

Studies in the Ericoideae. II. The new genus *Stokoeanthus*

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ABSTRACT

The new monotypic genus *Stokoeanthus* is described, its type and only species being the new species *S. chionophilus* E. G. H. Oliver. The position of the genus in the subfamily, its relationships and the reasons for its establishment are given.

Résumé

ETUDES SUR LES ERICOIDEAE. II. LE NOUVEAU GENRE STOKOEANTHUS

Le nouveau genre monotypique *Stokoeanthus* est décrit, son type et son espèce unique étant la nouvelle espèce *S. chionophilus* E. G. H. Oliver. La position du genre dans la sous-famille, ses relations et les raisons de son établissement sont données.

Stokoeanthus E. G. H. Oliver, gen. nov. in Ericaceae—Ericoideae ad *Blaeria* accedens, sed ovario bicellulari plerumque ovulis tribus pendulis distinguitur, ceterum bracteolis tribus calyce 4-partito corolla 4-lobata et staminibus quatuor liberis dignoscenda.

Frutex ad suffrutex. *Folia* ericoidea. *Flores* parvi terminales 2- ad 4-nati in ramulis brevibus lateralibus aggregati in fasciculos densos versus extrema ramorum; bracteolis 3. *Calyx* 4-partitus ordinatus in seriebus duabus, sepalis exterioribus interioribus latioribus sed eidem longitudini. *Corolla* 4-lobata hypogyna parva ovoidea calycem superantia. *Stamina* 4 libera hypogyna; filamentis gracilibus; antheris bipartitis minute aristatis manifestis; pollen in tetradis. *Ovarium* 2-cellulatum plerumque ovulis tribus pendulis in quoque cellulo interdum 2, 4, 5 vel 6; stylo exserto filiformi; stigmatibus infundibuliformi demum peltato papillis duabus distinctis.

Shrub to shrublet. *Leaves* ericoid. *Flowers* small, terminal, 2- to 4-nate on short lateral branchlets aggregated into dense clusters at ends of main branches; bracteoles 3. *Calyx* 4-partite, arranged in two series, the outer slightly broader than the inner but of the same length. *Corolla* 4-lobed, hypogynous, small, ovoid, longer than the calyx. *Stamens* 4, free, hypogynous; filaments slender; anthers bipartite, minutely awned, manifest; pollen in tetrads. *Ovary* 2-celled, with usually 3 pendulous ovules per cell, sometimes with 2, 4, 5 or 6; style exserted, filiform; stigma funnel-shaped becoming peltate with two distinct papillae.

Type species: *S. chionophilus* E. G. H. Oliver.

A monotypic genus endemic in the south-western Cape.

Stokoeanthus chionophilus E. G. H. Oliver sp. nov.

Frutex erectus virgatus ad 1,2 m altus. *Rami* juniores pubescentes demum pilis longis plumosis admixtis. *Folia* 3-nata erecta imbricata ad patentia petiolo adpresso, linearia ad anguste ovata, ad 3,5 mm longa, glabra interdum ciliato-marginata et caespitate ad apicem, acuta sed rotundata. *Flores* terminales 3-nati interdum 2 vel 4 in ramulis brevibus lateralibus, aggregati in fasciculos densos versus extrema ramorum; pedicello glabro brevissimo, viridi ad rubro; bracteolis 3 approximatis adpressis, mediana 1,5 × 0,5 mm anguste ovata, lateralibus 1,25 × 0,3 mm anguste oblongis curvatis ad partem exteriorem, omnibus glabris, ciliato-marginatis, lateralibus plus magis versus extrema, obtusis cum sepalis albis,

