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The South African species of *Hemizygia* (Lamiaceae)

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ABSTRACT

The South African species of *Hemizygia* are reviewed and 28 species are recognized, including the following new names: *H.* **macrophylla** (Guerke) Codd (=*Syncolostemon macrophyllus* Guerke), *H. pretoriae* Guerke var. **heterotricha** Codd, *H.* **cinerea** Codd, *H.* **incana** Codd, *H.* **modesta** Codd, *H.* **parvifolia** Codd, *H.* **punctata** Codd and *H.* **ramosa** Codd.

Résumé

*LES ESPÈCES SUD-AFRICAINES D'*HEMIZYGIA *(LAMIACEAE)*

*Les espèces sud-africaines d'*Hemizygia *sont examinées et* 28 *espèces sont reconnues y compris les noms nouveaux suivants*: H. **macrophylla** (*Guerke*) *Codd* (=*S*yncolostemon macrophyllus *Guerke*), H. pretoriae *Guerke var.* **heterotricha** *Codd*, H. **cinerea** *Codd*, H. **incana** *Codd*, H. **modesta** *Codd*, H. **parvifolia** *Codd*, H. **punctata** *Codd* et H. **ramosa** *Codd*.

INTRODUCTION

Hemizygia was initially proposed by Bentham as a section of *Ocimum* in DC., Prodr. 12:41 (1848), to accommodate the single species *O. teucriifolium* Hochst., in which the filaments of the lower (anticous) pair of stamens are fused at the base, in contrast to the free filaments of typical *Ocimum* species. Briquet raised the section to generic rank in Pflanzenfam. 4,3a:368 (1897) and subsequently described several species. He laid stress on the fused filaments of the anticous stamens, in which respect it resembled *Syncolostemon* E. Mey. ex Benth., but differed from the latter in the broadly ovate upper tooth of the calyx.

Baker in Fl. Trop. Afr. 5:365 (1900) and N. E. Brown in Fl. Cap. 5,1:237 (1910) included *Hemizygia* in *Orthosiphon*, the latter author pointing out that the union of the filaments may vary in some species and even on the same plant.

Ashby in J. Bot. Lond. 73:312, 343 (1935) resuscitated the genus *Hemizygia*, remarking that although the degree of union of the filaments varies, only very rarely are they free to the base. He also noted other differences in the androecium of *Hemizygia* and *Orthosiphon*. The anticous pair of stamens in *Hemizygia* are contiguous at their insertion at the mouth of the corolla tube, while in *Orthosiphon* they are well separate at their insertion, which is at a short distance within the corolla tube, or rarely in the throat. The posterior stamens are inserted from about the middle to near the base of the corolla tube in *Hemizygia* (with one exception, *H. gerrardii*) and are well exserted (with the exceptions of *H. pretoriae* and *H. persimilis*), while in typical *Orthosiphon* the upper stamens are inserted near the throat and are only shortly exserted. It may also be noted that in *Hemizygia* the filaments are usually pubescent in the lower part, but in typical *Orthosiphon* they are glabrous.

He also drew attention to certain differences in corolla structure between the two. In *Hemizygia* the corolla tube is usually dilated at the throat and truncate at the mouth; the posterior lip is small and the anterior lip larger and often deflexed at maturity In contrast, typical *Orthosiphon* rarely has the corolla tube widened at the throat, the mouth is not truncate but the two lips meet laterally and are about equal in length. He concludes that the exceptions are sufficiently few that they should not necessitate the merging of *Hemizygia* in *Orthosiphon*.

This view is supported in the present study and reference may be made to my review of the South African *Orthosiphon* species in Bothalia 8:149 (1964).

Here it was noted that the species separated by Bremekamp in his genus *Nautochilus*, together with those of *Orthosiphon* sect. *Serrati* Ashby, form an aberrant group, which was placed as *Orthosiphon* subgen. *Nautochilus* (Brem.) Codd. In these species the filaments of the posterior stamens are attached near the base of the corolla tube and are pubescent, as in *Hemizygia*, while the anterior filaments are free to the base, as in *Orthosiphon*. The corolla shape in these species, although somewhat intermediate, agrees better with *Orthosiphon* than with *Hemizygia*.

