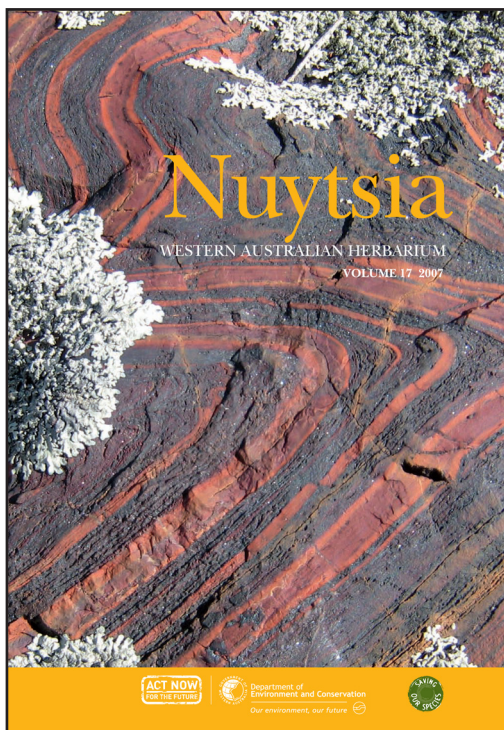


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***Eremophila densifolia* subsp. *erecta* and *E. grandiflora* (Myoporaceae),  
two new taxa from south-west Western Australia**

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**Abstract**

Brown, A.P. & Buirchell, B. *Eremophila densifolia* subsp. *erecta* and *E. grandiflora* (Myoporaceae), two new taxa from south-west Western Australia. *Nuytsia* 17: 81–86 (2007). *Eremophila densifolia* F.Muell. subsp. *erecta* A.P.Br. & B.Buirchell and *E. grandiflora* A.P.Br. & B.Buirchell are described and illustrated, their relationships with closely related taxa are discussed and a key to the subspecies of *E. densifolia* provided.

**Introduction**

The genus *Eremophila* R.Br. comprises some 215 named Australian species, 182 of which occur in Western Australia where 81% (147 species) are endemic. Due to their remote nature and the difficulty in obtaining adequate herbarium material, 114 of the 182 Western Australian taxa were not named until 2007 (for formal descriptions of these see Chinnock 2007). Further new Western Australian taxa are known to us, two of which, *E. densifolia* F.Muell. subsp. *erecta* A.P.Br. & B.Buirchell and *E. grandiflora* A.P.Br. & B.Buirchell, are described here. Based on our examination of herbarium material and plants in the field we believe subspecies level is most appropriate for *E. densifolia* subsp. *erecta* and species level appropriate for *E. grandiflora*. Other new taxa will be formally described in a series of forthcoming papers.

**Taxonomy**

***Eremophila densifolia* subsp. *erecta* A.P.Br. & B.Buirchell, *subsp. nov.***

*Eremophilae densifoliae* F.Muell. subsp. *densifoliae* affinis sed habito erecto aperto divaricato-ramoso, sepalis plerumque glabris pilis marginibus ramosis versus apicem glandulosis differt.

*Typus*: 347 mile peg on Ravensthorpe – Esperance Road, Western Australia, 5 December 1966, F. Lullfitz 5890 (*holo*: PERTH 03797171).

*Eremophila densifolia* subsp. Bandalup Hill (F. Lullfitz 5890), Western Australian Herbarium, in FloraBase, <http://florabase.dec.wa.gov.au> [accessed June 2007].