carina viridi ad rubicunda. *Sepala* 4 libera in seriebus duabus, exteriora 1,75 × 0,75 mm ovata ad elliptico-ovata, interiora 1,75 × 0,6 mm anguste elliptico-ovata, omnia obtusa glabra ciliato-marginata demum glandibus sessilibus paucis recava et naviculiformia. *Corolla* 4-lobata 2 × 1,75 mm late elliptico-ovoidea convoluta distincte 8-plo in parte inferiore sepalis opposita et inter sepala, glabra alba; lobis latis obtusis parum patentibus. *Stamina* 4 libera; filamentis anguste linearibus glabris sigmoideis infra anthera; antheris manifestis 1,25 × 0,75 mm anguste ovatis scabro-marginatis dorsale basifixus, aureofuscis breve aristatis; aristis dentatis pallidus laterale patentibus; poro parvo 0,5 mm longo; pollen in tetradis. *Ovarium* 2-cellulatum plerumque ovulis tribus pendulis in quoque cellulo interdum 4 vel 5, rare 2 vel 6, inaequali ovoideum compressum laterale 0,75 mm longum et 0,5—0,75 mm latum glabrum viridi nectariis quatuor distinctis rubris staminibus alternantibus; stylo exserto ad 2,5 mm longo filiformi glabro albo; stigmatibus infundibuliformi demum peltato, papillis duabus distinctis viridi ad rubicundo. FIG. 1.

TYPE.—Cape, 3418 (Simonstown): Somerset Sneekop, south-facing slopes on shale band south of main peak, 1480 m, (-BB), 8 Nov. 1973, Oliver 4790 (STE, holotype; BM; BOL; C; E; G; GRA; K; MEL; MO; NBG; P; PRE; S; W; Z).

Erect virgate shrub to 1,2 m high. *Branches* pubescent when young, later with long plumose hairs admixed. *Leaves* 3-nate, erect, imbricate to spreading with the petiole adpressed, linear to narrowly ovate, up to 3,5 mm long, glabrous, sometimes ciliate-edged and with an apical tuft, acute but rounded. *Flowers* 3-nate, occasionally 2 or 4, terminal on short lateral branchlets, aggregated into dense clusters at the ends of main branches; pedicel very short, glabrous, green to red; bracteoles 3, approximate, adpressed, the median 1,5 × 0,5 mm, narrowly ovate, the laterals 1,25 × 0,3 mm, narrowly oblong, curved outwards, all glabrous and ciliate, the laterals more so towards the apex, obtuse, like the sepals white with greenish to reddish keeltip. *Sepals* 4, free, in 2 series, the outer 1,75 × 0,75 mm, ovate to elliptic-ovate, the inner 1,75 × 0,6 mm, narrowly elliptic-ovate, all obtuse, glabrous, ciliate, sometimes with a few sessile glands, arched inwards and boatshaped. *Corolla* 4-lobed, 2 × 1,75 mm, broadly elliptic-ovoid, with 8 distinct convolutions in the lower half opposite and between the sepals, glabrous, white; lobes broad, obtuse, slightly spreading. *Stamens* 4, free; filaments narrowly linear, glabrous, sigmoid below the anther; anthers manifest, 1,25 × 0,75 mm, narrowly ovate, scabridgedged, dorsally basifixus, golden brown, shortly aristate; awns pale toothed, spreading laterally;

