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PO Box 2732
Kent Town SA 5071
Australia



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***Teucrium reidii* (Labiatae): a new species from north-western South Australia**

H.R. Toelken & D.D. Cunningham

State Herbarium of South Australia, Plant Biodiversity Centre,
P.O. Box 2732, Kent Town, South Australia 5071
E-mail: toelken.hellmut@saugov.sa.gov.au

Abstract

The new species, *Teucrium reidii* Toelken & D. Dean Cunn., is here described and illustrated, and the generic key for the Flora of South Australia is amended.

Introduction

Recent mining exploration in the north-west of South Australia has prompted a reassessment of an unusual member of the *Teucrium corymbosum* R.Br. species complex, which is here described as a new species.

W.S. Reid (1908–1995) from the South Australian Pastoral Board was, according to records at the State Herbarium of South Australia (AD), the first to collect this plant in 1955 from Mt Davies and Mt Harriet in north-western South Australia. The species is named in honour of this discerning collector, who also recorded many rare plants (for a biographical note see Donovan 1995). *Teucrium grandiusculum* subsp. *pilosum* Toelken (Toelken 1985, p. 299), for instance, was known only from a locality near Ooldea, until he recorded it from the western boundary of Lake Everard where it has never been relocated.

***Teucrium reidii* Toelken & D. Dean Cunn., sp. nov.**

Teucrio corymboso R.Br. *similis sed petiolis precipue paginis adaxialibus pilis longis patentibus, foliis latioribus, paginis adaxialibus foliis glanduloso-pubescentibus inflorescentisque spiciformibus differt.*

Typus: South Australia, Mt Harriet, W.S. Reid s.n., 30.ix.1955 (holo.: AD97629673; iso.: AD97904141, AD98661013).

Teucrium corymbosum auct. non R.Br.: Toelken in Jessop & Toelken, Fl. S. Austr. 3: 1226 (1986), pro parte.

Shrubs rarely up to 2 m tall, resprouting from woody base; branches more or less quadrangular but ridges rounded and rarely protruding, densely pubescent to sparsely hirsute, with hairs simple spreading (unequally long) often more or less antrorsely curved and densely interspersed with subsessile glands. *Leaves* discolorous; *petiole* (3.2–) 8–15 (–23.5) mm long [(0.3–) 3–6 (–12.3) mm in *T. corymbosum*], with hairs spreading and longer on interpetiolar ridge; *lamina* ovate to oblong-ovate, (19.4–) 30–50 (–90.2) × (14.3–) 20–30 (–56.2) mm [(4.6–) 6–15 (–25.1) mm broad in *T. corymbosum*], apex acute often becoming obtuse, abruptly constricted

into an often truncate to cordate base, with bluntly dentate margins, adaxially more or less depressed-reticulate-veined and pubescent with unequal spreading simple hairs usually antrorse and densely interspersed with usually subsessile glands, abaxially with almost complete raised reticulum of veins, densely pubescent to shortly hirsute with unequal spreading ± antrorse simple hairs with dense subsessile glands interspersed. *Inflorescence* a foliose thyrsoid, apparently unbranched, spiciform, with first internode from base (0.3–) 0.5–8 (–10.6) mm long [(6.5–) 8–18 (–22.2) mm in *T. corymbosum*], with loosely arranged dichasia; *bracts* (prophylls) linear-elliptic to elliptic-triangular, 5.2–8.4 mm long, with apex blunt to acute, abaxially with central vein prominently raised, pubescent to tomentose subtended by sessile glands, adaxially glabrous, rarely with a few glands. *Calyx* outer surface usually densely pubescent with hairs simple, spreading, antrorse subtended by dense subsessile glands, inner surface glabrous except for sessile glands on the lobes becoming abruptly fewer within the tube; tube 2.8–3.4 mm long with 10 raised veins (5 prominent); lobes 5, triangular, subequal, 3.2–3.7 × 1.3–1.5 mm, usually slightly longer than tube, pointed, each with a raised central vein on the outside. *Corolla* bi-lipped, white and without markings, outer surface puberulous to pubescent with hairs short, spreading, antrorse and glands sessile, inner surface mainly glabrous except for a prominent ring of long simple hairs in the throat just above the attachment of the anthers; tube 4.4–4.6 mm long; adaxial lip trilobed: median abaxial lobe usually more or less spatulate, but varying from broadly obovate to almost orbicular, 5.8–6.6 × 3.7–4.4 mm, spreading; lateral abaxial lobes equal, narrowly elliptic, 3.8–4.4 × 1.7–2.2 mm, with apex retuse; adaxial lip with two similar narrowly elliptic lobes erect to slightly incurved, 4.2–4.7 × 2.1–2.6 mm. *Stamens* erect, aligned with adaxial corolla lobes then distally strongly incurved; *filaments* inserted 1.3–1.6 mm from the base of corolla, basal third broader than distal section, hairs

