlarging after anthesis; outer surface with long dendritic hairs on margins and near the base and with finer dendritic hairs near the midline and towards the sepal apex; inner surface with short and long glandular hairs. *Corolla* mauve to lilac, 15–20 mm long; outer surface glabrous or with a few dendritic hairs towards the base; inner surface glabrous; lobes obtuse. *Stamens* 4, enclosed; filaments glabrous; anthers glabrous. *Ovary* glabrous. *Style* glabrous. *Fruit* not seen. (Figure 3)

Phenology. Predominantly flowers between June and August but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Found from east of Newman across to Jigalong (Figure 4), growing in sandy clay loams in open mulga shrubland with an understory of *Triodia* spp. and other grasses.

Conservation status. Listed by Jones (2015) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. sp. Jigalong* (B. Buirchell BB 204). Found in scattered populations over a fairly narrow geographic range.

Etymology. Named in reference to the Tropic of Capricorn around which it grows.

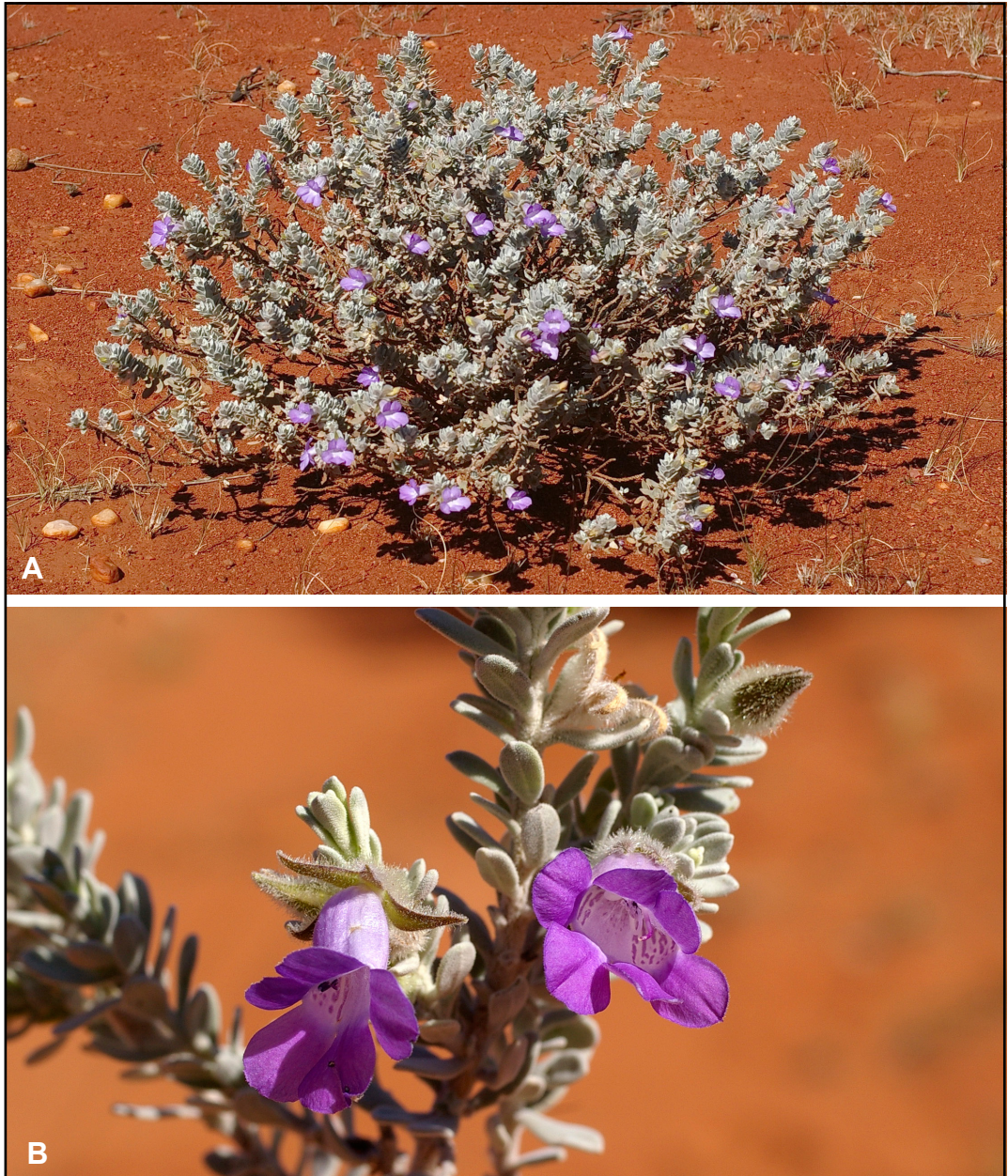


Figure 3. *Eremophila capricornica*. A – plant *in situ*; B – flowers and leaves. Photographs by B. Buirchell.

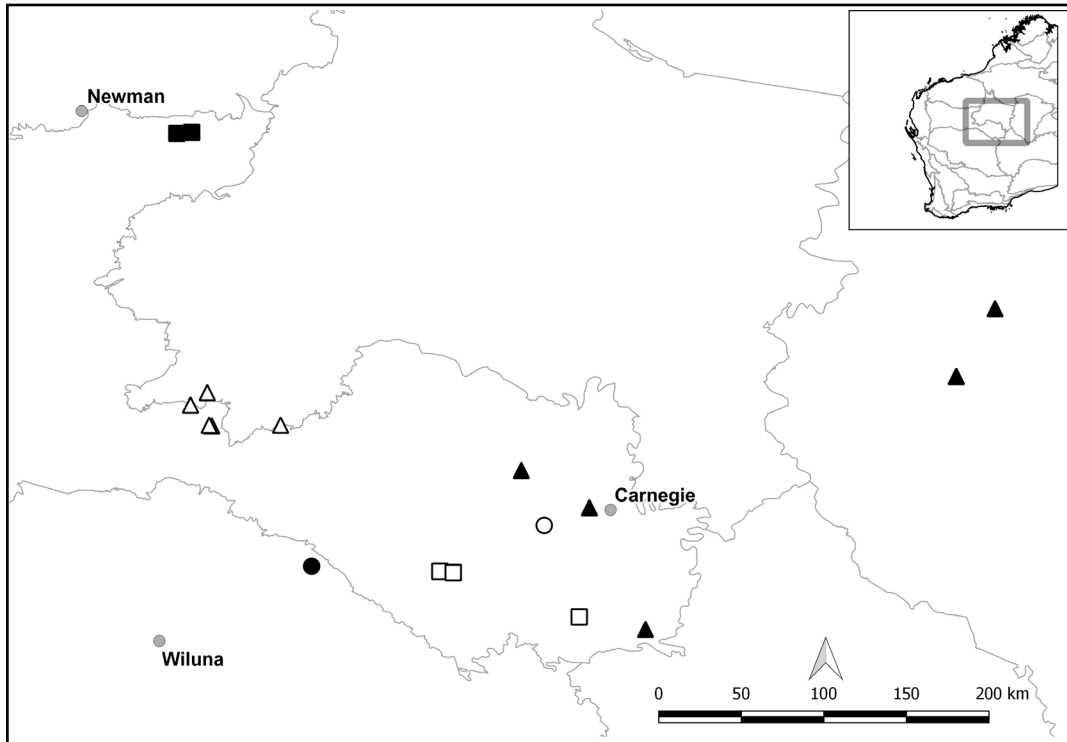


Figure 4. Distribution of *Eremophila daddii* (●), *E. capricornica* (■), *E. jamesiorum* (▲), *E. laccata* (△), *E. regia* (□) and *E. resiliens* (○) in Western Australia.

Affinities. *Eremophila capricornica* appears most closely related to *E. margarethae* S.Moore and *E. demissa* Chinnock, from which it may be distinguished by its oblanceolate leaves, its shorter pedicels, its corolla, which is glabrous or has fine dendritic hairs, and its glabrous style. The form of *E. margarethae* that grows nearest to *E. capricornica* in the Pilbara has linear leaves while *E. capricornica* has oblanceolate leaves (Table 2). *Eremophila capricornica* grows on sandy clay loams in open woodland amongst grasses while *E. margarethae* grows on red-brown or sandy clay loams in mulga woodlands or on gibber flats and *E. demissa* occurs on clay flats in open mulga woodlands or on treeless hardpan plains. *Eremophila capricornica* is separated from *E. demissa* by at least 170 km. *Eremophila capricornica* is in *E.* sect. *Eriocalyx*.

