Solanum oligandrum (Solanaceae), a new species from the Great Sandy Desert, Western Australia

D.E. Symon

State Herbarium of South Australia, Plant Biodiversity Centre,
PO Box 2732, Kent Town, South Australia 5071

Abstract

Symon, D.E. *Solanum oligandrum* (Solanaceae), a new species from the Great Sandy Desert, Western Australia. *Nuytsia* 13(3):537–541 (2001). *Solanum oligandrum* Symon, of sect. *Pugiunculifera* Symon, is described from dried and cultivated material. It occurs in depressions and interdune corridors of the Great Sandy Desert of Western Australia. An illustration and distribution map are also provided.

Introduction

The first collections of this species of *Solanum* L. (Solanaceae) appear to have been made by T. Fatchen in 1984. The two specimens were located with latitude and longitude only, which placed them in undifferentiated sand dunes. They were tentatively identified as *S. pugiunculiferum* C.T. White but were recognized as being geographically and ecologically disjunct from that species.

A more recent herbarium and seed collection of the taxon (*Dureau et al.* WEC2–19) has enabled observations of fresh cultivated material and a reassessment of its status to be made. It is here described as a new species.

Taxonomy

Solanum oligandrum Symon, *sp. nov.*

Herba annua aut breviter perennis ad 1 m alta. Caules virides glabri fortiter armati spinis erectis rectis pallidis 2–20 mm longis. Folia ad 7 x 6 cm, late elliptica ambitu sed profunde pinnatifida cum 1–3 paribus suboppositis lobis; lamina ad 4 mm lata, lobis ad 2.5 x 0.4 cm spinis sparsis. Inflorescentia reducta pulvino internodali, aliquot flores masculinas supra 1(2) flores as bisexuales ferenti. Pedicellus 3–4 mm; calyx 6–8 mm longus, lobis lanceolatis, aculeatus. Corolla ad 14 mm longa, stellata rotata circa ad dimidium longitudinis divisa, pilis brevibus atris glandularibus versus basim, malvina, extra pilis stellatis dense pubescens. Filamenta 1–1.5 mm. Antherae 6.5 mm longae, linear lanceolatae

poricidiles. Ovarium floris fertilis 2 mm, late conicum, glabrum. Stylum ad 11 mm sigmoidium. Flores masculinae ovario et stylo vestigiali aut absenti. Bacca c. 10 mm diam. globosa, viridis, parum siccata. Semina 2–2.5 mm diam., discoidea, minute granulata, fusea ad picea.

Typus: one metre prickly shrub with mauve flowers, saline 'bulldust' with algal crust over calcrete, swales seasonally inundated, Mandoora Marsh area IBRA, Great Sandy Desert, 19°45'20"S, 121°26'55"E, Western Australia, 16 October 1999, *D. Dureau, T. Handasyde, T. Willing* WEC2–19 (*holo:* PERTH; *iso:* AD).

Annual or short-lived *perennial* to 1 m, erect, sparsely branched, stems green, glabrous, possibly glaucous, strongly armed with erect, straight, straw-coloured prickles 2–20 mm long. *Leaves* to 7 cm long, glabrous, deeply pinnately parted with 1–3 pairs of sub-opposite lobes, with all stages of reduction in the upper leaves to a lanceolate leaf with single shallow lateral lobe. *Petiole* with narrow green flange; lamina to 4 mm wide, midrib well developed; 1–3 lobes to 3 cm long, linear triangular, to 4 mm wide, sometimes the lobes with 1 or 2 short shallowly triangular lateral lobes 2–3 mm long; all with straight pale prickles to 1 cm long. *Inflorescence* a leaf-opposed or internodal short cyme *c.* 3 mm long, mostly reduced to a pulvinus bearing several male flowers above 1(2) bisexual flowers. *Pedicel* 3–4 mm long. *Calyx* 6–8 mm long, lobes lanceolate, each with 1–3 conspicuous prickles. *Corolla* stellate-rotate, divided for about half its length, to 14 mm long in bisexual flower, smaller (to 11 mm long) in male flowers, mauve, with scattered dark, short, glandular hairs on the tube within at the insertion of the filaments, densely pubescent outside with short stellate hairs. *Filaments* 1–1.5 mm long. *Anthers c.* 6.5 mm long, linear-lanceolate, poricidal. *Ovary* (fertile flower) *c.* 2 mm long, broadly conical, glabrous. *Style c.* 11 mm long, sigmoidal, in male flowers ovary and style lacking or vestigial. *Berry* somewhat flattened globose, *c.* 10 mm diam., apparently dryish, green at maturity (only dried material seen). *Seeds* 2–2.5 mm diam., discoidal, minutely granular, dark brown to black. *Cotyledons* lanceolate *c.* 2 x 8 mm, shiny green, petiole 2–3 mm long. (Figure 1)