An erect, open, divaricately branched shrub 60 cm to 1.8 m high. Sepals mostly glabrous with scarce branched hairs on the margins, becoming glandular towards the apex. (Figures 1A, B)

*Specimens examined.* WESTERN AUSTRALIA: near Ravensthorpe, 27 Nov. 1969, *A.M. Ashby* 3134 (PERTH 03797090); Bandalup Hill, 30 km E of Ravensthorpe within mining tenement, 24 Mar. 2006, *G. Cockerton* 12012 (PERTH 07518528); Bandalup Hill, 30 km E of Ravensthorpe, 24 Mar. 2006, *G. Cockerton* 12017 (PERTH 07518536); between Halleys and Hale-Bopp ore body areas, Bandalup Hill, c. 35 km E of Ravensthorpe, 3 Nov. 2001, *G. Cockerton & N. Eveleigh* GC 5824 (PERTH 06926932); 19.5 km directly E of Ravensthorpe on E boundary of Oldfield Loc. 51, 200 – 500 m N of South Coast Highway (turnoff 2.5 km E of Maydon Road), 4 Dec. 2001, *G.F. Craig & K. Menandue* GFC 5553 (PERTH 06331599); 45 miles E of Fitzgerald River crossing on Ravensthorpe to Jerramungup Road, 29 Oct. 1972, *G.J. Keighery* 2113 (PERTH 03797147); SE of Ravensthorpe, Mason Bay track, c. 4 km N of Jerdacuttup Road, 15 Apr. 2000, *A. Williams* 170 (PERTH 05679184); 4 km E of Jerdacuttup River, 18 Nov. 1976, *E. Wittwer* W 1892 (PERTH 03797155).

*Distribution and habitat.* Confined to a narrow geographic area near Ravensthorpe, Western Australia (Figure 1C), growing in winter-moist red clay and red-brown clay-loam soil with *Acacia glaucoptera*, *Eucalyptus cernua*, *E. flocktoniae* and *Dodonaea* species.

*Phenology.* Late October to April.

*Conservation status.* *Eremophila densifolia* subsp. *erecta* is known from 15 locations representing at least 11,000 individuals in an area that is subject to intensive exploration and mining. No conservation code is required.

*Etymology.* Named from the Latin, *erectus* (upright, elevated, lofty), alluding to the erect habit of the plant.

*Notes.* *Eremophila densifolia* is a widespread species comprising four recognised subspecies distributed from Yellowdine in the north to Ravensthorpe in the south. Three subspecies (subsp. *capitata* Chinnock, subsp. *densifolia* and subsp. *pubiflora* Chinnock) were formally described by Chinnock (2007) while the fourth (subsp. *erecta*) is described here. Although the distributions of several subspecies overlap, morphology remains uniform and intergrades have not been reported.

*Eremophila densifolia* subsp. *erecta* was brought to our attention by Geoff Cockerton in 2001 when specimens were collected east of Ravensthorpe. Cockerton was familiar with the typical form of *Eremophila densifolia* which grew in the Ravensthorpe area and noted that there were consistent habit and morphological differences between the two taxa. The subspecies was alluded to in Chinnock (2007: 263) when he stated that “Erect forms also appear to occasionally occur in subsp. *densifolia*”. Chinnock (2007: 263) also noted that erect forms occur in subsp. *pubiflora*. However, we are yet to see these in the field and do not have sufficient information to determine their taxonomic status.

*Eremophila densifolia* subsp. *erecta* is a distinct taxon, differing from subsp. *densifolia*, which grows nearby, in its erect (to 1.8 m high) open, divaricately branched habit and its sepals with glandular hairs towards the apex. The typical subspecies is a consistently low growing densely branched shrub to 0.6m high by up to 1 m wide with sepals lacking glandular hairs towards the apex.