Table 2. Characters that differentiate *Eremophila capricornica* from *E. margarethae* and *E. demissa*.

Character	<i>E. capricornica</i>	<i>E. margarethae</i>	<i>E. demissa</i>
Height	50–75 cm	25–90 cm	25–40 cm
Leaf dimensions	8–12 × 3–4 mm	12–42 × 2–5 mm	5.5–13 × 2–4 mm
Leaf shape	oblanceolate	linear to linear-oblanceolate	obovate-elliptic
Pedicel length	2–3 mm	3.5–7.5 mm	3–7 mm
Sepal dimensions	6–9 × 1.5–3 mm	7.5–13 × 0.5–1.7 mm	9–14 × 2–5 mm
Sepal shape	lanceolate	linear-triangular to lanceolate	lanceolate to elliptic
Sepal hairs (on inner surface)	scattered glandular	dense glandular	dense glandular

Character	<i>E. capricornica</i>	<i>E. margarethae</i>	<i>E. demissa</i>
Corolla hairs (on outer surface)	absent or fine dendritic	substellate	glandular
Style hairs	absent	absent or with scattered simple eglandular or branched hairs	simple eglandular in basal half

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

Type: Lorna Glen Station, Western Australia [precise locality withheld for conservation reasons], 11 July 2009, R.J. Dadd 16 (*holo:* PERTH 08527598).

Eremophila sp. Lorna Glen (R.J. Dadd 16), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

Illustration. A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia* p. 303 (2011), as *E.* sp. Lorna Glen.

A large *shrub* 2–3 m high, 2–4 m wide. *Branches* terete, grey-brown, resinous, with fine, short, simple eglandular hairs; old leaf scars present. *Leaves* alternate, clustered towards ends of branches, petiolate, lanceolate to elliptic, dull green, 30–100 mm long, 10–20 mm wide, acuminate-mucronate; upper and lower surfaces covered with a mix of short, simple eglandular hairs and bifid hairs with occasional dendritic hairs, margins entire. *Flowers* 1 per axil; pedicel 15–20 mm long, slightly curved with simple eglandular hairs, flattened in cross section and broadening towards the attachment with the calyx. *Sepals* 5, imbricate, unequal, elliptic to narrowly oblanceolate, light brown, turning reddish pink with age, 18–31 mm long, 8–18 mm wide, reticulate, ridged, acute, mucronate, enlarging after anthesis; outer surface with mostly simple eglandular hairs but also with some bifid hairs, especially on the margins; inner surface with glandular hairs. *Corolla* light brown and cream with mauve spots, 20–30 mm long; outer surface with short glandular hairs and some longer simple eglandular hairs especially towards the apex; inner surface with glandular hairs or with longer simple eglandular hairs where the stamens meet the roof of the throat; lobes acute. *Stamens* 4, exserted; filaments with a mixture of glandular hairs and a few simple eglandular hairs; anthers mostly glabrous with some short glandular hairs near the midline. *Ovary* with glandular hairs. *Style* with simple eglandular hairs for most of its length and with a mix of simple eglandular and short glandular hairs near the base. *Fruit* not seen. (Figure 5)

Other specimen examined. WESTERN AUSTRALIA: [locality withheld for conservation reasons] 7 Oct. 2005, R.J. Cranfield 21730 (PERTH).

Phenology. Predominantly flowers between June and September but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Known from a single location north-east of Wiluna (Figure 4), growing in brown, loamy clay soil amongst granite outcrops and also at the base of and on a nearby breakaway with *Acacia* spp., *Senna artemisioides*, *Eremophila exilifolia* F.Muell., *E. latrobei* and *E. pungens* Chinnock.



Figure 5. *Eremophila daddii*. A – flower showing the long, narrow petals; B – habitat. Photographs by B. Buirchell.

Conservation status. Listed by Jones (2015) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. sp.* Lorna Glen (R.J. Dadd 16). Currently known from a single population.

Etymology. Named in honour of Mr Ronald James Dadd of Goomalling, who brought this species to our attention in 2008 and who, through his many years studying and cultivating *Eremophila* species, has played a significant role in our understanding of the genus.

Affinities. *Eremophila daddii* is perhaps most closely related to *E. fraseri* F.Muell. and *E. grandiflora* A.P.Br. & Buirchell, from which it may be distinguished by its dull leaves with a mix of simple eglandular and dendritic hairs, simple eglandular sepal hairs and usually paler-coloured corolla (Table 3). *Eremophila daddii* occurs some 100 km north-east of the nearest known population of *E. fraseri* and some 400 km north-east of *E. grandiflora*. The more distantly related *E. galeata* Chinnock has been found near *E. daddii* but grows in shallower soils away from the granite and breakaway habitat favoured by that species. *Eremophila daddii* is in *E. sect. Pulchrisepalae* Chinnock.

Notes. Ronald Dadd discovered this species in 2008 while participating in a biological survey of Lorna Glen Station. He recognised the species as new and since 2008 has made many trips to search for more populations, without success.

Table 3. Characters that differentiate *Eremophila daddii* from other species in the *E. fraseri* complex.

Character	<i>E. daddii</i>	<i>E. fraseri</i>	<i>E. galeata</i>	<i>E. flaccida</i>	<i>E. grandiflora</i>
Stem hairs	simple eglandular	absent	simple eglandular	absent	simple eglandular
Leaf shape	lanceolate to elliptic	oblong, elliptic, ovate to lanceolate	lanceolate to narrowly elliptic	linear-ob lanceolate to ovate	lanceolate to narrowly elliptic
Leaf dimensions	30–100 × 10–20 mm	25–45 × 12–28 mm	32–62 × 10–20 mm	30–95 × 4–30 mm	42–92 × 8–14 mm
Leaf hairs	simple eglandular and bifid with some dendritic	simple eglandular	simple eglandular	absent	simple eglandular
Leaf appearance	dull	shiny	shiny	shiny	shiny
Pedicle length	15–20 mm	15–35 mm	15–35 mm	30–45 mm	25–35 mm
Pedicle hairs	simple eglandular and some bifid	absent	simple eglandular	absent	scattered simple eglandular
Sepal shape	narrowly oblanceolate to elliptic	oblanceolate to broadly ovate	lanceolate to widely ovate	ovate	elliptic
Sepal hairs	simple eglandular with some bifid	absent or glandular papillate	absent or glandular papillate	glandular	absent

Character	<i>E. daddii</i>	<i>E. fraseri</i>	<i>E. galeata</i>	<i>E. flaccida</i>	<i>E. grandiflora</i>
Corolla hairs (on outer surface)	short glandular and long simple eglandular	glandular or long simple eglandular and obscure short glandular	glandular	glandular	glandular
Corolla colour	pale mauve with purple spots	pale lilac to whitish, variously spotted brown or purple or not spotted	dirty white, yellowish grey, pale lilac to reddish purple variously spotted red, red-brown or purple	purplish with a few brown spots	light brown with dark brown to purple spots

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

Type: north-east of Mullewa, Western Australia [precise locality withheld for conservation reasons], 8 July 2008, *P.-L. de Kock s.n. (holo: PERTH 08038724)*.

Eremophila sp. Tallering (J.D. Start & M.J. Greeve D 516), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

Illustration. A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia* p. 318 (2011), as *E. sp.* Tallering.