Other specimens examined. WESTERN AUSTRALIA: herbaceous perennial, erect, 30 cm, in soakage area in interdune corridor, 19°40'S, 124°40'E (Crossland sheet), 25 May 1984, *Fatchen* 900 (AD); erect shrub on calcareous interdune swale, 19°58'S, 125°22'E (Crossland sheet), 27 May 1984, *Fatchen* 980 (AD).

Distribution. Western Australia: Three widely separated collections from the Great Sandy Desert are known, the first two located on the Crossland sheet (Aust. 1:250,000 series) and the third further west on the Mandora sheet and approximately 50 km E of the Sandfire Roadhouse on the main coastal highway on the Eighty Mile Beach. All collections have been made from interdune depressions. (Figure 2)

Conservation status. CALM Conservation Codes for Western Australian Flora: Priority Three. Only known from three widely spaced collections in the huge expanse of the Great Sandy Desert. Pastoral activity is light to non-existent over much of the area and the apparently scattered populations of this species are probably safe, though no assessments have yet been made.

Etymology. From the Greek –*oligos*, in the sense of few, and –*andros*, meaning male. The epithet refers to the few male flowers above the bisexual flower.

Cultivated material. Several plants have been grown from seed from the *Dureau et al.* collection. These were established in pots in the open. In these cultivated plants the leaves were a shiny green close to RHS green group 141B, glabrous, not glaucous, firm, somewhat thick and almost succulent. They bore

