

Rudolf Schlechter originally described *Schizoglossum umbelluliferum* in 1895 after a collecting trip to South Africa. The specimen (Schlechter 3687) on which he based his description was collected between 28 October and 15 November 1893 (Gunn & Codd 1981) on the plains below the Magaliesberg, a range of mountains near Pretoria, South Africa.

Schlechter's placing of this species in the genus *Schizoglossum* E.Mey. was based on habit and floral characteristics. As circumscribed at that time in the protologue, he mentioned the affinities between *S. umbelluliferum* and *S. orbiculare* Schltr. Brown (1907) agreed with Schlechter's generic placement and indicated that, in his opinion, *S. umbelluliferum* might be conspecific not only with *S. orbiculare* but also with *S. crassipes* S.Moore. However, he did not see Schlechter's type specimens, and his opinion was based only on the descriptions of *S. umbelluliferum* and *S. orbiculare*. Unfortunately, Schlechter's type specimens, previously housed at the Berlin Herbarium (B), could not be traced and were probably destroyed during the bombing of this herbarium during the Second World War (Nicholas 1992). According to Schlechter (1895), he had collected only one specimen each of *S. umbelluliferum* and *S. orbiculare*, and it is thus doubtful that any other Schlechter specimens of these species will be found in any other herbaria.

Some living plants precisely fitting Schlechter's description of *Schizoglossum umbelluliferum* were recently rediscovered by the senior author in two subpopulations at the foot of the Magaliesberg. This discovery has enabled a re-assessment of the generic position, neotypification and re-circumscription of this species.