An erect *shrub* 1–3 m high, 1–2 m wide. *Branches* terete, grey-brown, tuberculate, glabrous; old leaf scars present. *Leaves* alternate, petiolate, lanceolate to oblong with a prominent mid-vein, green, 25–87 mm long, 6–27 mm wide, upper and lower surfaces glabrous, margins entire. *Flowers* 1 per axil; pedicel 10–25 mm long, sigmoidally curved, glabrous. *Sepals* 5, imbricate, unequal, obovate to oblanceolate, bright green to greenish brown, 7.5–17 mm long, 4–12 mm wide, mucronate, enlarging after anthesis and becoming ± prominently reticulate; outer and inner surface mostly glabrous except for a dense, white, tuft of matted hair at the apex, especially on the inner surface, margins with simple eglandular hairs especially near the apex. *Corolla* yellowish brown to greenish yellow, 20–30 mm long; outer surface with fine simple eglandular hairs; inner surface with short glandular hairs. *Stamens* 4 exerted; filaments glabrous; anthers glabrous. *Ovary* glabrous. *Style* glabrous. *Fruit* not seen. (Figure 6)

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 12 July 2007, *A. Chant* CP 152 (PERTH); 1 Sep. 2007, *C. Godden* 1 (PERTH); 9 July 2008, *P.-L. de Kock s.n.* (PERTH); 9 July 2008, *P.-L. de Kock* PLO 3 (PERTH); 9 July 2008, *P.-L. de Kock* PLO 4 (PERTH); 10 July 2008, *P.-L. de Kock s.n.* (PERTH); 10 July 2008, *P.-L. de Kock* PLO 5a (PERTH); 12 July 2007, *C. Page* 156 (PERTH); 5 Sep. 2003, *S. Patrick & A. Crawford* SP 4844 (PERTH); 26 Aug. 2003, *J.D. Start & M.J. Greeve* D 516 (PERTH).

Phenology. Predominantly flowers between July and September but may also flower at other times of the year in response to rainfall.



Figure 6. *Eremophila ferricola*. A – flower showing the greenish yellow corolla; B – plant *in situ* showing the banded ironstone habitat. Photographs by A. Brown (A) and B. Buirchell (B).

Distribution and habitat. Known from a single location north of Mullewa (Figure 2), growing in brown-red, ironstone soils on the upper slopes of a banded ironstone hill. Habitat comprises a dense shrubland of *Acacia tetragonophylla*, *Dodonaea viscosa*, *D. inaequifolia*, *Eremophila latrobei*, *Grevillea stenostachya* and *Ptilotus obovatus*.

Conservation status. Listed by Jones (2015) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. sp.* Tallering (J.D. Start & M.J. Greeve D 516). The species is known from a single population under threat from mining.

Etymology. From the latin *ferreus* (iron) and *-cola* (-dweller), referring to the species' banded ironstone habitat.

Affinities. *Eremophila ferricola* appears most closely related to *E. gibbosa* Chinnock and *E. serrulata* (Cunn. ex A.DC.) Druce. It may be distinguished from *E. gibbosa* by its often much longer, lanceolate to oblong leaves and simple eglandular hairs on the corolla. From *E. serrulata* it may be distinguished by its more erect habit, glabrous, tuberculate branches, hairy-margined sepals and simple eglandular hairs on the corolla (Table 4). *Eremophila ferricola* grows within 100 m of *E. serrulata* with no observed intergrades. *Eremophila ferricola* is in *E. sect. Virides* Chinnock.

Table 4. Characters that differentiate *Eremophila ferricola* from related green- to greenish yellow-flowered species.

Character	<i>E. ferricola</i>	<i>E. serrulata</i>	<i>E. gibbosa</i>
Stem surface	glabrous, tuberculate	stellate- or dendritic-hairy, not tuberculate	glabrous, tuberculate
Leaf shape	lanceolate to oblong	lanceolate to obovate	ovate to elliptic
Leaf hairs	absent	simple eglandular or stellate	absent
Leaf dimensions	25–87 × 6–27 mm	11–85 × 3–30 mm	12–45 × 4–22 mm
Pedicel hairs	absent	substellate to dendritic	glandular papillate
Sepal shape	oblanceolate to obovate	oblanceolate to obovate	obovate to oblong or oblanceolate
Sepal outer surface	mostly glabrous, margins with simple eglandular hairs near sepal apex	glabrous	mostly glabrous, margins with simple eglandular hairs near sepal apex
Sepal inner surface	mostly glabrous, margins with simple eglandular hairs near sepal apex	glabrous	mostly glabrous, margins with simple eglandular hairs near sepal apex
Corolla hairs (on outer surface)	simple eglandular	glandular	glandular

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

Type: north of Hyden–Norseman Road, Western Australia [precise locality withheld for conservation reasons], 30 August 1999, *A.P. Brown* 3615 (*holo:* PERTH 07466366; *iso:* CANB, MEL).

Eremophila sp. McDermid Rock (A.P. Brown 3615), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

Illustration. A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia* p. 304 (2011), as *E. sp.* McDermid Rock.

An erect, moderately dense, woody *shrub* 1–2 m high, 0.8–1.7 m wide. *Branches* terete, grey, resinous, resin obscuring short simple eglandular and branched hairs, especially on the leaf axils. *Leaves* alternate and hooked, scattered along branches, sessile, linear-subterete, green, 12–22 mm long, 0.5–1.5 mm wide, glabrescent, young leaves with short simple eglandular and branched hairs, especially near leaf axils. *Flowers* 1 per axil; pedicel 12–15 mm long, straight, with a mix of simple eglandular and branched hairs near base, the remainder glabrous. *Sepals* 5, imbricate, equal, lanceolate, green, 5–7 mm long, 1–2 mm wide, acute, not enlarging after anthesis; outer surface resinous with a mixture of glandular and stellate hairs on the margins; inner surface with glandular hairs. *Corolla* mauve-purple, unspotted, 10–20 mm long; outer surface villous with glandular hairs; inner surface with a tuft of white simple eglandular hairs in the throat. *Stamens* 4, enclosed; filaments glabrous; anthers glabrous. *Ovary* glabrous. *Style* with long simple eglandular hairs. *Fruit* not seen. (Figure 7)

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 23 Sep. 1995, *N. Gibson & M. Lyons* 2944 (PERTH); 24 Sep. 1981, *K.R. Newbey* 9450 (PERTH).

Phenology. Predominantly flowers between August and October but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Found in scattered locations between McDermid Rock and Diemals Station (Figure 8), growing mainly in brown, clay loam on the margins of granite rocks with *Acacia acuminata*, *Eucalyptus loxophleba* and *Senna* spp. On the lower slopes of the Helena and Aurora Range it is also found in brownish red, ironstone soils in creek lines and adjacent woodlands. It is more rarely found on sandy soils in open woodlands and slopes to salt lakes.

Conservation status. Listed by Jones (2015) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. sp.* McDermid Rock (A.P. Brown 3615). Although found over a large geographic range with some populations in the Helena and Aurora Range Conservation Park, other populations are threatened by proposed mining.

Etymology. From the Latin *hamulatus* (armed with small hooks), in reference to the hooked tips of the leaves.

Affinities. *Eremophila hamulata* appears most closely related to *E. phillipsii* F.Muell., from which it may be distinguished by its single flower per leaf axil, usually shorter leaves, obscure simple eglandular and branched hairs and the absence of a strong leaf odour (Table 5). *Eremophila hamulata* is also



Figure 7. *Eremophila hamulata*. A - branch showing the hooked leaves, and flowers with long pedicels and mauve corolla; B - plant *in situ* showing habit. Photographs by A. Brown.