*Eremophila densifolia* subsp. *erecta* is a disturbance opportunist that appears in large numbers

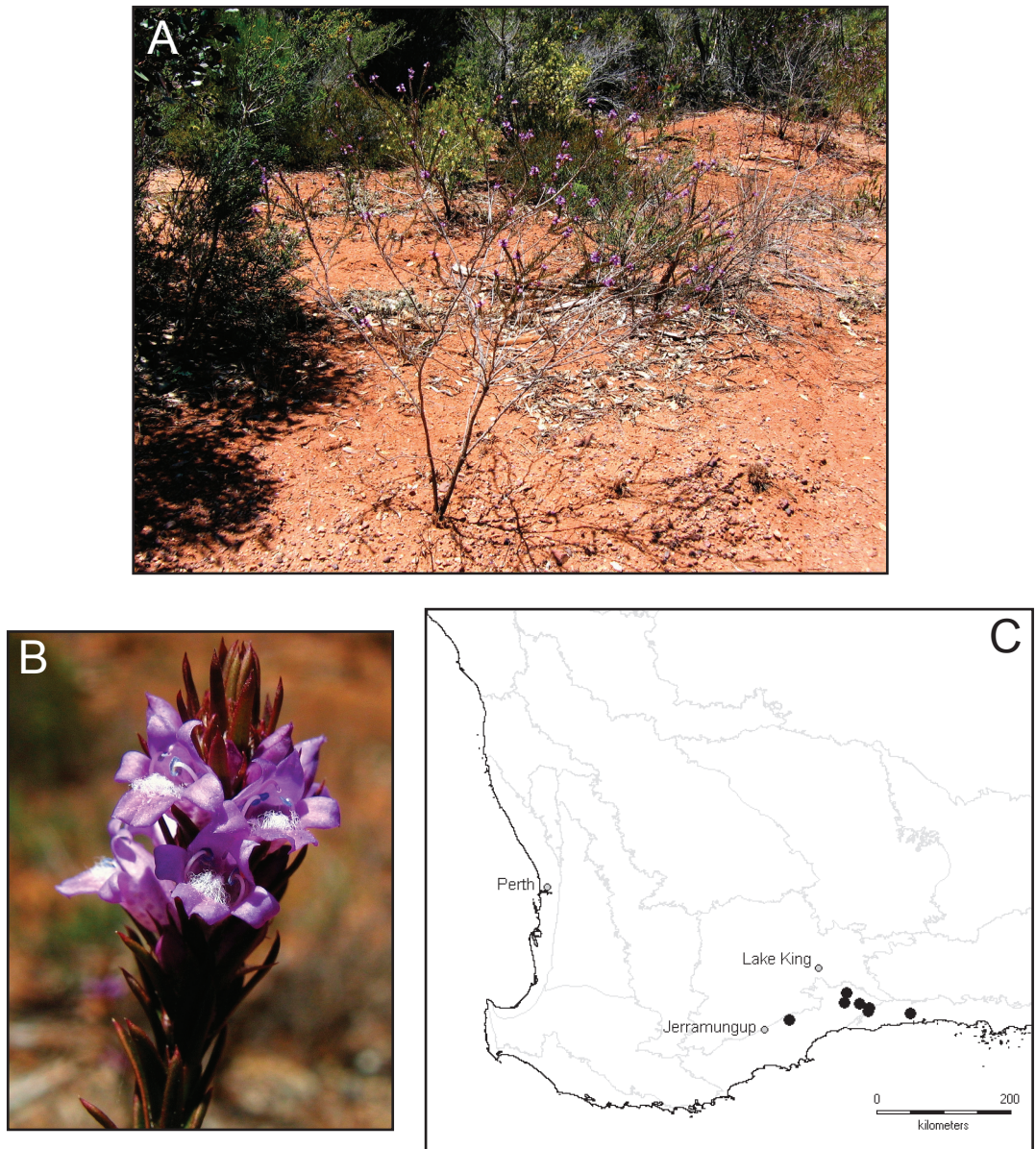


Figure 1. *Eremophila densifolia* subsp. *erecta*. A – whole plant, showing an erect, open and divaricately branched habit; B – flowers; C – distribution in south-west Western Australia. Photographs by N. Eveleigh from east of Ravensthorpe (G. Cockerton & N. Eveleigh GC 5824).

following fire or light grading, rapidly matures and then gradually senesces. The taxon was particularly prominent following the Lake Tay fire that burnt southwards into the Bandalup Corridor, east of Ravensthorpe in January 2003. Plants found on firebreaks and road verges elsewhere have been noted to senesce when reaching heights of between 1.2 and 1.8 m.