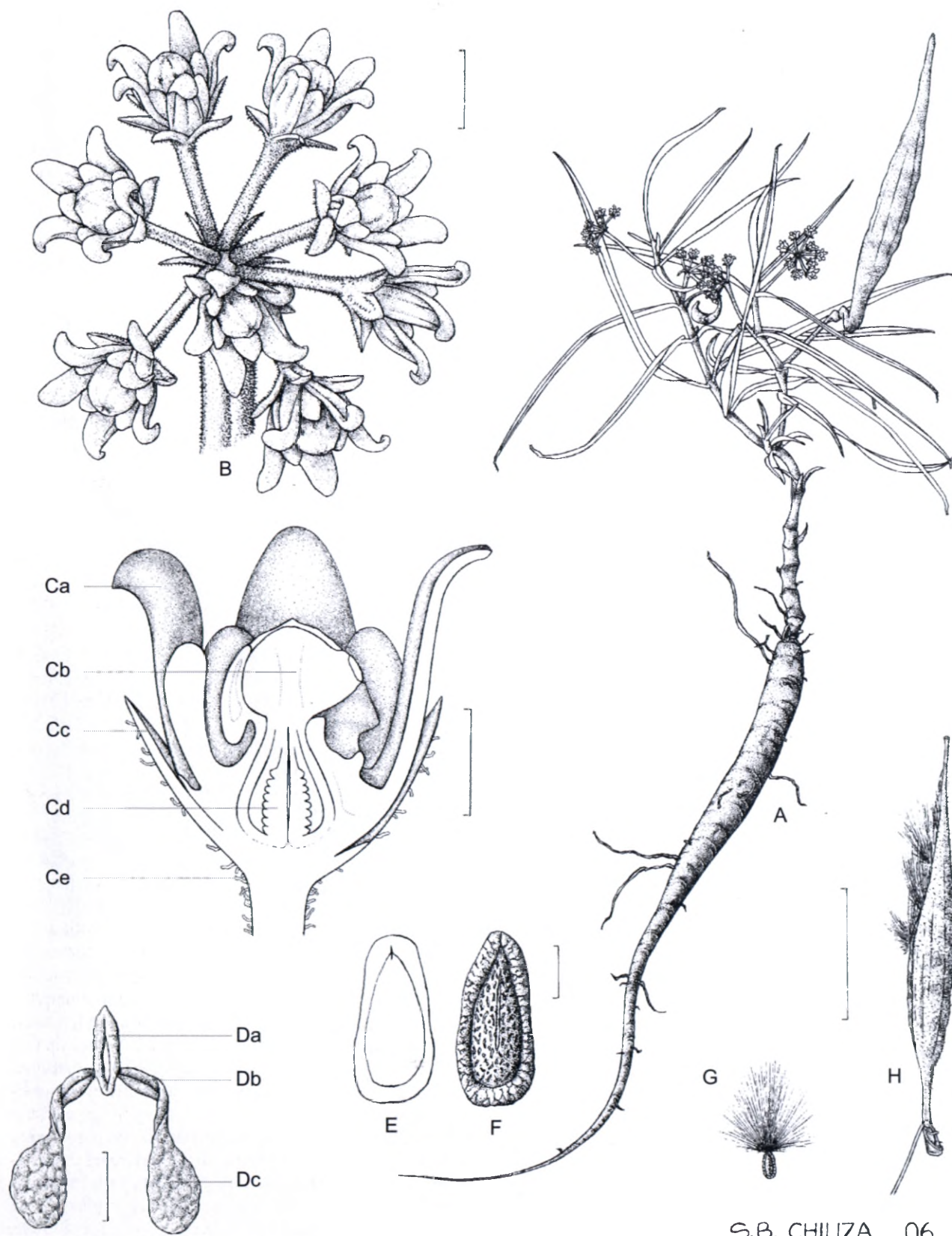
TAXONOMY

Stenostelma Schltr. is currently represented in southern Africa by two taxa, namely *S. capense* Schltr. and *S. cor-*

niculatum (E.Mey.) Bullock (Victor *et al.* 2003). Kupicha (1984), during her study of the genus *Schizoglossum*, suggested an expanded concept for *Stenostelma* and argued for the inclusion of a number of *Schizoglossum* species, including *S. umbelluliferum*. However, she never published these new combinations. Nicholas (1999) agreed with Kupicha and expressed the intention to enlarge the current circumscription of *Stenostelma* to also include three species previously placed in *Xysmalobium* R.Br. These transfers have not yet been effectively or validly published but would bring the number of species under *Stenostelma* to ten.

The proposed transfer of *Schizoglossum umbelluliferum* to the genus *Stenostelma* is based on a number of correlated characteristics which may be considered synapomorphies for the genus, namely: a fleshy, tough and fibrous napiform tuber; globose or subglobose inflorescences; greenish yellow to cream-coloured flowers; corolla lobes that are divided almost to the base, usually with a terminal oblique notch; corona lobes free, erect, somewhat fleshy, sometimes with an inverted v-shaped indentation with thickened edges, below the apex on the inner surface and a gibbous or keeled outer surface; anther flaps that usually fully cover the style head; barrel-shaped (constricted below and above) style head (in longitudinal section); triangular anther wings with a medial or subterminal notch in profile from the side; gynostegial head conical-shaped in outline; apical attachment of the translator arms to the pear-shaped pollinia; and erect follicles, narrowly fusiform (not inflated), smooth or with $\pm$ six, slight longitudinal ridges.

Stenostelma umbelluliferum can be easily distinguished from the other southern African species currently recognized in this genus in that it has the smallest plants (38–200 mm tall above ground) and has globose, slightly dorsiventrally flattened corona lobes with no extended horns, teeth or other processes.



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FIGURE 22.—*Stenostelma umbelluliferum*. A, habit with inflorescences, leaves, follicle and tuber; B, inflorescence. C, 1/s flower: Ca, corolla lobe; Cb, style head; Cc, calyx; Cd, carpel; Ce, hairs. D, pollinarium: Da, corpusculum; Db, translator-arm; Dc, pollinium. E–G, seed: E, dorsal view; F, ventral view; G, with coma. H, dehiscent follicle. A, B, *Chiliza & Bester 2*; C–H, *Bester 5251*. Scale bars: A, G, H, 25 mm; B, 2.2 mm; C, 1 mm; D, 125 μ m; E, F, 1.3 mm. Artist: Sibonelo Chiliza.