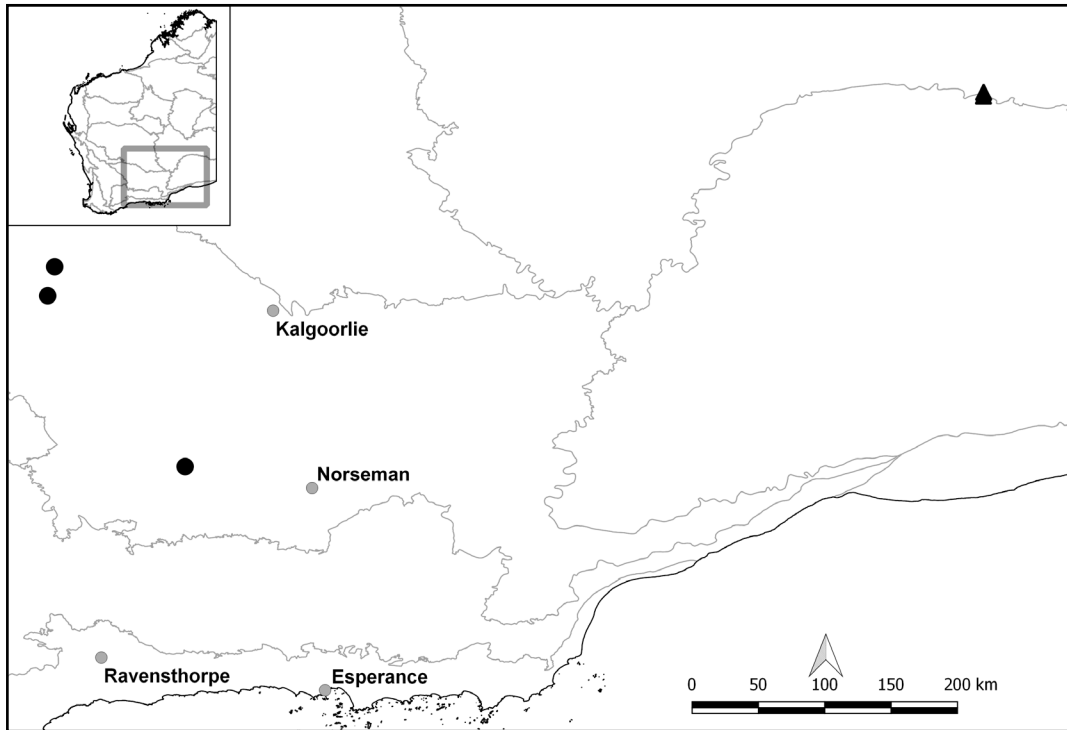


Figure 8. Distribution of *Eremophila hamulata* (●) and *E. victoriae* (▲) in Western Australia.

related to *E. labrosa* Chinnock, *E. succinea* Chinnock and *E. drummondii* F.Muell. From *E. labrosa* it may be distinguished by the absence of hairs on the older leaves and stems, from *E. succinea* it may be distinguished by its glabrous ovary and the glandular hairs on its corolla, and from *E. drummondii* it may be distinguished by the glandular hairs on its corolla and sepals. *Eremophila hamulata* is in *E. sect. Australophilae* Chinnock.

Table 5. Characters that differentiate *Eremophila hamulata* from related species.

Character	<i>E. hamulata</i>	<i>E. phillipsii</i>	<i>E. succinea</i>	<i>E. labrosa</i>	<i>E. drummondii</i>
Stem hairs	mostly absent (some simple eglandular and branched hairs on young stems)	absent	absent	stellate	absent
Leaf shape	linear-subterete, uncinate	linear to linear- elliptic	linear-subterete, uncinate	linear-subterete, uncinate	linear-terete to linear oblancoolate
Leaf dimensions	12–22 × 0.5–1.5 mm	20–45 × 0.8–2.5 mm	15.5–31 × 1–2 mm	5–19 × 0.8–2 mm	10–45 × 0.7–6 mm
Leaf hairs	mostly absent (some simple eglandular and branched hairs on young leaves)	absent	absent	stellate	absent

Character	<i>E. hamulata</i>	<i>E. phillipsii</i>	<i>E. succinea</i>	<i>E. labrosa</i>	<i>E. drummondii</i>
Leaf odour	absent	strong	absent	absent	absent
Pediceal length	12–15 mm	6–12 mm	4–9 mm	5.5–11 mm	6–30 mm
Pediceal hairs	simple eglandular and branched at base of pediceal, absent above	glandular	absent	stellate	absent
Sepal shape	lanceolate	lanceolate	oblanceolate	ovate to elliptic	ovate to lanceolate
Sepal dimensions	5–7 × 1–2 mm	3–5.5 × 1–2 mm	5–8.5 × 1–3 mm	3.5–6 × 1–2.5 mm	3.5–6 × 1.5–4.5 mm
Sepal hairs (on inner surface)	glandular	glandular	glandular (sepal margins with a mixture of glandular and simple eglandular hairs)	glandular	absent or rare simple eglandular
Corolla hairs (on outer surface)	glandular	glandular	simple eglandular	glandular	absent
Ovary hairs	absent	absent	short glandular and long simple eglandular	absent	absent
Habitat	granite outcrops, more rarely woodlands, salt lake margins and ironstone hills	woodlands and margins of granite outcrops	woodlands	woodlands	woodlands

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

Type: Gibson Desert, Western Australia [precise locality withheld for conservation reasons], September 1992, *Desert Dreaming Expedition 93* (*holo:* PERTH 03169774).

Eremophila sp. Young Range (Desert Dreaming Expedition 93), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

A tall, wispy, viscid *shrub* 1.5–2 m high, 0.5–1 m wide. *Branches* terete, grey, glabrous, glandular papillate. *Leaves* alternate, sessile, linear, green, 18–45 mm long, 0.5–0.7 mm wide, papillate, with a distinct furrow, mucronate, the upper and lower surfaces glabrous. *Flowers* 1 per axil; pediceal 8–18 mm long, straight, glabrous, subterete, broadening towards the attachment with the calyx. *Sepals* 5, valvate, equal, narrow-linear to lanceolate, green, 3–8 mm long, 0.5–1.2 mm wide, acute; outer surface mostly glabrous with a fringe of glandular and simple eglandular hairs; inner surface with long simple eglandular hairs mainly in the midsection. *Corolla* light pinkish white to mauve

with dark bars on lower side, 15–22 mm long; outer surface with a mix of short and long glandular hairs; inner surface mostly glabrous, with some fine white simple eglandular hairs in the throat, lobes obtuse. *Stamens* 4, enclosed; filaments with sparse glandular hairs; anthers glabrous. *Ovary* densely hairy with long simple eglandular hairs. *Style* with simple eglandular hairs. *Fruit* not seen. (Figure 9)

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] Sep. 1992, *Desert Dreaming Expedition* 84 (PERTH); Sep. 1992, *Desert Dreaming Expedition* 85 (PERTH); Sep. 1992, *Desert Dreaming Expedition* 86 (PERTH); Sep. 1992, *Desert Dreaming Expedition* 107 (PERTH); Sep. 1992, *Desert Dreaming Expedition* 108 (PERTH); Sep. 1992, *Desert Dreaming Expedition* 115 (PERTH).

Phenology. Predominantly flowers during August and September but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Found from the Alfred Marie Range west to Carnegie in the Gibson Desert (Figure 4), growing on crumbling clay loams at the base of hills.

Conservation status. Listed by Jones (2015) as Priority Two under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. sp. Young Range* (Desert Dreaming Expedition 93). The distribution of this species is poorly defined and requires additional field study.



Figure 9. *Eremophila jamesiorum* branch showing the flowers and leaves. Photograph by P. James.

Etymology. Named in honour of Phil and Marlene James, owners of ‘Eremophila Native Nursery’, who have contributed greatly to the cultivation of *Eremophila* species and also to our taxonomic understanding of the genus.

Affinities. *Eremophila jamesiorum* appears related to a complex of species that include *E. hughesii* F.Muell. and *E. pendulina* Chinnock. All are tall, wispy shrubs growing near to or on rocky hills. *Eremophila jamesiorum* may be distinguished from these taxa by having a single flower per leaf axil consistently, simple eglandular hairs on the inner surface of the sepals and very densely hairy ovary covered in significantly longer simple eglandular hairs. The flower pedicel in *E. jamesiorum* is shorter than that of *E. hughesii* and usually longer than that of *E. pendulina* (Table 6). The species is found between the ranges of *E. hughesii* and *E. pendulina*. *Eremophila jamesiorum* is in *E.* sect. *Eremaea* Chinnock.

Table 6. Characters that differentiate *Eremophila jamesiorum* from related species.

Character	<i>E. jamesiorum</i>	<i>E. pendulina</i>	<i>E. hughesii</i>
Stem hairs	absent	sparse, with both glandular and simple eglandular	absent
Leaf hairs	absent	both glandular and simple eglandular	absent
Leaf dimensions	18–45 × 0.5–0.7 mm	9–24 × 0.5–1.8 mm	20–50 × 0.7–1.8 mm
Flowers per axil	1	1–4	1–4
Pedicel length	8–18 mm	6–10 mm	17–30 mm
Sepal hairs (on inner surface)	simple eglandular	glandular	glandular
Sepals dimensions	3–8 × 0.5–1.2 mm	6–9.5 × 1.5–2.5 mm	7–10.3 × 1.7–3.2 mm
Ovary indumentum	very densely hairy with long simple eglandular hairs (0.6–3.0 mm)	densely hairy with short simple eglandular hairs (0.1–0.25 mm)	sparsely hairy with short simple eglandular and glandular hairs (0.05–0.3 mm)

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

Type: west of Yamada Waterhole, Western Australia [precise locality withheld for conservation reasons], 6 July 2011, R.J. Dadd 28 (*holo:* PERTH 08527695; *iso:* CANB).