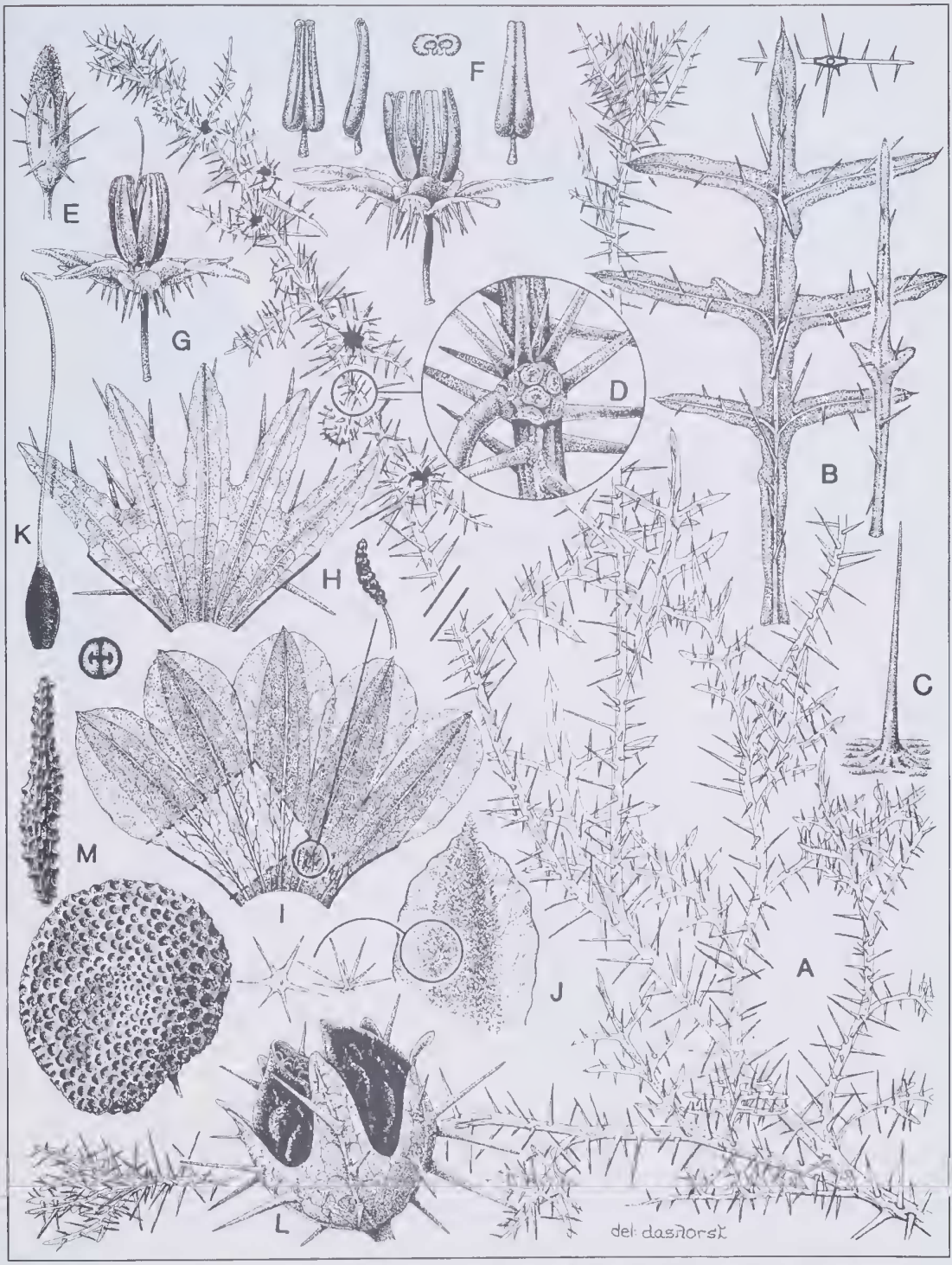

Figure 1. *Solanum oligandrum*. A – branch (x5); B – mid and upper leaf (x2); C – prickle (x2); D – pulvinus with pedicel scars of male flowers and bearing one fruit (x5); E – bud (x4); F – male flower and anthers (x3); G – bisexual flower (x3); H – calyx (x6); I – corolla (x3.5); J – corolla lobe and outer pubescence (x6); K – ovary and style (x5); L – dried fruit (x3); M – two views of seed (x16). Drawn by *G.R.M. Dashorst* from *D. Dureau et al.* WEC 2–19.

straight, erect, straw-coloured prickles to 5–6 mm long on the veins above and below. The plants branched freely at the lower nodes and commenced flowering at 20 cm high. The flowers opened a pale violet-blue and deepened to violet-blue RHS 91A. The corolla had a yellowish star at the base visible on both sides of the tube and the anthers were loosely erect.

Of particular interest were the brownish, multicellular glands at the base of the corolla, which were roughly cylindrical and borne on a filament. These have not been observed in other Australian species of *Solanum*.