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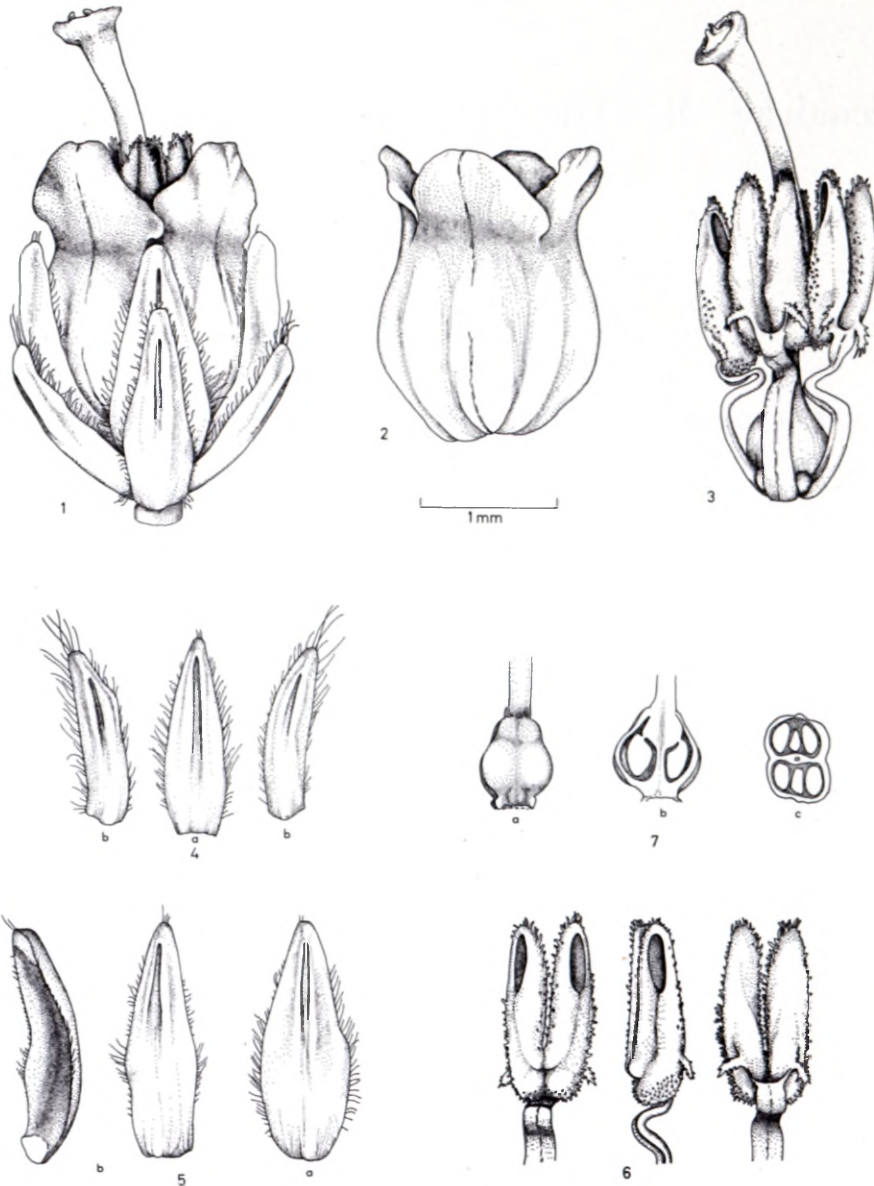


FIG. 1.—*Stokoeanthus chionophilus*. 1, flower; 2, corolla; 3, androecium and gynoecium; 4, bracteoles: a, median; b, laterals; 5, sepals: a, abaxial; b, lateral, inner and outer views; 6, anther, front, side and back views; 7, ovary: a, whole; b, cut longitudinally; c, cut transversely. All $\times 10$, drawn from the holotype, *Oliver 4790* (STE).

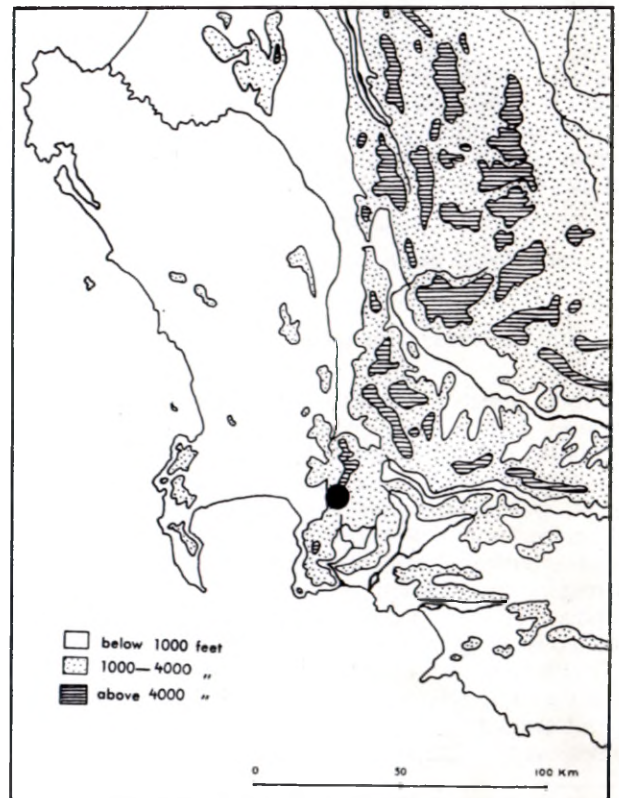
pore small, 0,5 mm long; pollen in tetrads. *Ovary* 2-celled, with mostly 3 pendulous ovules per cell, occasionally 4 or 5 rarely 2 or 6, unequally ovoid, compressed laterally, 0,75 mm long and 0,5–0,75 mm wide, glabrous, green with 4 distinct red nectaries alternating with the stamens; style exserted, up to 2,5 mm long, filiform, glabrous, white; stigma funnel-shaped becoming peltate, with two distinct papillae on upper surface, green to reddish.