Eremophila sp. Mt Methwin (B. Backhouse et al. BEMJ 74), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

A low-growing, spindly *shrub* 30–120 cm high, 40–100 cm wide. *Branches* terete, grey, dying back at the tips, glabrous and resinous. *Leaves* alternate, revolute, sessile, linear, green, 7–18 mm long, 0.5–1.5 mm wide, the outer and inner surfaces glabrous, sometimes tuberculate near distal end. *Flowers* 1 per axil; pedicel 3–5 mm long, terete, slightly curved, glabrous, resinous and papillate. *Sepals* 5,

valvate, equal, lanceolate, green, 3–4 mm long, 1–1.5 mm wide, acute, not enlarging after anthesis, outer surface glabrous; inner surface with simple eglandular hairs on the distal quarter. *Corolla* pinkish white to pale purple with reddish purple spots or bars on lower side, 10–11 mm long, outer surface with short glandular hairs; inner surface with scurfy simple eglandular hairs in lower part and longer simple eglandular hairs in the upper part. *Stamens* 4, enclosed; filaments sparsely glandular-pubescent; anthers glabrous. *Ovary* glabrous. *Style* short, less than half the length of the corolla tube, with scattered simple eglandular hairs on the under surface only. *Fruit* ovoid, glabrous, shiny, becoming purplish black with age. (Figure 10)

Other specimens examined WESTERN AUSTRALIA: [localities withheld for conservation reasons] 27 Aug. 1998, B. & B. Backhouse, D. Edinger, G. Marsh, B. & R. Johnson BEMJ 74 (PERTH); 6 June 2011, R. Graham & S. Colwill KA 049 (PERTH); 5 July 2000, F. Kininmonth 17 (PERTH); 1 June 2012 M. Stone & S. Colwill 34402 (PERTH).

Phenology. Predominantly flowers between June and September but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Found beyond the eastern boundaries of Marymia and Neds Creek Stations and east towards the Canning Stock Route (Figure 4), growing in brown-red, loamy soil where underlying rock comes close to the surface, in areas of open mulga. Associated species include *Acacia aneura*, *Eremophila citrina*, *E. latrobei* subsp. *latrobei*, *E. foliosissima*, *Triodia* and *Ptilotus* species.

Conservation status. Listed by Jones (2015) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. sp.* Mt Methwin (B. Backhouse et al. BEMJ 74). The species is known from few populations and requires further survey.

Etymology. From the Latin *laccatus* (looking as if varnished), in reference to the smooth, shiny fruit.



Figure 10. *Eremophila laccata*. A – flowers showing the small, triangular, pinkish white corolla and the short pedicel; B – plant *in situ* showing habit. Photographs by B. Buirchell.

Affinities. *Eremophila laccata* is related to *E. shonae* Chinnock and *E. battii* F.Muell. It is distinguished from *E. shonae* by the absence of hairs on the ovary and the consistently glabrous outer surface to the sepals. While *E. laccata* has similar leaf shape to *E. battii* the absence of hairs on the leaves, stems, outer surface of sepals and ovary distinguishes it from that species (Table 7). *Eremophila laccata* is in *E.* sect. *Eremaea*.

Table 7. Characters that differentiate *Eremophila laccata* from *E. shonae* and *E. battii*.

Character	<i>E. laccata</i>	<i>E. shonae</i>	<i>E. battii</i>
Stem hairs	absent	absent	simple eglandular
Leaf hairs	absent	absent	simple eglandular
Sepal hairs (on outer surface)	absent	absent or scattered simple eglandular	simple eglandular and short glandular
Sepal hairs (on inner surface)	short simple eglandular	short simple eglandular	short glandular
Corolla hairs (on outer surface)	short glandular	short simple eglandular	long simple eglandular and short glandular
Ovary hairs	absent	simple eglandular	simple eglandular
Style hairs	simple eglandular on under surface only	simple eglandular	simple eglandular in the basal half

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

Type: Karijini National Park, Western Australia [precise locality withheld for conservation reasons], 15 July 2000, *S. van Leeuwen* 4594 (*holo:* PERTH 07494211).

Eremophila forrestii subsp. Pingandy (M.E. Trudgen 2662), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

Illustration. A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia* p. 313 (2011), as *E.* sp. Pingandy.

A low-growing, open *shrub* 30–50 cm high, 50–100 cm wide. *Branches* terete, grey, new growth pubescent, comprising dense dendritic hairs, old growth glabrescent with rare scattered dendritic hairs. *Leaves* alternate, clustered at the ends of branches, sessile, oblanceolate to narrowly ovate, green, 6–15 mm long, 2–5 mm wide, upper and lower surfaces pubescent with dendritic hairs; margins revolute. *Flowers* 1 per axil; pedicel 4–7 mm long, slightly curved, tomentose with dendritic hairs. *Sepals* 5, valvate, equal, elliptic, green becoming reddish pink with age, 11–15 mm long, 3–5 mm wide, acute, pustulate, veined, enlarging after anthesis; outer surface with dendritic hairs; inner surface mostly glabrous with dendritic hairs only on the tips. *Corolla* variably red, pink or purple, or more rarely pale yellow or cream with red suffusions, unspotted, 8–10 mm long, lobes acute, outer and inner surfaces with sparse glandular hairs. *Stamens* 4, exserted; filaments with sparse glandular hairs; anthers glabrous. *Ovary* glabrous. *Style* glabrous. *Fruit* not seen. (Figure 11)



Figure 11. *Eremophila pusilliflora*. A – branch showing the comparative size of the leaves and corolla; B – flowers illustrating the prominent stamens. Photograph by B. Buirchell.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 25 Apr. 2012, *H. Ajduk* ENV 535 (PERTH); 21 July 2011, *J.M. Collins* ENV 39 (PERTH); 23 July 2011, *J. Mattner* ENV 37 (PERTH); 25 Apr. 2012, *K. McMaster* ENV 534 (PERTH); 13 June 1977, *A.A. Mitchell* 380 (PERTH); 18 May 1980, *M.E. Trudgen* 2662 (PERTH).

Phenology. Predominantly flowers between April and September but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Found on seasonally inundated alluvial plains between Turee Creek, Pingandy Creek and drainage systems leading into the Ashburton River (Figure 2), growing in red-brown sandy loam soils in open low shrubland with *Acacia aneura*, *Ptilotus nobilis*, *Goodenia* and *Triodia* species.

Conservation status. Listed by Jones (2015) as Priority Two under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. forrestii* subsp. *Pingandy* (*M.E. Trudgen* 2662). The species is known from a relatively narrow geographic range.

Etymology. From the Latin *pusillus* (very small) and *-florus* (-flowered), in reference to the small flowers of this species as compared to the related *E. forrestii*.

Affinities. *Eremophila pusilliflora* is related to *E. forrestii*, from which it may be distinguished by its lower-growing habit, consistently smaller leaves, shorter corolla and distinctively pustulate sepals with a glabrous inner surface (Table 8). The sepals turn reddish pink with age whereas those in *E. forrestii* remain the same colour. *Eremophila pusilliflora* is in *E.* sect. *Eriocalyx*.

Notes. *Eremophila pusilliflora* was first collected in June 1977 by Andrew Mitchell who recognised it as distinct and brought it to our attention.

Table 8. Characters that differentiate *Eremophila pusilliflora* from *E. forrestii*.

Character	<i>E. pusilliflora</i>	<i>E. forrestii</i>
Height	30–50 cm	50–200 cm
Stems hairs	scattered dendritic	dense dendritic
Leaf shape	oblanceolate to narrowly ovate	oblanceolate, ovate, obovate to orbicular
Leaf dimensions	6–15 × 2–5 mm	11–30 × 6.5–16 mm
Leaf hairs	dendritic	stellate to dendritic
Pedicle length	4–7 mm	4–24 mm
Sepals (on outer and inner surface)	pustulate	lacking pustules
Sepal shape	elliptic	lanceolate, oblanceolate to obovate
Sepal dimensions	11–15 × 3–5 mm	9–19 × 2–7.5 mm
Sepal inner surface	mostly glabrous with some dendritic hairs on the tips	stellate- or dendritic-hairy
Corolla length	8–10 mm	18–25 mm
Corolla (on outer surface)	sparsely glandular-hairy	sparsely to densely glandular- or dendritic-hairy

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

Type: Princess Ranges, Western Australia [precise locality withheld for conservation reasons], 10 June 2004, M. Greeve 38 (*holo:* PERTH 06958265).