*Eremophila densifolia* subsp. *erecta* is placed in *E. sect. Australophilae* Chinnock (Chinnock 2007) which comprises 32 species, all of which occur in Western Australia.



### Key to the subspecies of *Eremophila densifolia*, adapted from Chinnock (2007)

1. Leaves and sepals glabrous except for pubescent margins, especially in the basal part; corolla glabrous outside
  2. Plants prostrate, densely branched; sepals lacking glandular hairs towards the apex ..... subsp. **densifolia**
  - 2: Plants erect, divaricately branched; sepals with glandular hairs towards the apex ..... subsp. **erecta**
- 1: Leaves and sepals pubescent; corolla pubescent outside
  3. Outside surface of sepals stellate-pubescent; hairs mostly branched ..... subsp. **pubiflora**
  - 3: Outside surface of sepals glandular-pubescent; hairs simple..... subsp. **capitata**

### *Eremophila grandiflora* A.P.Br. & B.Buirchell, *sp. nov.*

*Eremophilae galeatae* Chinnock affinis sed habito infero magis effuso, floribus grandioribus magis polychromis, lobis calycis angustioribus post anthesin non amplificatis, sepalo postico tenui, elliptico, et lobis corolla longioribus acutis plerumque effusis differt.

*Typus*: north of Fields Find on Yalgoo Road, Western Australia [precise locality withheld for conservation purposes], 12 September 1984, *B.H. Smith* 428 (*holo*: PERTH 03788989; *iso*: CANB, HO, MEL).

A large resinous shrub to 3 m high, 4 m wide. *Branches* terete, non tuberculate, completely covered in thick resin, prominently glandular-papillate; hairs simple on younger parts, obscured by resin in older parts. *Leaves* alternate, scattered or clustered, spreading or reflexed; lamina lanceolate to narrowly elliptic, 42–92 mm long, 8–14 mm wide, gradually tapering to petiole; apex acute to acuminate; margins entire, with obscure small incurved hairs but often covered by resin; petiole 15–25 mm long, bases persistent. *Flowers* 1, rarely 2 per axil; pedicel flattened, winged in distal part, straight or curved, 25–35 mm long, covered in simple hairs. *Sepals* 5, imbricate, mucronate, unequal, glabrous, pale reddish-pink; posterior sepal free, elliptical, 42–48 mm long, 14–18 mm wide; anterior sepals elliptical, 30–34 mm long, 8–10 mm wide; inner sepals narrowly elliptical, 26–30 mm long, 4–5 mm wide when flowering, not enlarging after flowering or enlarging only slightly and becoming prominently reticulate. *Corolla* 52–68 mm long, outer surface glandular-pubescent, inner surface glandular-pubescent or glabrous; tube brown with darker brown to purple maculate markings in upper half to third; lobes usually spreading, or more rarely reflexed back over tube, pale blue-lilac to whitish, variously spotted brown or purple on the inside near throat. *Stamens* 4, exserted; filaments with scattered glandular hairs; anthers glabrous. *Ovary* glandular pubescent near apex; style hirsute with glandular hairs increasing towards base; stigma two-lobed. (Figures 2A, B)

*Specimens examined*. WESTERN AUSTRALIA: [locality withheld] 28 Aug. 2003, *J. Start & M.J. Greeve* MG 36 (PERTH 06586473).

*Distribution and habitat*. Confined to a small area north-west of Paynes Find (Figure 2C), growing on slopes and along drainage lines in stony red-brown sandy-clay soil with *Acacia*, *Senna*, *Grevillea* spp., *Eremophila forrestii* subsp. *forrestii*, *E. glutinosa* and *E. oldfieldii* subsp. *oldfieldii*.