CAPE.—3418 (Simonstown): Somerset Sneekop, 900–1200 m, (–BB), Dec. 1939, *Esterhuysen 3542* (BOL); *Stokoe 6069* (BOL; PRE); Nov. 1938, *Stokoe 7706* (BOL); 1370 m, Nov. 1973, *Oliver 4787* (PRE; STE); *Oliver 4787a* (PRE, STE); 1480 m, Nov. 1973, *Oliver 4790* (BM; BOL; C; E; GRA; K; MEL; MO; NBG; P; PRE; S; STE; W; Z); South slopes above Landdrost Kloof, 1220 m (–BB), Nov. 1971, *Esterhuysen 32733* (BOL; PRE; STE); 1370 m, Nov. 1973, *Esterhuysen 33311* (BOL; K; NBG; S; STE). Between Somerset Sneekop and Landrostkop, (–BB), Nov. 1939, *Stokoe in SAM 55446* (NBG; SAM).

This new species is confined to a very small area in the Hottentots-Holland mountain range above Somerset West where it has been collected on only two high peaks (FIG. 2.)

The first collection was made in November 1938 by that veteran collector of Cape plants, Thomas Stokoe. The following year it was again collected by him and also by another well-known collector, Miss E. Esterhuysen.

FIG. 2.—Distribution of the genus *Stokoeanthus*.



Stokoe's material was sent to Prof. R. H. Compton for naming. He recognized that it constituted an undescribed species, but was unable to place it in any genus known to him. He annotated the material as a possible new genus. The collections then lay in the 'incertae' of the local herbaria.

The unusual feature of the species is found in the ovary, which is 2-celled with usually 3 pendulous ovules per cell, rarely 2, 4, 5 or 6. This character is unique in the subfamily and does not occur to the author's present knowledge, in any other genus.

Of the 23 genera at present recognized in the Ericoideae occurring in Southern Africa there are only a few which have more than 2 ovules per cell i.e. *Erica*, *Blaeria*, *Thamnus*, *Ericinella*, *Philippia*, *Coccosperma*, and *Nagelocarpus*. The last three genera possess no bracteoles, unequal calyces and connate stamens and therefore need not be considered in any relationship with the species under discussion.

In *Ericinella* the calyx is unequal and there are no bracteoles, but the stamens are free. This genus is of the philippioid type and, in addition, it is not part of the south-western Cape flora. *Thamnus* which occurs in the eastern Cape is similarly far removed from the south-western Cape. It is a unique monotypic genus having a 1-celled ovary with 4 pendulous ovules around a free central placenta.

Of the remaining two genera, *Erica* bears a close superficial resemblance to the new species. In fact, the new taxon could easily be mistaken for being a species of *Erica*. There are some *Erica* spp. which have as few as 1 and 2 ovules per cell in the ovary, especially those belonging to the section *Euryloma*, but none of them has 2 cells. The vast majority of species in *Erica* have 8 stamens and only four species (0.75%) have been recorded with 4 stamens. These latter, however, have 4-celled ovaries. Thus the combination of 4 stamens and a 2-celled ovary serves to distinguish the new taxon from species of *Erica*.

The possession of 4 stamens is, however, the only character, although somewhat tenuous, used to distinguish the genus *Blaeria* from *Erica*. This makes the relationship of the new taxon closer to *Blaeria*. But here again the ovary is at variance, as in *Blaeria* there are 4 cells in the ovary. The possibility of the plant being a species of *Blaeria* with reduction in ovary parts was examined. This would mean an alteration in the ovary characters for *Blaeria*, a step which could only be done on the grounds of a strong relationship between the species concerned. I found no close resemblance between any of the species of *Blaeria* and the new taxon.

