

## *Solanum albstellatum* (Solanaceae), a new species from the Pilbara bioregion of Western Australia

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### Abstract

Davis, R.W. & Hurter, P.J.H. *Solanum albstellatum* (Solanaceae), a new species from the Pilbara bioregion of Western Australia. *Nuytsia* 22(5): 329–334. *Solanum albstellatum* R.W.Davis & P.J.H.Hurter has recently been discovered and is formally described. The new species is morphologically similar to *S. oldfieldii* F.Muell. and *S. esuriale* Lindl. *Solanum albstellatum* inhabits cracking clay environments extending from Millstream Chichester National Park to the Hamersley Range, west of Newman. An amendment to the *Flora of Australia* key for *Solanum* to account for *S. albstellatum* is included, as is a table summarising the similarities and differences between *S. albstellatum* and the most similar taxa.

### Introduction

*Solanum* L. is a large and widely distributed genus with over 100 species represented in Australia (Symon 1981, 1982). *Solanum albstellatum* R.W.Davis & P.J.H.Hurter *sp. nov.* was recognised as a probable new species in early 2011, from material sent to the Western Australian Herbarium (PERTH) to the second author. A subsequent collection sent for identification in late 2011 confirmed it as an undescribed taxon and the phrase name *Solanum* sp. Hamersley clay (D. Halford Q 9280) was erected for this species (Western Australian Herbarium 1998–). Examination of specimens held at PERTH revealed several further specimens of this taxon, including a number previously misidentified as *S. oldfieldii* F.Muell. and *S. esuriale* Lindl.

### Methods

Vegetative parts were measured on dried material, flowers and fruits were measured using reconstituted material. The description format follows Symon (2001). The units of measurements have been modified to millimetres for the amended key from Symon (1982). The distribution map for *Solanum albstellatum* is based on PERTH specimen data.

### Taxonomy

***Solanum albostellatum*** R.W.Davis & P.J.H.Hurter, *sp. nov.*

*Typus*: west of Millstream along Millstream–Pannawonica Road, Western Australia [precise locality withheld for conservation reasons], 26 September 2006, D. Halford Q 9280 (*holo*: PERTH 07800932; *iso*: BM, BRI).

*Solanum* sp. Hamersley clay (D. Halford Q 9280), Western Australian Herbarium, *FloraBase*, <http://florabase.dec.wa.gov.au> [accessed 4 March 2012].

Open, resprouting, clonal, suffruticose, *sub-shrub* to 40 cm high. *Stems* terete, grey-green, initially erect, becoming prostrate or decumbent, with a vestiture of moderately dense, white, stellate hairs, sometimes interspersed with a few straight, red-brown prickles 0.5–2(–2.5) mm long. *Leaves* concolorous, green to grey-green, cordate to ovate, 20–40 mm long, 25–50 mm wide, with a moderately dense covering of white stellate hairs, often distinctly 3-veined from the base; margin entire to shallowly lobed, undulate; lamina flat to  $\pm$  undulate; apex subacute to bluntly mucronulate. *Petiole* 10–30 mm long. *Inflorescence* simple, flowers solitary or occasionally in pairs; peduncle 12–15 mm long, axillary. *Pedicel* (5–)12–30 mm long. *Calyx* stellate, the tube 2.0–2.5 mm long, ribbed; lobes narrowly triangular, 2.5–6 mm long,  $\pm$  ribbed, with white stellate hairs, often with a few prickles, the apices  $\pm$  recurved. *Corolla* broadly stellate, mauve, 20–25 mm diam. *Filaments* 0.4–0.6 mm long. *Anthers* loosely erect, 4.8–5 mm long, terminally poricidal. *Ovary* globular, to 2.2 mm long, stellate-hairy in the distal half, declinate,  $\pm$  ribbed. *Style* 9–11 mm long, stellate-hairy in the proximal half. *Berry* globose, 15–20 mm diam., green, drying olive-brown, not enclosed by calyx; stone cells present. *Seed* 50–60 per fruit, straw coloured, sub-circular to slightly reniform, to 2 mm long, smooth. (Figure 1)



Figure 1. Habit of *Solanum albostellatum* (E. Thoma 1269). Image: Emil Thoma.

*Specimens examined.* WESTERN AUSTRALIA [localities withheld for conservation reasons]: 20 May 2011, *G. Cockerton et al. s.n.* (PERTH 08294488); 26 May 2011, *C. Flaherty & E. Ridley* ER 002 (PERTH); 16 Aug. 2004, *S. van Leeuwen et al.* PBS 0455 (PERTH); 16 Aug. 2004, *S. van Leeuwen et al.* PBS 0454 (PERTH); 12 Sep. 1995, *A.A. Mitchell* PRP 783 (AD, PERTH); 24 Mar. 1984, *K.R. Newbey* 9940 (PERTH); 24 Mar. 2007, *E. Thoma* 1269 (PERTH).