Eremophila sp. Princess Ranges (M. Greeve 38), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

Illustration. A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia* p. 315 (2011), as *E. sp.* Princess Range.

A low-growing *shrub* 20–30 cm high, 30–50 cm wide. *Branches* terete, grey to black, tuberculate, glabrescent with glandular and scattered dendritic hairs found only on younger parts of the stem; old leaf scars present. *Leaves* alternate, sessile, filiform or linear, green, 5–11 mm long, 1–1.5 mm wide, tuberculate, glabrescent, the inner and outer surfaces of younger leaves with glandular hairs and rare finely branched hairs. *Flowers* 1 per axil; pedicel 5–9 mm long, terete, slightly curved with scattered dendritic hairs. *Sepals* 5, reflexed, valvate, equal, lanceolate, green to dark reddish pink, 8–9 mm long, 2–4 mm wide, acute, enlarging after anthesis; outer surface with sparse to dense dendritic hairs; inner surface mostly glabrous with rare dendritic hairs on the distal quarter. *Corolla* pink to pinkish red, unspotted, 8–12 mm long, outer and inner surfaces with glandular hairs. *Stamens* 4, exserted; filaments with sparse glandular hairs; anthers glabrous. *Ovary* glabrous. *Style* glabrous. *Fruit* not seen. (Figure 12)

Other specimen examined. WESTERN AUSTRALIA: [locality withheld for conservation reasons] July 1941, F.M. Bennett 89 (PERTH).

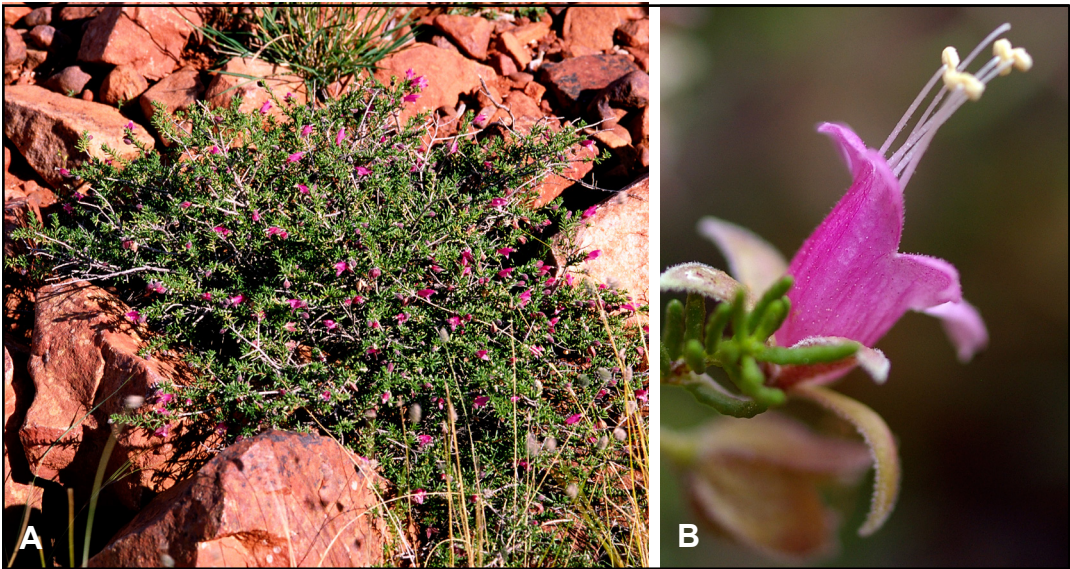


Figure 12. *Eremophila regia*. A – flowering plant *in situ* showing its low habit and stony soil habitat; B – flower showing the characteristic pink corolla, exerted stamens and reflexed sepals. Photographs by A. Brown (A) and B. Buirchell (B).

Phenology. Predominantly flowers between June and August but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Found in the Princess Range and eastwards on Prenti Downs Station (Figure 4), growing on the rocky tops and slopes of hills in low, open shrubland with *Eremophila citrina*, *E. latrobei* and *Acacia*, *Ptilotus*, *Senna*, *Solanum* and *Thryptomene* species.

Conservation status. Listed by Jones (2015) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. sp.* Princess Ranges (M. Greeve 38). The species is known from a restricted habitat at two locations in pastoral country.

Etymology. From the Latin *regius* (royal), in reference to the species being found in the Princess Ranges.

Affinities. *Eremophila regia* is a distinctive species related to *E. latrobei*, from which it may be distinguished by its low-growing habit, shorter sepals and smaller corolla (Table 9). *Eremophila regia* is in *E. sect. Eriocalyx*.

Notes. A rare form with lemon flowers has been recorded.

Table 9. Characters that differentiate *Eremophila regia* from *E. latrobei*.

Character	<i>E. regia</i>	<i>E. latrobei</i>
Height	20–30 cm	50–400 cm
Stems hairs	glandular and scattered dendritic	stellate to dendritic or glandular
Leaf shape	filiform or linear	filiform and subterete to linear or linear-oblongate
Leaf dimensions	5–11 × 1–1.5 mm	9–50 × 1–3.5 mm

Character	<i>E. regia</i>	<i>E. latrobei</i>
Leaf indumentum	glabrescent, with rare glandular and fine dendritic hairs on young growth	glandular-pubescent, glabrescent or finely stellate-pubescent to -tomentose
Pedicle length	5–9 mm	5–11 mm
Pedicle hairs	dendritic	stellate to dendritic
Sepal shape	lanceolate	lanceolate
Sepal dimensions	8–9 × 2–4 mm	10–19 × 3–5.5 mm
Corolla length	8–12 mm	20–32 mm
Corolla outer surface	glandular-pubescent	sparsely glandular-pubescent

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

Type: [west of Carnegie] Western Australia [precise locality withheld for conservation reasons], 12 July 2010, R.J. Dadd 27 (*holo:* PERTH 08527628; *iso:* CANB, MEL).

Eremophila sp. Nooloo breakaway (R.J. Dadd 27), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

Illustration. A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia* p. 310 (2011), as *E. sp.* Nooloo Breakaway.

A low *shrub* 15–30 cm high, 30–75 cm wide. *Branches* terete, grey, tomentose, with long dendritic hairs, some of which have brown glandular apices; old leaf scars present. *Leaves* alternate, clustered towards the ends of branches, sessile, oblanceolate-obovate, grey, 7–20 mm long, 3–7 mm wide, margins sometimes thickened, upper and lower surfaces with dendritic hairs; hairs on young leaves sometimes with a brown glandular apex. *Flowers* 1 per axil; pedicel 5–8 mm long, straight, tomentose with long dendritic hairs, some with brown glandular apices. *Sepals* 5, valvate, equal, linear-oblong, green, 8–12 mm long, 1.5–4 mm wide, not enlarging after anthesis; outer surface, tomentose with long dendritic hairs; inner surface with scattered long dendritic hairs, some with brown glandular tips. *Corolla* deep reddish purple, drying blackish purple, 15–20 mm long, outer surface with short, brown-tipped glandular hairs, inner surface with long, wispy, simple eglandular hairs extending out of the throat onto the upper lobes, small purple spots internally; lobes acute. *Stamens* 4, enclosed; filaments glabrous or with sparse glandular hairs; anthers glabrous. *Ovary* glabrous. *Style* with simple eglandular hairs usually only on one side. *Fruit* not seen. (Figure 13)

Other specimen examined. WESTERN AUSTRALIA: [locality withheld for conservation reasons] 28 Aug. 2013, B. Buirchell BB 300 (PERTH).

Phenology. Predominantly flowers in August but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Known from a restricted area west of Carnegie (Figure 4), growing on stony, loamy clay soils on gentle slopes to breakaways in a tall, open shrubland of *Acacia aneura*.

