

## *Eremophila improvisa*, *E. rubicunda* and *E. saxatilis* (Scrophulariaceae), three new species from Western Australia

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### SHORT COMMUNICATION

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

*Type*: Mount Padbury Station north-east of Karalundi, Western Australia, 10 June 2021, *J.D. Start & M.J. Start* 2101 (*holo*: PERTH 09578447; *iso*: CANB).

*Illustration*. A.P. Brown & B.J. Buirchell, *A field guide to the eremophilas of Western Australia, revised second edition* p. 323 (2021), as *E. sp.* Doolgunna.

A small much branched *shrub* 0.15–0.5 m high, 0.3–0.6 m wide. *Branches* grey to pale brown, terete, sparsely tuberculate, with an indumentum of short creamy white branched hairs when young, becoming glabrous with age. *Leaves* dark green, alternate, erect or spreading, clustered at ends of branches, sessile but gradually tapering to a short petiole-like base; lamina elliptic to oblanceolate, 5–15 mm long, 1.5–3 mm wide; upper and lower surfaces glabrous, tuberculate; margins entire; apex obtuse to acute. *Flowers* 1 per axil; pedicel straight or slightly curved, 2–5 mm long, with an indumentum of creamy white branched hairs. *Sepals* 5, brownish maroon, tinged green, 6–12 mm long, 1–2 mm wide, lanceolate, attenuate, separated at base, curving outwards apically, equal, not enlarging after flowering; outer surface with an indumentum of creamy white branched hairs; inner surface with an indumentum of creamy white branched hairs in distal third and more sparsely hairy below except along margins. *Corolla* zygomorphic, 14–18 mm long, 7–10 mm wide; outer surface purple to purplish red, unspotted, with an indumentum comprising a mixture of glandular hairs and rare short simple hairs; inner surface purple to purplish red, unspotted, glabrous towards anterior with an indumentum of matted simple hairs extending down from below medial section of lower and upper lobes; lobes subequal, spreading, obtuse. *Stamens* 4, included; filaments 7–9 mm long, glabrous; anthers glabrous. *Ovary* oblong, 5–7 mm long, 1.2–1.5 mm wide, glabrous; style eccentric, curved, 9–11 mm long, glabrous apart from some scattered simple hairs at base. *Seed* not observed. (Figure 1)

*Diagnostic features*. *Eremophila improvisa* may be distinguished from all other members of the genus by the following combination of characters: a small much branched shrub 0.15–0.5 m high; leaves green, alternate, glabrous, tuberculate; sepals lanceolate, attenuate, separated at base, appressed against the corolla, 6–12 mm long; corolla zygomorphic, outer surface purple to purplish red, unspotted,



Figure 1. *Eremophila improvisa*. A – flowering plant; B – branch showing the dark green, glabrous, tuberculate leaves and flower with brownish maroon, green tinged sepals and purple to purplish red unspotted corolla; C – habitat showing *Eremophila improvisa* in the foreground. Photographs by A. Brown (A, C) and J. & J. Start (B), all from the type locality.

14–18 mm long; ovary glabrous; style eccentric and curved.

*Other specimens examined.* WESTERN AUSTRALIA: [localities withheld for conservation reasons] 10 June 2021, *J.D. Start & M.J. Start* 2102 (PERTH); 3 July 2021, *J.D. Start & M.J. Start* 2114 (PERTH).

*Phenology.* Flowering mainly between June and September.

*Distribution and habitat.* Known from a narrow geographic range north-east of Karalundi in the Murchison Bioregion (*sensu* Department of the Environment 2012), growing on a broad stony flat between rocky mesas with *Eremophila pterocarpa*, *Ptilotus obovatus*, *Senna artemisioides*, *Solanum lasiophyllum* and annuals (Figure 1).

*Conservation status.* To be listed as Priority One under Conservation Codes for Western Australian Flora (Tanya Llorens, pers. comm.). The species is known from a single population that may be subject to grazing and future mining.

*Etymology.* The specific epithet is derived from the Latin *improvisus* (unforeseen or unexpected), in reference to the surprising, unexpected discovery of this new species when visiting the type location of *E. saxatilis* A.P.Br.

*Affinities.* *Eremophila improvisa* shares some morphological similarities with *E. anomala* Chinnock but is readily distinguished from that species by its more open habit, its smaller 6–12 mm long brownish maroon sepals (*cf.* 14–22 mm long and green in *E. anomala*) and its smaller 14–18 mm long purple to purplish red corolla (*cf.* 18–26 mm long and cream).

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

*Type:* Landor Station, Western Australia, 25 June 2022, R. Davis & A. Brown RD 14075 (*holo:* PERTH 09484671; *iso:* CANB, MEL).

*Eremophila* sp. Landor (J. Start D7 33), Western Australian Herbarium, in *Florabase*, <https://florabase.dbca.wa.gov.au/> [accessed 4 October 2023].