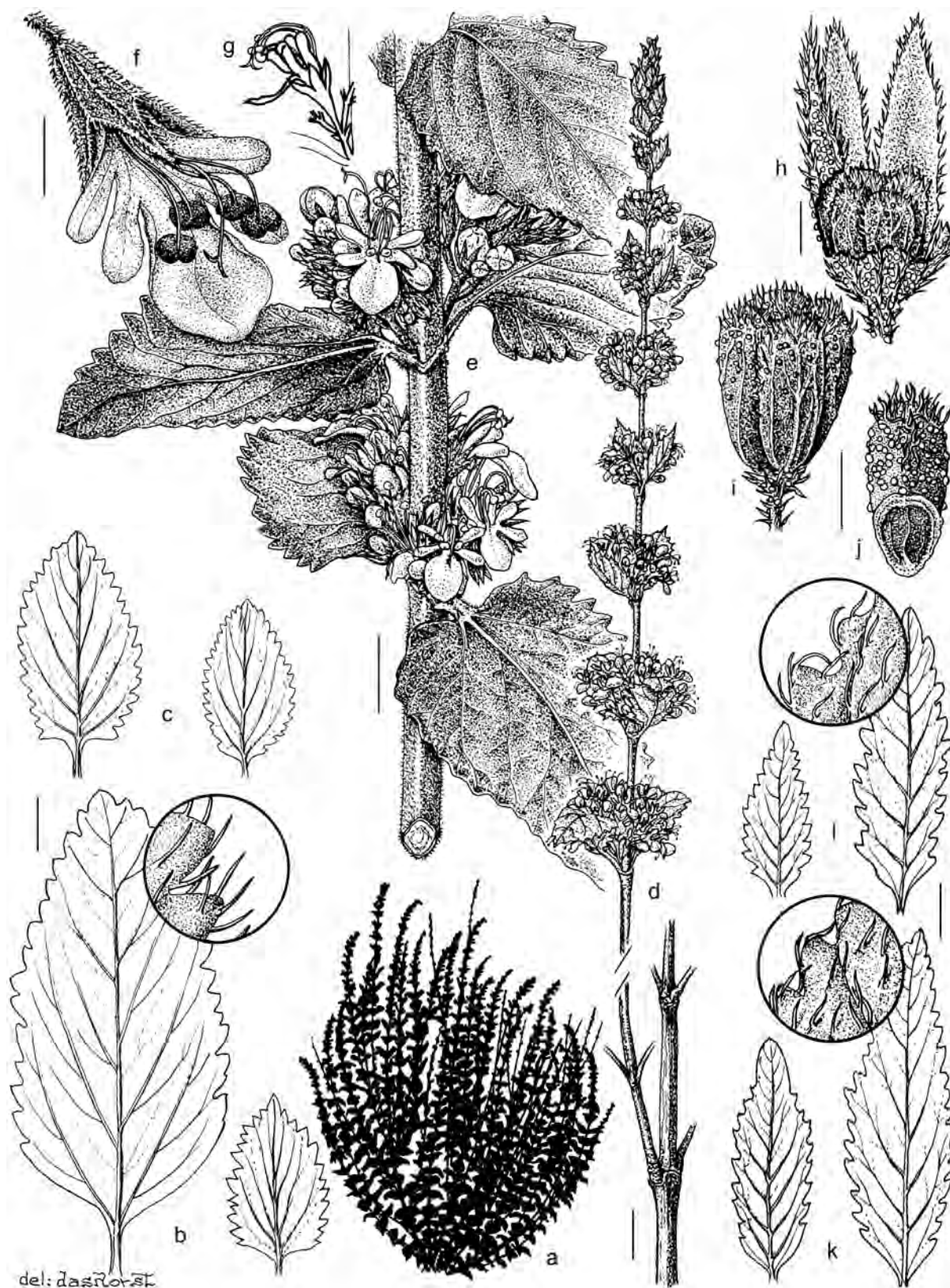


Fig.1. a-j *Teucrium reidii*. a habit; b variation of lower leaves; c leaves below the inflorescence; d inflorescence; e lower part of inflorescence; f flower from above; g flower in side view; h fruit with front calyx lobes removed; i fruit without calyx; j centripetal surfaces of mericarp. k-l *T. corymbosum* (South Australian form): k lower leaves; l leaves below the inflorescence. Scale: a $\times 0.1$; b-e, g, k-l 1 cm; f 2.5 cm; h-j 1 mm. a, e-g M.Ward AD199401 with photographs; b, d P.J.Lang & P.D.Canty BS23-29074; c, h-j W.S.Reid AD97904141, k E.A.Orchard 2231, l Gawler Ranges Survey 7956.

simple, long, abaxial pair appearing lateral, 10.5–10.8 mm long, adaxial pair 9.1–9.5 mm long; *anthers* kidney-shaped, 1.8–2.0 mm long and 1.5–1.7 mm long (abaxial and adaxial anthers, respectively), medifixed with few to many glands around attachment with filament, papillate. *Ovary* cylindrical to more or less quadrangular in section, with dense tuft of erect simple hairs and a few glands distally, outer surface otherwise glabrous except for clusters of glands distally (in grooves between locules), style 9.2–9.8 mm long, distally incurved with the filaments to just above the throat of the corolla; stigma lobes equal, 0.8–1.1 mm long. *Fruiting calyx* slightly enlarged. *Mericarps* cylindrico-ellipsoid, 3–3.2 × c. 1.2 mm, distally 0.6–0.8 mm extended beyond the style base, with obvious terminal tuft of simple hairs and dense sessile glands extending slightly downwards. *Flowering*: August–November. Fig. 1.

Distribution and ecology. Plants often grow in shallow soil among boulders of usually igneous rock formations such as granite, or ultramafic rock or layered mafic intrusions of the Giles complex (Glikson et al. 1996) of north-western South Australia. At present *T. reidii* is mainly known from a few localities, usually at high altitude, on the Gammon Ranges in the northern Flinders and has more often been recorded from the Tomkinson and Musgrave ranges in north-western South Australia. The species has apparently not yet been found in the adjoining regions of Western Australia and the Northern Territory.