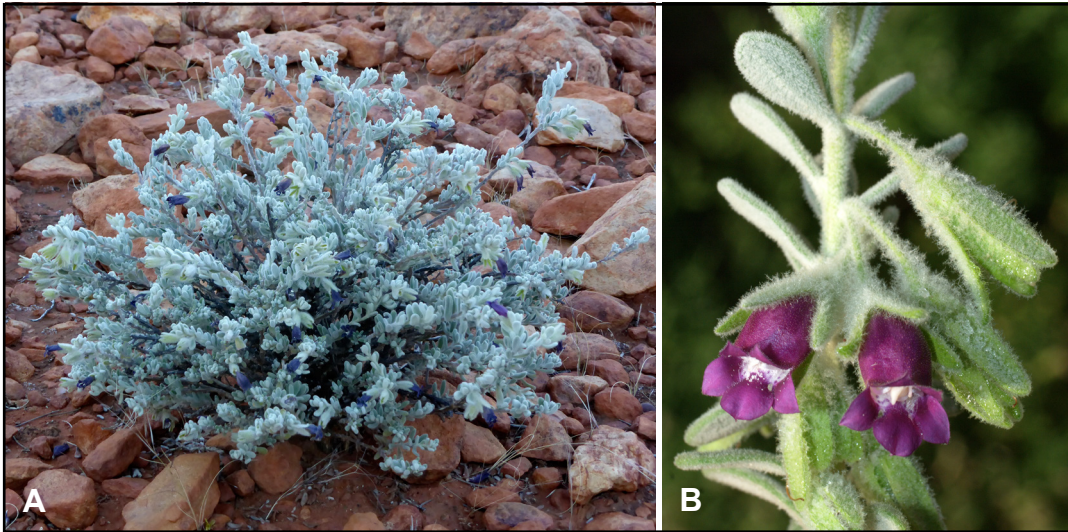


Figure 13. *Eremophila resiliens*. A – plant *in situ* showing its small stature and the rocky habitat; B – branch showing the deep reddish purple flowers and green-grey leaves. Photograph by B. Buirchell (A) and A. Brown (B).

Conservation status. Listed by Jones (2015) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. sp.* Nooloo breakaway (R.J. Dadd 27). The species is known from a single population that, although not under immediate threat, could possibly be subject to future mining.

Etymology. From the Latin *resiliens* (springing back), in reference to this species' ability to recover from drought. When first discovered, plants were in poor condition with few leaves at the ends of branches but, following rain, fully recovered, producing a dense covering of leaves.

Affinities. The deep reddish purple flower coloration of *E. resiliens* is rare in the genus with only *E. muelleriana* having flowers similar in color. *Eremophila resiliens* may be distinguished from *E. muelleriana* by its shorter stature, shorter sepals and usually narrower leaves. From other low-growing similarly grey-leaved *Eremophila* species such as *E. caespitosa* Chinnock, *E. revoluta* Chinnock and *E. lanata* Chinnock, *E. resiliens* may be distinguished by its broader oblanceolate-obovate leaves (Table 10). *Eremophila resiliens* is in *E. sect. Eriocalyx*.

Notes. Upon drying the flowers of *E. resiliens* darken to blackish purple.

Table 10. Characters that differentiate *Eremophila resiliens* from similar grey-leaved species.

Character	<i>E. resiliens</i>	<i>E. muelleriana</i>	<i>E. revoluta</i>	<i>E. lanata</i>	<i>E. caespitosa</i>
Height	15–30 cm	30–210 cm	10–50 cm	10–30 cm	15–20 cm
Stems hairs	dendritic, sometimes with brown glandular apices	dendritic and obscure glandular	dendritic, sometimes with brown glandular apices	dendritic	glandular
Leaf shape	oblanceolate-obovate	ovate, obovate or suborbicular	oblong	oblong to linear-oblanceolate	linear

Character	<i>E. resiliens</i>	<i>E. muelleriana</i>	<i>E. revoluta</i>	<i>E. lanata</i>	<i>E. caespitosa</i>
Leaf dimensions	7–20 × 3–7 mm	7.5–19 × 6–12 mm	3–5.5 × 0.9–1.6 mm	8–10 × 1.5–2.5 mm	6–14 × 0.8–1.8 mm
Leaf hairs	dendritic, sometimes with brown glandular apices	dendritic and short glandular	dendritic, sometimes with brown glandular apices	densely dendritic and simple eglandular	short glandular
Pedicle length	5–8 mm	6–12 mm	2–4.5 mm	1–4 mm	2.5–5.5 mm
Pedicle hairs	dendritic	dendritic	dendritic	short dendritic with scattered long simple eglandular and branched	branched
Sepal shape	linear-elliptic	lanceolate to elliptic	linear to narrowly triangular	linear-elliptic to lanceolate	linear or lanceolate
Sepal dimensions	8–12 × 1.5–4 mm	12–22 × 1.5–3 mm	5–13 × 0.7–1.3 mm	7–10 × 1–1.8 mm	9–12 × 0.8–1.5 mm
Sepal hairs (on inner surface)	long dendritic	dendritic and short glandular	long, branched some with a glandular apex	long, branched eglandular and short glandular	glandular and scattered dendritic towards the apex
Corolla hairs (on outer surface)	short glandular	glandular	absent	glandular	simple eglandular and dendritic
Ovary hairs	absent	absent	absent	obscurely glandular in distal third absent below	mostly absent with glandular hairs near the apex

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

Type: Wanna Station, Western Australia, 13 August 2005, *M.J. Greeve & J.D. Start* D7 44 (*holo:* PERTH 07276508).

Eremophila sp. Wanna (M.J. Greeve & J.D. Start D7 44), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

Illustration. A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia* p. 319 (2011), as *E. sp.* Wanna.

A low, spreading *shrub* 30–50 cm high, 80–100 cm wide. *Branches* terete, grey, mostly glabrous with simple eglandular hairs found on young growth only; old leaf scars present. *Leaves* alternate, clustered

near the upper parts of branches, sessile, linear, thickened, green, 6–8 mm long, 1–1.5 mm wide, pitted (some pits containing a black substance), the inner and outer surfaces glabrescent, sometimes with occasional simple eglandular hairs. *Flowers* 1 per axil, pedicel 1–2 mm. *Sepals* 5, valvate, unequal, triangular-lanceolate, green, 3–6 mm long, 0.5–2.5 mm wide, acute, not enlarging after anthesis; outer surface mostly glabrous with a fringe of long simple eglandular hairs; inner surface with scattered glandular hairs and some longer simple eglandular hairs. *Corolla* lilac, unspotted, 8–10 mm long, outer surface glabrous, inner surface mostly glabrous but with some simple eglandular hairs where the style and stamens meet. *Stamens* 4, enclosed; filaments glabrous; anthers glabrous. *Ovary* glabrous. *Style* glabrous. *Fruit* not seen. (Figure 14)

Phenology. Predominantly flowers between June and August but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Found on Wanna Station in the Upper Gascoyne (Figure 2), growing in red-brown sandy loam on the slopes of a small stony rise.

Conservation status. Listed by Jones (2015) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. sp. Wanna* (M.J. Greeve & J.D. Start D7 44). The species is known from a single population on Wanna Station in an area managed by the Department of Parks and Wildlife.

Etymology. From the Latin *scrobiculatus* (marked by numerous small pits or depressions), in reference to the numerous shallow depressions or pits on the leaves.

Affinities. *Eremophila scrobiculata* appears most closely related to *E. exilifolia* from which it may be distinguished by its lower growing habit, subsessile flowers, shorter corolla and glabrous style (Table 11). *Eremophila scrobiculata* is in *E. sect. Eremaea*.

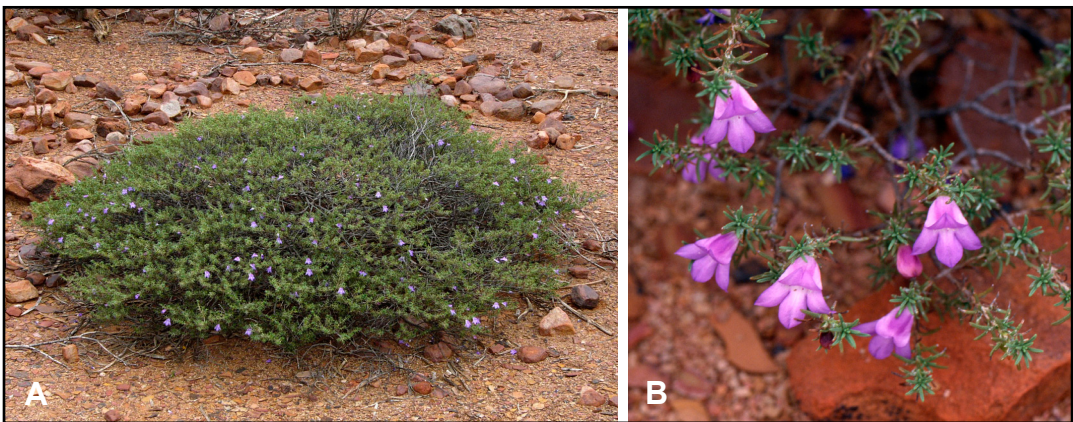


Figure 14. *Eremophila scrobiculata*. A – plant *in situ* showing the low-growing habit and stony habitat; B – branches showing the subsessile flowers and terete leaves. Photographs by B. Buirchell.