*Illustration.* A.P. Brown & B.J. Buirchell, *A field guide to the eremophilas of Western Australia, revised second edition* p. 329 (2021), as *E. sp. Landor*.

An erect *shrub* 1–2 m high, 1–2 m wide. *Branches* grey to pale brown, terete, with an indumentum of densely matted white simple hairs. *Leaves* grey-green, alternate, petiolate; lamina obovate to elliptical, 15–35 mm long, 6–19 mm wide; upper and lower surfaces with an indumentum of densely matted white simple hairs; margins entire; apex acuminate. *Flowers* 1 per axil; pedicel compressed, straight, 8–11 mm long, with an indumentum of densely matted white hairs. *Sepals* 5, dull red to grey-green, red suffused, straight or curved outwards apically, imbricate, unequal, not enlarging after flowering, posterior and anterior sepals with an indumentum of cobweb-like hairs on both surfaces; posterior sepal shortest in length, oblong to narrowly obovate, 10–10.5 mm long, 4.8–5.2 mm wide; anterior sepals narrowly obovate, *c.* 11 mm long, 3.7–4.1 mm wide; inner sepals longer than anterior sepals, narrowly obovate, 13–14 mm long, 4–4.2 mm wide, with an indumentum of cobweb-like hairs mostly along the central portion of outer surface but not on inner surface. *Corolla* zygomorphic, 25–30 mm long, 6–8.5 mm wide; outer surface red, unspotted, glabrous except for an indumentum of matted hairs on upper portion of tube; inner surface red with darker red spots on uppermost portion of tube, with an indumentum of matted hairs extending partially down tube at base of upper lobes and short thickened hairs extending fully down tube at base of lower lobes; lobes subequal, spreading, obtuse. *Stamens* 4, shortly exerted; filaments 15–20 mm long, glabrous except for some matted hairs at base; anthers glabrous. *Ovary* oblong to obovoid, 3–3.3 mm long, 1.8–2.1 mm wide, glabrous; style eccentric, curved, 25–28 mm long, glabrous except for some scattered simple hairs at base. *Fruit* obovoid, ribbed, 5–5.5 mm long, 4.2–4.5 mm wide, with a sparse covering of glandular hairs that are sometimes obscured by thick resin. *Seed* not observed. (Figure 2)

*Diagnostic features.* *Eremophila rubicunda* may be distinguished from all other members of the genus by the following combination of characters: an erect shrub to 2 m tall; sepals imbricate, unequal, oblong to narrowly obovate; leaves grey-green, upper and lower surfaces with an indumentum of densely matted white simple hairs; posterior sepal shortest, 10–10.5 mm long; corolla red, 25–35 mm long,

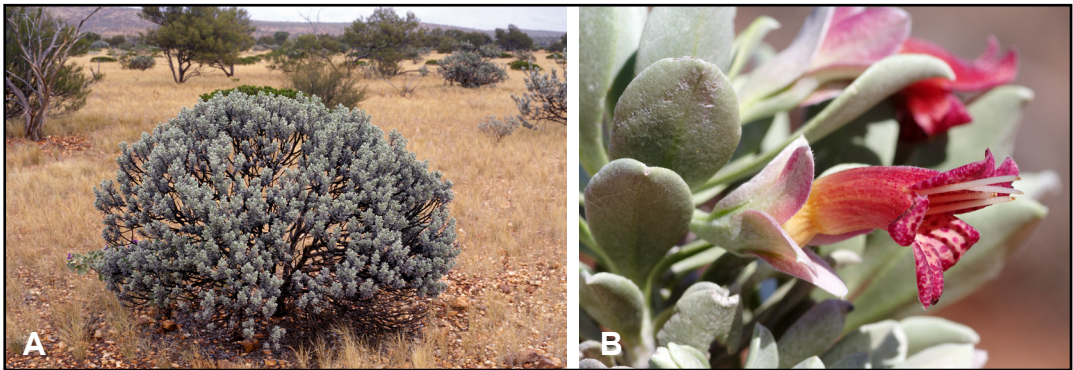


Figure 2. *Eremophila rubicunda*. A – plant and habitat; B – branch showing the grey-green leaves and flower with dull red to grey-green red suffused sepals and red corolla with darker red spots in the uppermost portion of the floral tube. Photographs by A. Brown from the type locality.

with dark red markings in the throat of the tube; ovary glabrous; style eccentric and curved.

*Other specimens examined.* WESTERN AUSTRALIA: [localities withheld for conservation reasons] 25 June 2022, R. Davis & A. Brown RD 14076 (PERTH); 25 June 2022, R. Davis & A. Brown RD 14077 (PERTH); 1 July 2005, D.J. Edinger 5190 (PERTH); 11 Aug. 2005, J. Start D7 33 (PERTH).