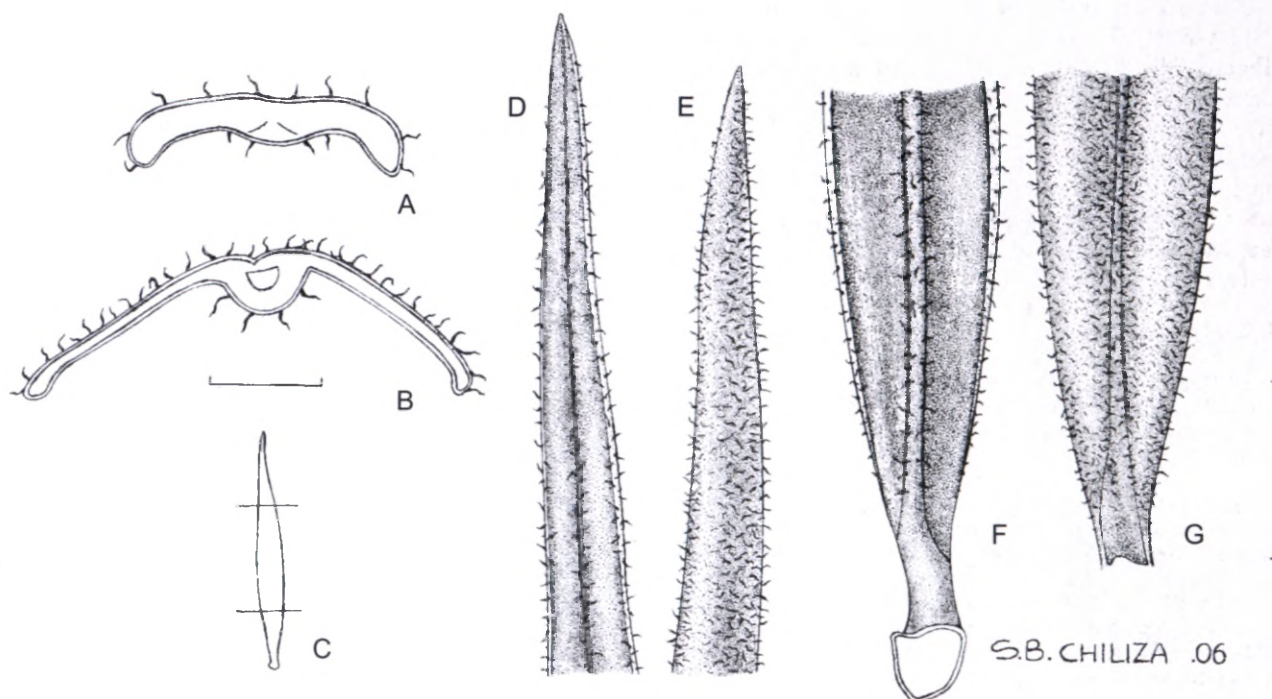


FIGURE 23.—*Stenostelma umbelluliferum*, Bester 5251. A–C, c/s lamina showing revolute margins: A, basal portion; B, apical portion; C, position of sections. D–G, leaf: D, E, tip, abaxial and adaxial view; F, G, base, abaxial and adaxial view. Scale bars: A, B, 0.5 mm; D–G, 2.3 mm. Artist: Sibonelo Chiliza.

***Stenostelma umbelluliferum* (Schltr.) S.P.Bester & Nicholas, comb. nov.**

Schizoglossum umbelluliferum Schltr., in Botanische Jahrbücher 20,5, Beibl. 51: 24 (1895). Type: Farm Doornpoort, Pretoria, Gauteng, South Africa, 25°38'36" S, 28°15'01" E, 1 222 m, 16 September 2004, S.P. Bester 5251 (PRE, neo. selected here; K, MO, B, Z, iso.).