Conservation status. The species is described as rare for Mt Woodroffe in the Musgrave Ranges (*P.J.Lang & P.D.Canty BS23-24459*) and the Gammon Ranges (*R.J.Bates 34838*).

Diagnostic features. The *Teucrium corymbosum* species complex has numerous forms in eastern Australia. *Teucrium reidii* is here compared to the most common form of *T. corymbosum* that occurs in South Australia, as it shows in its general morphology a close affinity to the new species (see description for comparative measurements). It is beyond the scope of this paper to evaluate whether this South Australian form should be included in *T. corymbosum* as determined by the type specimens collected by R. Brown near Port Jackson.

The very broad leaf lamina and longer petiole of *T. reidii* are the most obvious distinctive features, but at present insufficient herbarium material prevents a thorough evaluation of these traits in relation to the often extreme conditions where *T. reidii* occurs as well as to their position on the plant. The use of leaves for clear delimitation of the species is limited. For instance, the very long petioles and the broadest leaves are typically found at the base of the plant, but these are usually not included in herbarium specimens, particularly those of *T. reidii*, as its plants tend to be larger than those of *T. corymbosum*. However, if the width of the lamina of the leaves at the second node below the first flower is

measured, then they show an almost complete separation of the two taxa (18–33 mm broad in *T. reidii* and 8–20 mm for those of *T. corymbosum*).

The clearest diagnostic feature of *T. reidii* is the presence of long erect hairs (sometimes slightly distally incurved) on the petiole and usually the entire leaf. In *T. corymbosum* the latter hairs are more or less appressed or may at times be looped with only the apex appressed. The upper leaf surface of *T. reidii* is pubescent with simple hairs interspersed with sessile glands, while that of *T. corymbosum* is glabrous or if with a few scattered hairs then usually without glands.

The corymbiform arrangement of the flowers is accentuated in *T. corymbosum* by elongated basal internode of every part-inflorescence, a feature not observed in *T. reidii* so that its inflorescences appear spiciform.