*Phenology*. Late June to early September.

*Conservation status*. Although locally common, the species is confined to a narrow geographic range

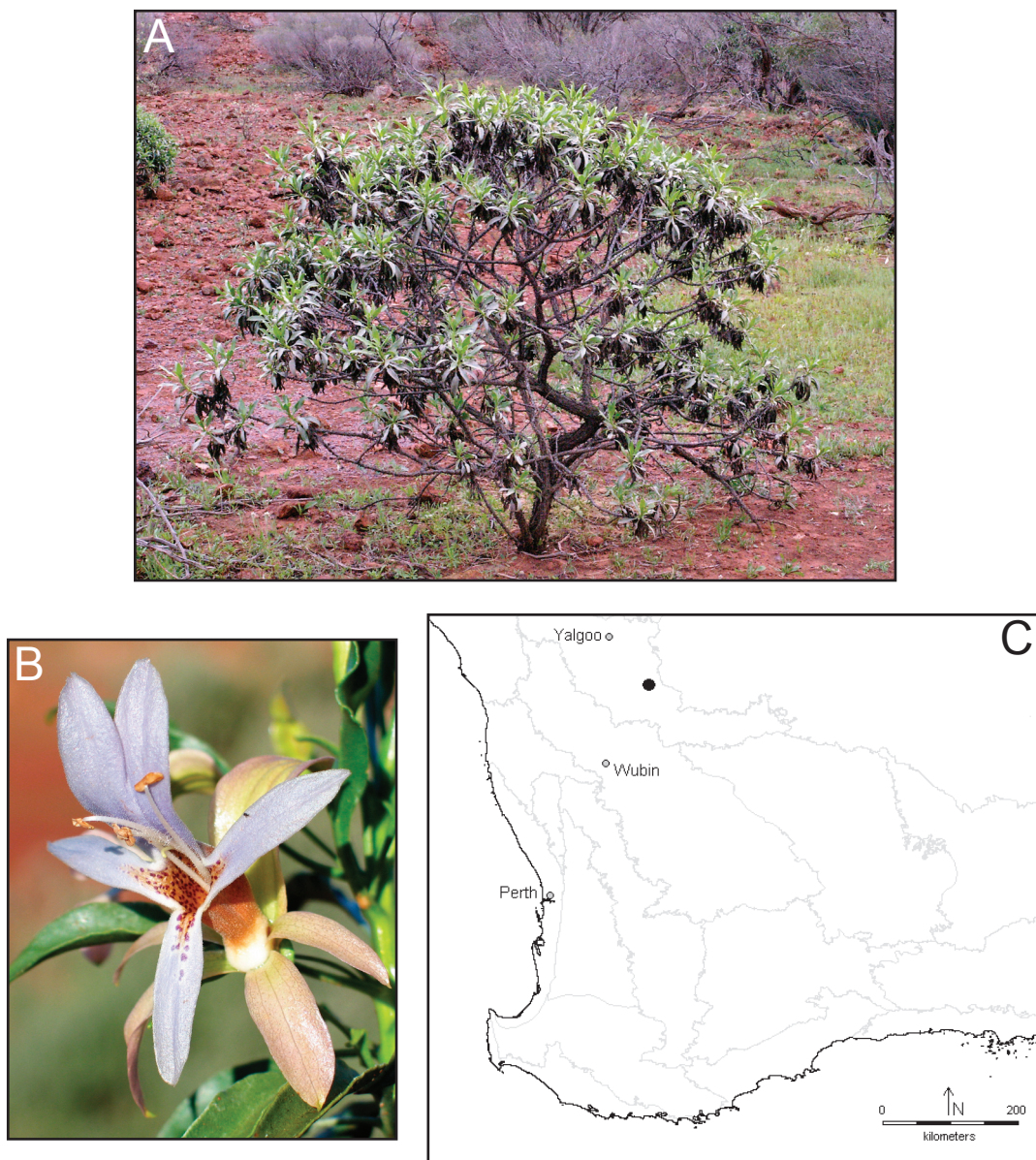


Figure 2. *Eremophila grandiflora*. A – whole plant, showing the low, domed habit; B – flower; C – distribution in south-west Western Australia, Version 6.1 IBRA regions (Department of the Environment and Water Resources 2007) are indicated in grey. Photographs by J.A. Brown from north-west of Paynes Find (*J. Start & M.J. Greeve* MG 36).