Perennial geophytic herb with milky latex; aerial parts annual, 38–200 × 40–300 mm. *Tuber* fleshy, napi-form, broadest above middle, 50–100(–140) × 4–18 mm, pale cream-coloured, outer layer fibrous (Figure 22). *Underground stem* arising from tuber crown, 30–110 mm long, containing numerous adventitious points, usually unbranched; internodes 22–25 mm long. *Aerial stems* arising from apex of underground stem, 1–6-branched from soil level with further secondary branching, erect-spreading to decumbent from base; internodes 3–12 mm long, densely foliate. *Leaves* opposite, simple, erect to spreading-erect, 9–16 per branch; lamina narrowly linear to triangular-linear, up to 90 × 5 mm, acute, base attenuate to cuneate, usually narrowing into a very short petiole, nearly glabrous, green to tinged purple above, becoming dark pink to maroon with age, paler green towards main vein, paler beneath, margins revolute especially distinct in younger leaves; main vein prominent, abaxially concave, smooth to scabrid, adaxially convex, glabrous to puberulous to scabrid, secondary veins abaxially paler (Figure 23). *Inflorescence* umbellate, axillary, alternate, up to 22 umbels per plant, up to 7 per branch, (1–)3–28 flowers per umbel; peduncles 5–30 mm long, pubescent, deflexed at apex after flowering; pedicels 2–18 mm long, drooping after flowering, puberulous, hairs flat, multicellular; bracts linear to narrowly lanceolate, up to 1.5 × 0.24 mm. *Flowers* 5-merous. *Calyx* free, erect to spreading-erect; lobes lanceolate, 0.8–1.5 × 0.45–0.65 mm, half as long as corolla, acute, dark green, outside glabrous, inside glabrous to puberulous. *Corolla* ± divided to base, erect to spreading-erect; lobes oblong-

lanceolate, obliquely notched, 1.8–0.24 × 0.10–0.12 mm, convex in basal half and concave in apical half, revolute, pinkish inside, greenish outside, both sides darkening to maroon as they mature; apex rounded to obtuse, both sides glabrous. *Staminal corona* arising at base of staminal column; lobes free, erect, ovate to, oblong-ligulate, 0.5–0.8 × 0.4–0.6 mm, obtuse to acute, basally ovoid, keeled on sides, inner surface flat, outer surface bulged, much shorter than staminal column, green. *Staminal column* cylindrical or barrel-shaped, 0.7–1.1 mm high. *Stamens*: anther wings triangular, broadest at base or middle, 0.2 × 0.1 mm; anther appendages ovate to broadly ovate, 0.35–0.4 × 0.2–0.3 mm, apex obtuse to acute, erect-inflexed over conical style apex. *Pollinaria* solitary, pendulous in each anther sac, obliquely pear-shaped. *Ovaries* 2, subinferior, many-ovuled, glabrous; styles fused into a stylar column, terete, style head orbicular to conical-orbicular, exceeding anthers; translators from lateral surface of style head inverted y-shaped, 60–140 × 40 µm, caudicles filiform, widely diverging, apically fused to corpusculum, corpusculum oblong-narrowly-ovoid to oblong-ovoid, subacute. *Follicles* up to 4 per branch, usually 1(2) per umbel, narrowly fusiform, noninflated, ± equally tapering at both ends, tips slightly broader, obtuse, up to 85 × 8 mm, minutely papillate or puberulous, green striped with cream to green, maturing to darker green turning to pinkish then maroon, or sometimes green to glaucous with darker lateral striations, usually longer than 70 mm at maturity, fruiting stalk swirled and then upturned. *Seeds* 25–45 per follicle, broadly ovate, 3.0–3.5(–4.0) × 1.4–1.6 mm, dorsiventrally flattened, bifacial, minutely rugulose to favariate, above slightly convex, beneath slightly concave, margin up to 0.3 mm broad, ridges very dark brown, with light brown wing on outside of darker centre; coma up to 22 mm long. *Flowering time*: August–May, peaking October–January. *Fruiting time*: September–May.