Although some of the measurements, particularly of leaves, of *T. reidii* marginally overlap with those of *T. corymbosum*, no intermediates between the two species have been observed. The existence of a typical specimen *T. corymbosum* from north of Mintabie (*Bates 51156*) indicates that the two species occur near one another. *T. reidii* has also been recorded from the Gammon Ranges, Arkaroola and Mawson Plateau, whereas *T. corymbosum* is common in the Flinders Ranges to the south.

Typification. Duplicates from the South Australian Pastoral Board (held in AD) usually have no collector's name on the label, but the coincidence of the same species from the same locality collected on the same date strongly suggests that they are part of the same collection by the same person (here regarded as W.S.Reid) as formally recorded on sheets of ADW (Herbarium of the Waite Arboretum, University of Adelaide), which are now also incorporated in AD.

Specimens examined

SOUTH AUSTRALIA: **North-Western Region:** *R.Bates 3029*, upper Alarka Creek, 19.v.1983 (AD); *P.J.Lang & P.D.Canty BS23-24459*, 0.1 km SSW of Mount Woodroffe, 19.x.1994 (AD); *P.J.Lang & P.D.Canty BS23-29074*, 13.6 km NNE Yuranka, 24.x.1998 (AD); *W.S.Reid AD97846043*, AD98661010, Mount Davies, 23.ix.1955 (AD); *M.Ward 52J 517068 7115285*, 1 km north Kalka, 16.viii.2006 (AD). **Flinders Ranges:** *R.Bates 34838*, Gammon Ranges, 4.xi.1993 (AD); *R.Bates AD99804095*, Mawson Plateau, 1996 (AD, NSW); *T.R.N.Loathian 5052*, Radium Creek, Arkaroola, 1.x.1969 (AD).

Selection of specimens of *T. corymbosum* (common S.A. form) examined (96 seen)

SOUTH AUSTRALIA: **North-Western Region:** *R.Bates 51156*, N Mintabie, 29.ix.1998 (AD). Nullarbor: *F.A.Mason 75*, Ooldea Soak, 1.ix.1974 (AD). **Flinders Ranges:** *W.Bushman 3*, near Fern Chasm, 29.ix.1981 (AD); *R.Callen AD97021089*, Mainwater Pound, Bella Bellana Creek, 8.x.1969 (AD); *A.G.Spooner 3641*, Hidden Gorge, Mt Remarkable National Park, 12.x.1974 (AD). **Eastern Region:** *D.Chinner 29*, Bibliando Station, 7.x.1979 (AD). **Eyre Peninsula:** *B.Copley 2334*, 7 km W Yardea homestead, 12.x.1968 (AD); *E.A.Orchard 2231*, Yandinga Gorge, N. Minnipa, 26.ix.1969 (AD); *A.G.Spooner 2248*, Hiltaba homestead, 3.ix.1972 (AD). **Northern Lofty:** *D.Symon 10605*, Nelshaby Gorge, 10.x.1976 (AD). **Murray:** *A.G.Spooner 7086*, Saunders Creek Gorge, 21.ix.1980 (AD).

Key to *Teucrium* in South Australia

The key to the species of *Teucrium* in the *Flora of South Australia* (Toelken 1986) was changed as follows to include the new species:

- 1. Leaves trifoliate *T. albicaule*
- 1: Leaves simple
 - 2. Leaves entire, undulate or unevenly recurved
..... *T. racemosum*
 - 2: Leaves lobed or toothed
 - 3. Internodes scarcely elongated and not visible between successive pairs of part-inflorescences; tufted herbs with a rootstock *T. sessiliflorum*
 - 3: Internodes elongating and visible between successive pairs of part-inflorescences; shrubs
 - 4. Leaves sessile, obovate, often with a long cuneate base *T. grandiusculum*
 - 4: Leaves petiolate at least on lower parts; blade ovate or lanceolate
 - 5. Hairs spreading on abaxial petiole, 0.4–0.8 mm long on adaxial base of lamina; leaves ovate, 2.0–3.3 mm broad at second node below first flowers; upper surface pubescent with simple hairs interspersed with sessile glands . . . *T. reidii*
 - 5: Hairs ±appressed on abaxial petiole, 0.1–0.25 mm long on adaxial base of lamina; leaves lanceolate, 0.8–2.0 mm broad at second node below first flowers; upper surface glabrous or if a few scattered hairs usually without glands
..... *T. corymbosum*

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Special thanks to Matthew Ward, who immediately convinced us with his clear photographs that this plant is different to the widespread *T. corymbosum*.

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