*Phenology.* Flowering mainly between June and October.

*Distribution and habitat.* Known from one population north of Landor Homestead in the central west of the Gascoyne Bioregion (*sensu* Department of the Environment 2012). The population is large, consisting of several hundred plants on a stony rise growing with *Acacia* spp., *Eremophila flaccida*, *E. glutinosa*, *E. exilifolia*, *Ptilotus obovatus*, *P. schwartzii* and *Goodenia tenuiloba*.

*Conservation status.* Listed as Priority One under Conservation Codes for Western Australian Flora (Western Australian Herbarium 1998–) under the name *E. sp.* Landor (J. Start D7 33). The species is known from a single large population.

*Etymology.* The specific epithet is derived from the Latin *rubicundus* (red), in reference to the red-coloured flowers (Figure 2).

*Affinities.* *Eremophila rubicunda* shares some morphological similarities with *E. macmillaniana* C.A.Gardner but is readily distinguished from that species by its smaller habit 1–2 m high (*cf.* 1–4 m high), its shorter leaves 15–35 mm long (*cf.* 23–54 mm long), its smaller posterior sepal 10–10.5 × 4.8–5.2 mm (*cf.* 18–32 × 5–15 mm), its much shorter anterior and inner pairs of sepals 11–11.5 mm long and 13–14 mm long (*cf.* 16–30 mm long and 15–27 mm long), and its red corolla (*cf.* pink or cream).

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

*Type:* Mount Padbury Station north-east of Karalundi, Western Australia, 3 July 2021, J.D. Start & M.J. Start 2112 (*holo:* PERTH 09578439; *iso:* CANB).

*Eremophila* sp. Meekatharra (D.J. Edinger 4430), Western Australian Herbarium, in *Florabase*, <https://>

florabase.dbca.wa.gov.au/ [accessed 4 October 2023].

*Illustration.* A.P. Brown & B.J. Buirchell, *A field guide to the eremophilas of Western Australia, revised second edition* p. 332 (2021), as *E. sp.* Meekatharra.

An erect spindly *shrub* 1–2.5 m high, 0.6–1.2 m wide. *Branches* grey-white to pale brown, terete, glabrous; new growth resinous. *Leaves* green, alternate, erect or spreading, clustered at ends of branches, sessile but tapering to a short petiole-like base; lamina rigid, obovate to widely elliptic, 4–7 mm long, 2–4 mm wide; upper and lower surfaces glabrous, resinous when young; margins serrate; apex obtuse to acute. *Flowers* 1 per axil; pedicel terete, curved downwards, 4–6 mm long, glabrous or with a sparse indumentum of short simple hairs. *Sepals* 5, green to brownish red, 4–6 mm long, 2–4 mm wide, ovate, attenuate, imbricate, initially appressed against the ovary then curving outwards apically, subequal, not enlarging after flowering; outer and inner surface glabrous, resinous. *Corolla* zygomorphic, 16–20 mm long, 8–12 mm wide; outer surface bluish mauve to mauve, unspotted, with a dense indumentum of simple hairs; inner surface cream to mauve, with scattered brownish-red spots below lobes, glabrous towards anterior with an indumentum of matted simple hairs extending down from below medial section of lower and upper lobes; lobes subequal, spreading, obtuse. *Stamens* 4, included; filaments 8–11 mm long, glabrous; anthers glabrous. *Ovary* oblong, 4–6 mm long, 2–2.5 mm wide, densely villous; style eccentric, straight, 10–13 mm long, glabrous apically with simple hairs at base. *Seed* not observed. (Figure 3)

*Diagnostic features.* *Eremophila saxatilis* may be distinguished from all other members of the genus by the following combination of characters: an erect spindly shrub 1–2.5 m high; new growth resinous; leaves green, sessile, alternate, obovate to widely elliptic, clustered at ends of branches; sepals 4–6 mm long, ovate, attenuate, imbricate, subequal, initially appressed against the ovary then curving outwards apically; corolla zygomorphic, 16–20 mm long; outer corolla surface bluish mauve to mauve, unspotted, with a dense covering of simple hairs; ovary densely villous; style eccentric and straight.

*Other specimens examined.* WESTERN AUSTRALIA: [localities withheld for conservation reasons] 16 July 2004, *D.J. Edinger* 4430 (PERTH); 1 Oct. 2000, *F. Hort, A. Grosse & J. Hort* 1178 (PERTH); 10 June 2021, *J.D. Start & M.J. Start* 2105 (PERTH); 10 June 2021, *J.D. Start & M.J. Start* 2106 (PERTH); 3 July 2021, *J.D. Start & M.J. Start* 2113 (PERTH).

*Phenology.* Flowering mainly between June and October.