in an area that is potentially threatened by pastoral activities and mining. Recently listed as Priority Three under Department of Environment and Conservation (DEC) Conservation Codes for Western Australian Flora.

*Etymology.* Named from the Latin, *grandis* (great, large) and *florus* (flower), alluding to the attractive, showy flowers that are the largest in the genus.

*Notes.* *Eremophila grandiflora* was encountered by the first author when conducting field work in the Paynes Find area in August 1983. Upon examination of collections at the Western Australian Herbarium (PERTH), a specimen labelled by Chinnock as *E. fraseri* F.Muell. subsp. *galeata* Chinnock ms was found to clearly match the Paynes Find taxon and has been selected here as the holotype. The species was then not collected again until August 2003.

Although closely related to *Eremophila fraseri*, *E. flaccida* Chinnock and *E. galeata* Chinnock, *E. grandiflora* is readily distinguished by its larger flowers and more south-westerly distribution. The closest relative of *E. grandiflora* appears to be *E. galeata* and it shares with that species a similar leaf shape and hairs on the style and ovary but differs in its lower growth habit, stems with scattered, curved, rather than eglandular, pubescent hairs, much larger (to 5 cm across) more colourful flowers with narrower calyx lobes that do not enlarge following anthesis, a thin elliptical, rather than thickened, ridged, ovate to broadly ovate posterior sepal and often spreading, rather than prominently deflexed corolla lobes. *Eremophila fraseri* also has large colourful flowers with prominent calyx and corolla lobes but is readily distinguished from *E. grandiflora* by its glabrous stems, shorter, broader leaves, glabrous peduncle, usually deeper coloured flowers with shorter, broader, ovate to broadly ovate calyx lobes that enlarge following anthesis and shorter, usually reflexed, rather than spreading corolla lobes.

The more distantly related *Eremophila flaccida* is distinguished from *E. grandiflora* by its shorter stature, longer pedicel that lacks wings, pendulous, rather than erect flowers, deeper floral colouration and shorter, broader glandular pubescent calyx lobes and shorter, broader corolla lobes. In growth habit, *Eremophila grandiflora* is intermediate in shape between *E. flaccida* and *E. fraseri*, being taller and more erect than *E. flaccida* and lower and more spreading than *E. fraseri*.

*Eremophila grandiflora* is the most southerly member of the *E. fraseri* complex and is not known to occur with related taxa. It is placed in *Eremophila* sect. *Pulchrisepalae* Chinnock (Chinnock 2007) which comprises 13 species, 11 of which occur in Western Australia.

### Acknowledgements

We are grateful to colleagues who have shared time in fieldwork, assisted in collections of the species described herein and offered advice in the preparation of this paper. We are grateful to Bob Chinnock whose timely monograph of the Myoporaceae provided invaluable information towards the preparation of this paper, to Geoff Cockerton and Nick Evelegh who brought *Eremophila densifolia* subsp. *erecta* to our attention, and who made collections of the taxon and provided habitat and biological information to us, to Joan Greeve and Joff Start for their company in the field and sharing their considerable knowledge with us, to Paul Wilson for the Latin diagnoses, and to the Director and staff of PERTH for access to specimens. The distribution maps were compiled by Juliet Wege using DIVA-GIS freeware Version 5.2.0.2 and are based on PERTH specimen data.

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