*Distribution and habitat.* *Solanum albostellatum* is endemic to the Pilbara bioregion of Western Australia, where it has been recorded from Millstream Chichester National Park east to Mt Sheila in the Hamersley Range (Figure 2). It is found on cracking clay soils on open floodplains in open scrubland over grasses. Associated species include *Acacia* spp., *Aristida latifolia*, *Chrysopogon fallax* and *Triodia* spp.

*Conservation status.* The distribution of this species is poorly known, with nine collections to date and only one population recorded within a conservation reserve (Millstream Chichester National Park). In accordance with the Department of Environment and Conservation's Conservation Codes for Western Australian Flora, *S. albostellatum* has been recently listed as Priority Three, under the phrase name *Solanum* sp. Hamersley clay (D. Halford Q 9280) (Western Australian Herbarium 1998–).

*Phenology.* Herbarium records suggest flowering begins between March and May, with mature fruits present on plants from July to September.

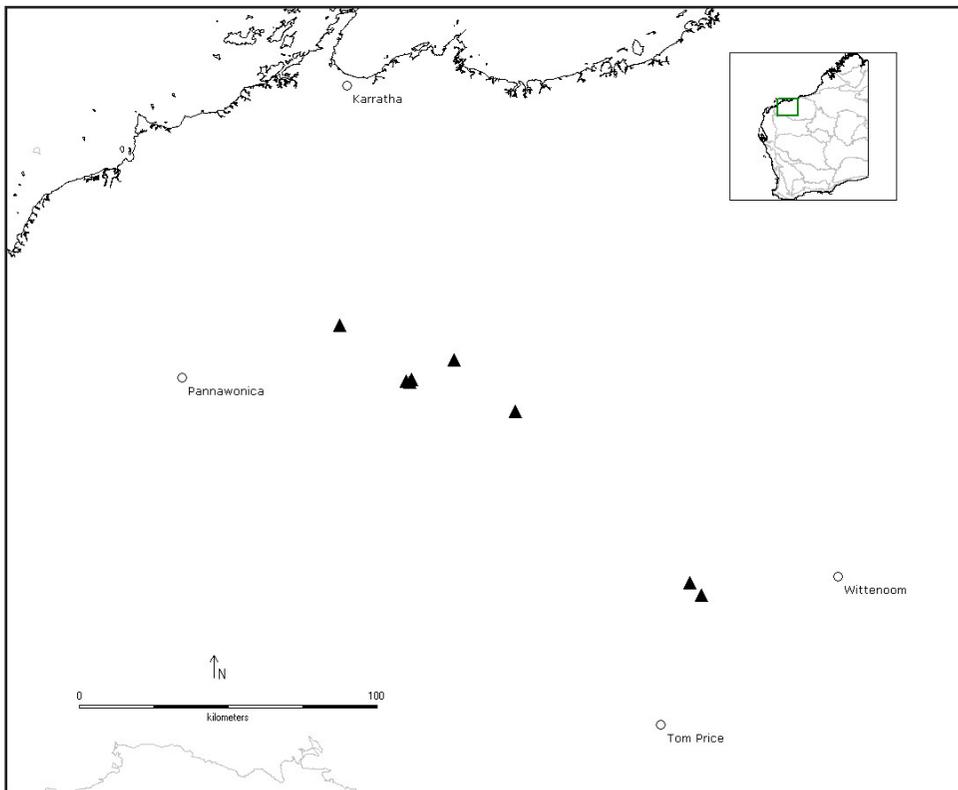


Figure 2. Distribution of *Solanum albostellatum* (▲) in Western Australia.

*Etymology.* The species epithet is derived from the Latin *albus* (white) and *stellatus* (stellate, starry), in reference to the white stellate hairs covering most of the vegetative parts which serves to distinguish *S. albostellatum* from the superficially similar *S. oldfieldii* (which often has an indumentum of rufous to rusty-brown stellate hairs).

*Affinities.* *Solanum albostellatum* belongs in the *S. esuriale* group of *Solanum* subgen. *Leptostemonum* following Bean's (2004) modified classification of Whalen (1984). It appears similar to *S. oldfieldii*, and collectors have misidentified *S. albostellatum* as this taxon. *Solanum esuriale* and *S. terraneum* may also be confused with *S. albostellatum*, and collections of *S. albostellatum* have previously been referred to *S. esuriale*. *Solanum albostellatum* may be separated from these taxa by the characters presented in Table 1.