Table 11. Characters that differentiate *Eremophila scrobiculata* from *E. exilifolia*.

Character	<i>E. scrobiculata</i>	<i>E. exilifolia</i>
Height	30–50 cm	30–200 cm
Pedicel length	1–2 mm	3.3–15 mm
Sepal shape	triangular-lanceolate	oblanceolate to obovate
Sepal dimensions	3–6 × 0.5–2.5 mm	4–10 × 1.5–4.5 mm
Corolla length	8–10 mm	15–22.5 mm
Corolla hairs (on outer surface)	absent	obscurely to prominently simple eglandular
Style hairs	absent	simple eglandular

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

Type: Great Victoria Desert, Western Australia [precise locality withheld for conservation reasons], 9 October 2010, R. Davis & J. Jackson 11708 (*holo:* PERTH 08249725; *iso:* CANB, MEL).

A small *shrub* 40–50 cm high, 40–75 cm wide. *Branches* terete, grey, erect, with glandular hairs. *Leaves* alternate, sessile, ovate, green, 3–4 mm long, 2–3 mm wide, serrate, with glandular hairs mostly on the margins; margins thickened and viscid. *Flowers* 1 per axil; pedicel terete, slightly curved, 4–5 mm long, with glandular hairs and long, simple eglandular, segmented hairs increasing in density towards the base. *Sepals* 5, valvate, unequal, lanceolate to ovate, brownish green, 5–8 mm long, 3–3.5 mm wide, acute to rounded, dentate, mucronate, enlarging after anthesis; the outer surface with simple eglandular hairs in the basal third and on the margins; the inner surface with simple eglandular hairs. *Corolla* 10–20 mm long, purple with lobes turning white with age, throat, unspotted, outer surface with a mixture of long, white, fine simple eglandular hairs and shorter glandular hairs, inner surface glabrous. *Stamens* 4, enclosed; filaments with scattered simple eglandular hairs; anthers glabrous. *Ovary* with a mix of long simple eglandular hairs and shorter glandular hairs. *Style* with long simple eglandular hairs. *Fruit* not seen. (Figure 15)

Other specimen examined. WESTERN AUSTRALIA: [locality withheld for conservation reasons] 9 Oct. 2013, B. Buirchell BB 308 (PERTH).

Phenology. Predominantly flowers between August and October but may flower at other times of the year in response to rainfall.

Distribution and habitat. Found in the Great Victoria Desert between the Anne Beadell Highway and Tjuntjuntjarra (Figure 8), growing on stony, brown, calcareous loam in open mulga with *Allocasuarina* sp. and *Maireana sedifolia*.

Conservation status. *Eremophila victoriae* is known from just two populations and is to be listed as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora (A. Jones pers. comm.).

Etymology. Named in reference to the species being found in the Great Victoria Desert.



Figure 15. *Eremophila victoriae*. A – plant *in situ* showing its multiple branching habit; B – leaves and flower showing the purple corolla. Photographs by R. Davis.

Affinities. *Eremophila victoriae* may be distinguished from the closely related *E. viscimarginata* Chinnock by its smaller, ovate leaves, shorter pedicel, smaller sepals that lack pustules, and the mix of simple eglandular and glandular hairs on the corolla (Table 12). It also grows on calcareous, brown, loamy sands rather than the red-brown clays favored by *E. viscimarginata*, and is found some 500 km south of that species. *Eremophila victoriae* is in *E. sect. Eremaea*.

Notes. A little known species discovered by Rob Davis in October 2010 during biological surveys of the Great Victoria Desert. He was the first to recognise it as distinct and brought it to our attention.

Table 12. Characters that differentiate *Eremophila victoriae* from *E. viscimarginata*.

Character	<i>E. victoriae</i>	<i>E. viscimarginata</i>
Leaf shape	ovate	elliptic to obovate
Leaf margin	serrate	incised
Leaf dimensions	3–4 × 2–3 mm	4–7 × 3–4 mm
Leaf hairs	glandular on leaf margins, mostly absent elsewhere	glandular on leaf margins and scattered glandular on lamina
Pedicel length	4–5 mm	7–8 mm
Pedicel hairs	short glandular and long simple eglandular	long simple eglandular
Sepal dimensions	5–8 × 3–3.5 mm	8–12 × 5.5–9 mm
Sepals (on outer and inner surface)	lacking pustules	pustulate
Corolla hairs (on outer surface)	simple eglandular and shorter glandular	simple eglandular

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

Type: Cobra/Dairy Creek Station, Western Australia, 12 August 2005, J.D. Start D7 45 (*holo:* PERTH 07276486; *iso:* CANB).

Eremophila sp. Yinnetharra (J.D. Start D7 45), Western Australian Herbarium, in *FloraBase*, <https://florabase.dpaw.wa.gov.au/> [accessed February 2015].

Illustration. A.P. Brown & B.J. Buirchell, *A field guide to the Eremophilas of Western Australia* p. 323 (2011), as *E. sp.* Yinnetharra.

An upright, wispy *shrub* 1.5–3 m high, 1.5–4 m wide. *Branches* terete, grey, with a dense mat of dendritic hairs, some tubercles on young growth. *Leaves* alternate, sessile, oblanceolate, grey, 4–13 mm long, 1–4 mm wide, felty, the inner and outer surfaces with dense dendritic hairs, thicker at the edges and rolled under. *Flowers* 1 per axil; pedicel terete, slightly curved and hanging, 8–11 mm long, with dense dendritic hairs. *Sepals* 5, valvate, equal, elliptic, purple, 9–14 mm long, 2.5–4 mm wide, acute, not enlarging after anthesis; outer surface with dense dendritic hairs; inner surface mostly glabrous with dendritic hairs only near the apex. *Corolla* purple, unspotted, 18–25 mm long, outer surface with fine dendritic hairs, inner surface with a mass of long, fine simple eglandular hairs. *Stamens* 4, enclosed; filaments glabrous; anthers glabrous. *Ovary* glabrous. *Style* glabrous. *Fruit* not seen. (Figure 16)



Figure 16. *Eremophila yinnetharaensis*. A – plant *in situ* showing the long, fine, pendulous branches; B – branch showing the characteristic small, grey leaves and purple corolla. Photographs by A. Brown.

Phenology. Predominantly flowers between June and September but may also flower at other times of the year in response to rainfall.

Distribution and habitat. Known only from near Yinnetharra Station (Figure 2), growing in brown-grey, granitic, sandy loam on an open, stony rise with *Acacia*, *Ptilotus* and *Solanum* species.

Conservation status. Listed by Jones (2015) as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the phrase name *E. sp. Yinnetharra* (J.D. Start D7 45). Known from a single population that may be threatened by pastoral activities.

Etymology. Named in reference to the species being found on Yinnetharra Station.

Affinities. *Eremophila yinnetharrensensis* appears most closely related to *E. muelleriana*, from which it may be distinguished by its narrower leaves, usually shorter, hairy sepals, taller, wispy habit and purple rather than burgundy flowers (Table 1). It may also be related to *E. ballythunnensis*, from which it may be distinguished by its taller habit, longer pedicels and hairy corolla. *Eremophila yinnetharrensensis* is in *E. sect. Eriocalyx*.

Notes. *Eremophila yinnetharrensensis* was discovered and recognised as distinct by the very knowledgeable *Eremophila* enthusiast Joff Start during a field trip he made with us to the west of Mt Augustus in August 2005. He made the type collection of the species which, to our knowledge, has not been found or collected elsewhere.

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