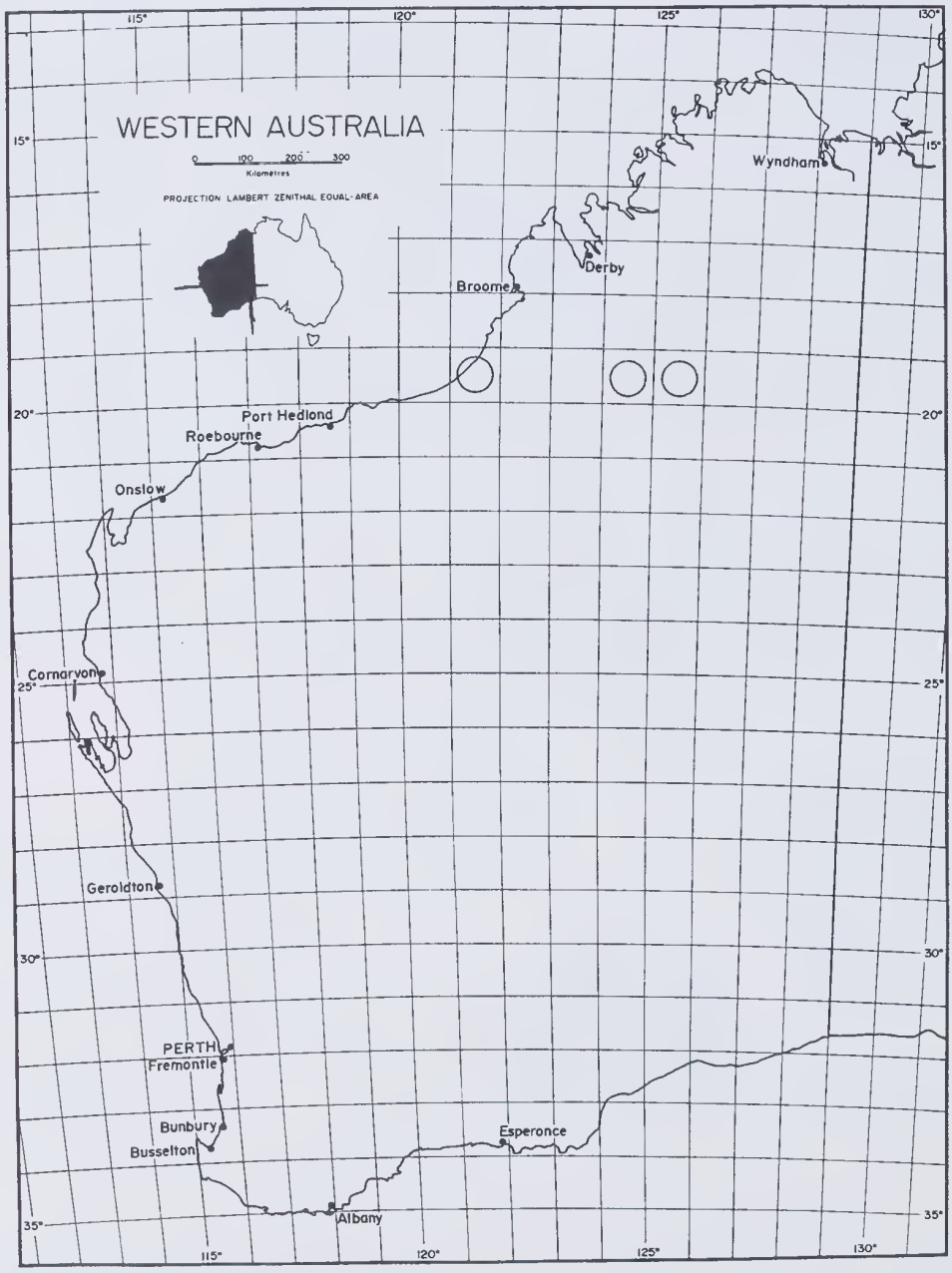

Figure 2. Distribution of *Solanum oligandrum*.

Diagnostic features. The new species is distinct from all other Australian *Solanum* species by the combination of its glabrous nature, the abundant straight straw-coloured prickles and the inflorescence reduced to a pulvinus.

Notes. The new species appears related to *S. pungiunculiferum* from northern Northern Territory and Queensland. It agrees in the lack of pubescence (except on the corolla), the conspicuous pale, straight prickles, and the dryish green fruits. For that species I erected the new section *Pugiunculifera* Symon (1981), and *S. oligandrum* can also be accommodated in that section. The long tapered poricidal anthers and the presence of stellate hairs on the corolla clearly place the new species in the subgenus *Leptostemonum* (Dunal) Bitter.

The new species differs from *S. pugiunculiferum* in its sessile lanceolate rather than petiolate linear cotyledon; its more deeply and narrowly lobed leaves; the reduction of the inflorescence; the development of several male flowers above one bisexual flower; the much longer calyx; the stellate-rotate rather than rotate shallowly-campanulate corolla; the dense stellate outer pubescence on the corolla; the clearly developed long poricidal anthers and the minutely granular discoidal seed, 2–2.5 mm diam. rather than the flat distinctly winged seeds *c.* 3 mm diam.

The inflorescence in *Solanum* is basically a cyme which may be elaborated to paniculate form or reduced to a small, simple cyme and in extreme cases to a vermiform axis or a pulvinus. No other Australian species of *Solanum* has a similar inflorescence. However, reduction of the inflorescence to a pulvinus does occur in *Lycianthes* (Dunal) Hassler (Symon 1985), which may also have several male flowers above the bisexual ones.

The production of extra male flowers parallels the development of androdioecy and dioecy in a number of species of *Solanum*, e.g. *S. dioicum* W. Fitzg., *S. leopoldensis* Symon, *S. oedipus* Symon, *S. phlomoides* A. Cunn. ex Benth. and *S. tudununggae* Symon, although none of these species are closely related to *S. oligandrum*. These species (and possibly also *S. oligandrum*) are pollinated by solitary bees which 'buzz' the anthers to release pollen. The supply of abundant male flowers would seem to contribute to the welfare of the bees, in turn essential to pollinate the *Solanum* flowers (Anderson & Symon 1988).

Acknowledgements

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