The distributions of *S. esuriale*, *S. oldfieldii* and *S. terraneum* are also to the south (and to the north and east, in the case of *S. esuriale*) of that of *S. albostellatum*. *Solanum esuriale* in Western Australia occurs on a variety of soils, commonly on coastal sands and inland on grey clayey soils. *Solanum oldfieldii* is usually found on yellow or grey sand, red-brown loams and sometimes over limestone. *Solanum terraneum* grows on red-brown sandy soils.

*Solanum elaeagnifolium*, although close to *S. albostellatum* in the amended *Flora of Australia* key below, is excluded from Table 1 as it differs significantly in its erect habit, deeply divided leaves and dense, short, indumentum. It is also an introduced species restricted to cropping areas of the south-west of Western Australia and is unlikely to be confused with *S. albostellatum*.

#### Amendment to the *Flora of Australia* key to species of *Solanum* (Group V) (Symon 1982: 82)

46. Leaves shallowly lobed
47. Corolla rotate-pentagonal, 30–40 mm diam.; young shoots usually rusty green ..... **S. oldfieldii**
- 47: Corolla rotate-stellate, 15–30 mm diam.; young shoots usually grey-green or silvery green
48. Leaves usually silvery green; flowering peduncle less than 10 mm long;  
anthers 5–8 mm long ..... **\*S. elaeagnifolium**
- 48: Leaves usually grey-green; flowering peduncle 10–40 mm long; anthers 4–5 mm long
- 48a. Leaves 8–18 mm wide; flowering peduncle 10–40 mm long,  
prickles absent on calyx lobes ..... **S. esuriale**
- 48a: Leaves 25–50 mm wide; flowering peduncle 10–15 mm long,  
prickles usually present on calyx lobes ..... **S. albostellatum**
- 46: Leaves entire or slightly undulate
49. Leaves ovate, mostly more than 20 mm wide
50. Clonal herbs to 40 cm; flowering pedicels 15–30 mm long
- 50a. Clonal herbs to 10 cm; flowering pedicels 15–25 mm long;  
berry globular to ellipsoid, 8–10 mm diam ..... **S. terraneum**
- 50a: Clonal herbs to 40 cm tall; flowering pedicels (5) 12–25 mm long;  
berry globular, 15–20 mm diam ..... **S. albostellatum**
- 50: Shrubs to 1.5 m; flowering pedicels up to 10 mm long
- 49: Leaves lanceolate to oblong, less than 20 mm wide

**Table 1.** Morphological comparison between *Solanum albostellatum*, *S. esuriale*, *S. oldfieldii* and *S. terraneum*.

	<i>Solanum albostellatum</i>	<i>Solanum esuriale</i>	<i>Solanum oldfieldii</i>	<i>Solanum terraneum</i>
<b>Indumentum</b>	moderately dense, white stellate hairs	dense white stellate hairs	dense rusty stellate hairs, sometimes longer and appearing 'woolly'	dense white stellate hairs
<b>Leaves</b>	ovate, entire to shallowly lobed, 20–40 mm long, 25–50 mm wide	elliptic, entire to shallowly lobed, 30–80(–90) mm long, 8–18 mm wide	ovate, entire to shallowly lobed, 20–70 mm long, 10–50 mm wide	broadly ovate, entire 25–110 mm long, 12–55 mm wide
<b>Inflorescence</b>	1(2)-flowered	3–6-flowered	1–10-flowered	1–3-flowered
<b>Calyx</b>	prickles often present; tube 2.0–2.5 mm long; lobes narrowly triangular, 2.5–6 mm long	prickles absent; tube 2.5–3.5 mm long; lobes broadly to narrowly triangular, 2.5–5 mm long	prickles absent; tube 4–10 mm long; lobes oblong to ovate, 2.5–5.5 mm long	prickles rarely present; tube 3–5 mm long; lobes narrowly triangular to linear, 3–6 mm long
<b>Corolla</b>	broadly stellate, 20–25 mm diam., mauve	rotate-stellate, 15–25 mm diam., mauve-purple	rotate-pentagonal, 30–40 mm diam., purple	stellate, 18–22 mm diam., mauve
<b>Ovary indumentum</b>	distally stellate-hairy	glabrous or distally stellate-hairy	glabrous or with some glandular hairs distally	distally stellate-hairy
<b>Style</b>	proximally stellate-hairy, 9–11 mm long	proximally stellate-hairy, 8–10 mm long	glabrous, 6–7 mm long	proximally stellate-hairy, 5–6 mm long
<b>Fruit</b>	green, 15–20 mm diam.	pale yellow, 10–15 mm diam.	pale yellow, 5–10 mm diam.	pale green, 8–10 mm diam.

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