The concept of a reduced ovary brought up the possible relationship with the genera having 2-celled ovaries with single ovules in each cell. These are *Eremia*, *Grisebachia*, *Acrostemon*, *Simocheilus*, *Thracosperma*, *Sympieza*, *Aniserica*, *Platycalyx* and *Coilostigma*. After much examination of material from these genera, I decided that there was no relationship of any significance between any representatives of these genera and the new taxon. There is a slight resemblance to the genus *Eremia*. This genus consists of seven species based mainly in the Ceres district (see No. 1 of this series). The ovary in *Eremia* is either 4-, 2- or 1-celled, but always with a single ovule per cell and there are 8 stamens.

The relationship of this taxon appears to me to be with *Erica* and *Blaeria* and to some extent with

Eremia, but it does not fit into any of them as presently constituted. From *Erica* it differs in having 4 stamens and a 2-celled ovary, from *Blaeria* in having 2 cells to the ovary and from *Eremia* in having 4 stamens and more than 1 ovule per cell. To change the generic limits of any of these genera to force the inclusion of the new taxon would, in my opinion, be impracticable and would cause repercussions in the relationships of and differences between many other genera of the Ericoideae.

One hesitates to create genera, especially monotypic, in an already complex and highly variable subfamily, but after careful consideration I decided to describe this new taxon as a new monotypic genus and named it after its discoverer T. P. Stokoe. The combination of characters serving to characterise the new genus are the 2-celled ovary with usually 3 pendulous ovules per cell, rarely 2, 4, 5 or 6, and 3 bracteoles, a 4-partite calyx, 4-lobed corolla and 4 free stamens.

The position of *Stokoeanthus* as outlined above is somewhat dubious. It would appear to belong to the *Erica*—*Blaeria* line of evolution with its reduction in ovary complement. On the one hand it approaches closely to *Blaeria* in the summation of characters, but not in its outward appearance. The only species of *Blaeria* occurring in the same general area are *B. ericoides* L., *B. dumosa* Wendl. and *B. flexuosa* Benth. On the other hand, its outward appearance is very *Erica*-like.

The variation in ovary arrangement needs further comment. A large number of flowers was examined mainly from spirit material of *Oliver* 4787, 4787a and 4790 to record ovary variation. The majority of ovaries contained 3 collateral, subapical, pendulous ovules in each cell. Occasional cells were found with 4 or 5 ovules and only a few with 2 or 6 ovules. In the ovaries where there were more than 3 ovules per cell, the ovules were arranged in two ranks, 3 above and 2 or 3 below, the lower rank being at the base of the swollen part of the placenta.

The calyx is described as 2-ranked. This needs further explanation. The adaxial and abaxial sepals are slightly broader than the two lateral sepals and overlap them to a small extent. This condition I have seen in other genera of the Ericoideae, but it is not comparable with the philippioid type occurring in *Philippia*, *Salaxis*, *Coccosperma*, *Scyphogyne*, *Leptericia*, *Nagelocarpus*, *Ericinella* and *Coilostigma*. In these only the abaxial sepal is enlarged laterally as well as longitudinally, sometimes to a considerable degree.

Oliver 4787a is worth recording as it possesses double calyces. Apart from this abnormality the flowers appear to be normal and functional. This collection was probably a single shrub occurring amongst normal flowered shrublets, but was not noted at the time of collecting.

In the area which I visited, the species grew in two separate populations on the south-facing slopes. The lower population (*Oliver* 4787) consisted of a small group of scattered plants growing in a moist-type fynbos on a boulder-strewn slope and were undoubtedly outliers of the much larger population 110 m higher up the peak.

The large population was confined to the southern end of the broad shale band of the Table Mountain Series. This is very prominent at the summit of the Hottentots-Holland around Somerset Sneekop. Here

the species formed an almost pure community about 1 m high with an understorey of low tussock grass.

Snow renders the shale band particularly conspicuous in winter. The large population is then frequently covered by snow sometimes even as late as mid-October when the shrubs are in flower. For this reason the specific epithet, *chionophilus*, was chosen.

The dull white to cream colour of the flowers produces an unattractive shrub even though it flowers profusely. On being disturbed the shrubs gave off

clouds of pollen. These two factors coupled with the enlarged stigma gave a strong indication of wind pollination in the species.

UITTREKSEL

Die nuwe monotiepiese genus Stokoeanthus, sy tipe, asook die nuwe en enigste spesie, S. chionophilus E. G. H. Oliver, word beskryf. Die posisie van die genus in die subfamilie, sy verwantskappe en redes vir die totstandkoming van die genus, word gegee.