*Distribution and habitat.* Known from a narrow geographic range north-east of Karalundi in the Murchison Bioregion (*sensu* Department of the Environment 2012), growing on the tops and slopes of rocky mesas with *Acacia* spp., *Dodonaea pachyneura* and *Ptilotus obovatus* (Figure 3).

*Conservation status.* Listed as Priority One under Conservation Codes for Western Australian Flora (Western Australian Herbarium 1998–) under the name *E. sp.* Meekatharra (*D.J. Edinger* 4430). The species is known from just two populations that may be subject to grazing and future mining.

*Etymology.* The specific epithet is derived from the Latin *saxatilis* (dwelling among rocks), in reference to the rocky habitat of the species (Figure 3).

*Affinities.* *Eremophila saxatilis* shares some morphological similarities with *E. pungens* Chinnock but is readily distinguished from that species by its resinous new growth (not resinous in *E. pungens*), its

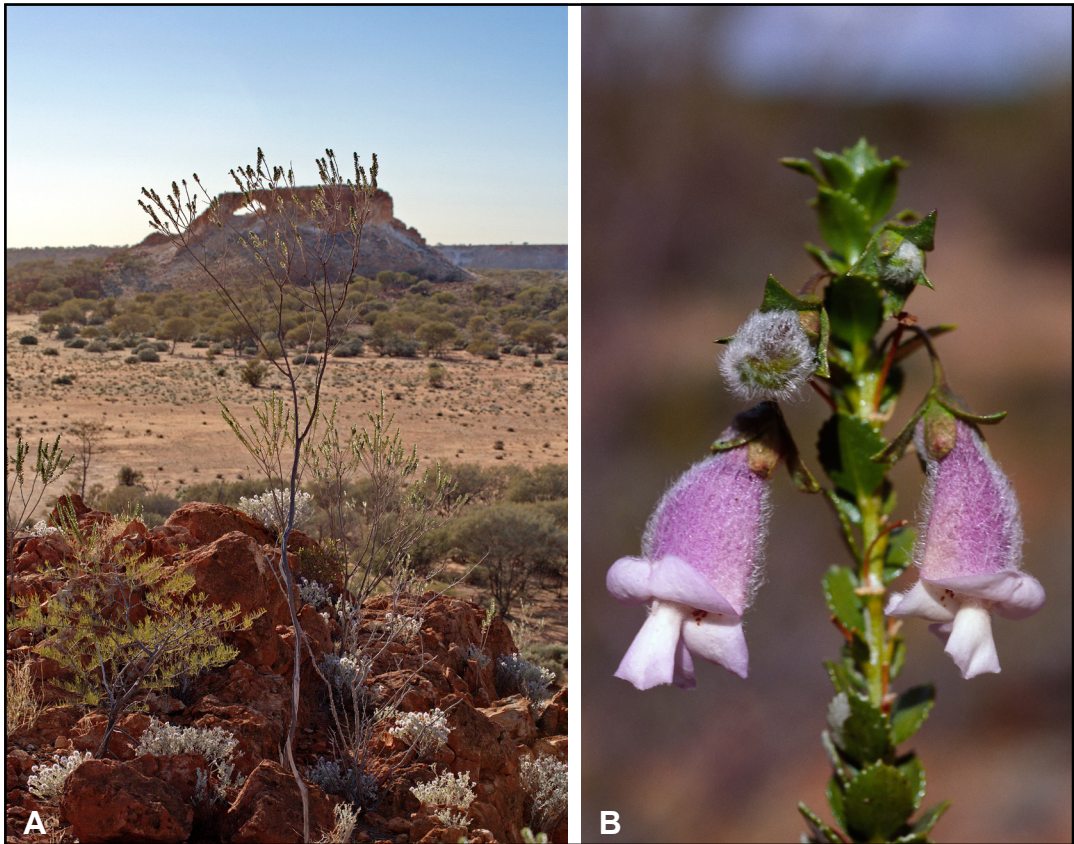


Figure 3. *Eremophila saxatilis*. A – plant showing its erect spindly habit; B – branch showing the green, glabrous, serrate margined leaves and pendulous flowers with green to brownish red, outwardly curved sepals and mauve, densely hairy corolla. Photographs by A. Brown from the type locality.

smaller leaves  $4\text{--}7 \times 2\text{--}4$  mm (*cf.*  $6\text{--}16 \times 7\text{--}12$  mm) which lack the recurved rigid apical spine that is usually present in *E. pungens*, its pendulous flowers (*cf.* held horizontally), its narrower sepals  $2\text{--}4$  mm wide (*cf.*  $3\text{--}8$  mm) which are glabrous on both the upper and lower surfaces (*cf.* glabrous on upper surface and glandular-pubescent on the lower surface), and its shorter corolla  $16\text{--}20$  mm long (*cf.*  $20\text{--}35$  mm) which is covered with dense simple hairs on the outer surface (*cf.* glandular-pubescent).

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