Distribution and ecology: endemic in South Africa (North-West, Gauteng, KwaZulu-Natal and Free State) (Figure 24). Found at 1 115–1 280 m in savanna of Mixed Bushveld (Acocks 1988) on deep black turf soils mainly associated with or in the vicinity of drainage lines, in fully exposed situations as well as in light shade (mainly of species of *Acacia sensu lato*). Depth of the tuber below the soil surface varies greatly. The neck of the deepest seated tuber was found at 20 cm below the soil surface.

Material examined

NORTH-WEST.—2527 (Rustenburg): west of settlement of Sonop, (–DA), 25°39'20"S, 27°38'12"E, 31 January 2006, *Bester 6451* (PRE); ± 10 km east of Brits, (–DB), 25°37'47"S, 27°55'5"E, 2 February 2006, *Bester 6470* (PRE).

GAUTENG.—2528 (Pretoria): Annlin/Sinoville, drainage line running E-W just south of Wonderboom Airport, (–CA), 25°40'0" S, 28°12'38" E, 24 October 2004, *Bester 5255* (PRE, with stem tuber and follicle).

FREE STATE.—2627 (Potchefstroom): Sasolburg Dist., Uitkomst Farm 413, 5–6 km directly west of Sasolburg on west-facing hill on banks of Rietspruit, (–DD), 26°48'20" S, 27°44'47" E, 10 October 1996, *Kroon 12084* (PRE, with flowers and follicles).

KWAZULU-NATAL.—2730 (Vryheid): Golugola Plain, Bloedrivier Station, near station, (–DC), 17 September 1945, *Acocks 11774* (PRE, with flowers).

A specimen of Acocks (*Acocks 11774*) named as *Schizoglossum* sp. and another identified as *S. eustegioides* (*Kroon 12084*) belong to the current taxon and was re-named accordingly. Although initially thought to be

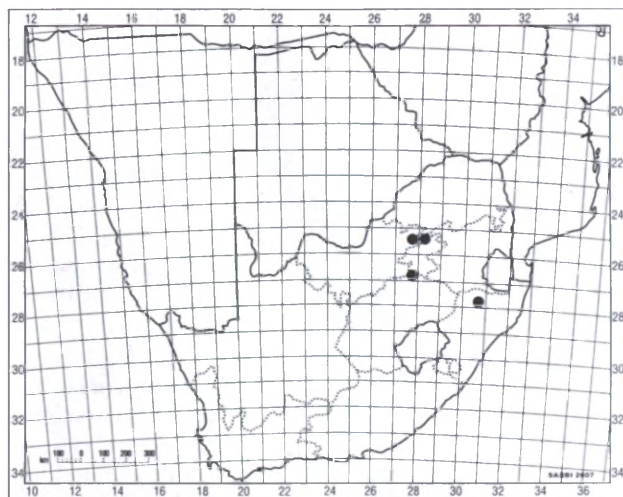


FIGURE 24.—Known distribution of *Stenostelma umbelluliferum* in South Africa.

restricted in distribution, an extensive search for more populations, sponsored by the Gauteng Department of Agriculture, Conservation and Environment (GDACE), has lead to the discovery of additional populations east and west of Brits. A herbarium sheet originating from the Free State was also found at PRE. Given the present known distribution of this species and the fact that the Magaliesberg populations fall mainly within a developing, high-density residential area, its conservation status has, after some debate, been classified as Near Threatened (J.E. Victor & M. Phab 2006 pers. comm.).

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