Differences between *Hemizygia* and *Syncolostemon* must also be found if the former genus is to be upheld, and these are discussed in another article (Bothalia 11: 21 1976). The corolla and androecium characters are virtually the same in the two genera and it is mainly the calyx which provides a basis for distinguishing them. In *Hemizygia* the upper calyx tooth is broadly ovate and decurrent on the tube while the lower 4 teeth are usually subulate to spinescent; in typical *Syncolostemon,* on the other hand, the calyx is subequally 5-toothed. Two intermediate species were noted in which the upper tooth was elliptic or broadly elliptic, not decurrent on the tube. These were included in *Syncolostemon* because of their close affinity with *S. rotundifolius* and *S. densiflorus.*

Orthosiphon, Syncolostemon and *Hemizygia* form a closely related series of which *Orthosiphon* (1830) is the oldest name. The great majority of species can be allocated without great difficulty to one of the three genera now upheld and this appears to be sufficient justification for continuing with their present circumscription.

A striking feature of some *Hemizygia* species is the strong development of the apical bracts of the inflorescence into a persistent colourful tuft or coma.

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The genus *Bouetia* A. Chev. in Mem. Soc. Bot. Fr. 2:200 (1917) was based on such a species, *B. ocimoides* A. Chev., which is generally regarded as a synonym of *Hemizygia bracteosa* (Benth.) Briq.

HEMIZYGIA

Hemizygia (*Benth.*) *Briq.* in Pflanzenfam. 4,3a:368 (1897); Annu. Conserv. Jard. Bot. Genève 2:247 (1898); Ashby in J. Bot. Lond. 73:312,343 (1935); Phillips, Gen. ed. 2:652 (1951); Compton, Fl. Swaz. 67,158 (1966); Launert & Schreiber in Prodr. Fl. S.W. Afr. 123: 11 (1969); Ross, Fl. Natal 306 (1972). Type species: *H. teucriifolia* (Hochst.) Briq.

Orthosiphon sensu Bak. in Fl. Trop. Afr. 5: 365 (1900), partly; sensu N.E. Br. in Fl. Cap. 5,1;237 (1910), partly.

Bouetia A. Chev. in Mem. Soc. Bot. Fr. 2:200 (1917). Type species: *B. ocimoides* A. Chev.

Perennial soft shrubs or annual herbs, or stems arising annually from a perennial woody rootstock. *Leaves* sessile or petiolate, variously pubescent and gland-dotted, usually toothed. *Inflorescence* usually of terminal racemes, lax or dense; verticillasters 2–6-flowered; bracts small or the terminal ones enlarged and persisting as a colourful coma. *Calyx* with the upper tooth the largest, broadly ovate to subrotund, decurrent on the tube; lower 4 teeth subulate to spinescent, rarely deltoid-lanceolate. *Corolla* bilabiate; tube longer than the calyx, widening from about the middle to a truncate mouth and sometimes slightly narrowed again at the mouth; upper lip small, usually much shorter than the lower lip; lower lip concave, horizontal to deflexed. *Stamens* 4, exserted (upper pair included in *H. pretoriae*), didynamous; upper pair affixed about or below the middle of the corolla tube (above the middle in *H. gerrardii*), filaments free, usually pubescent below and occasionally higher; lower pair attached at the corolla throat, filaments connate for part or the entire length (occasionally almost free), glabrous. *Style* exserted, usually minutely bifid, occasionally clavate. Nutlets ovoid.

Key to Species

Stellate (branched) hairs present on leaves and other parts, often intermingled with simple hairs:
- Upper (posterior) stamens included in the corolla tube.....15b. *H. pretoriae* subsp. *heterotricha*
- Upper (posterior) stamens exserted from the corolla tube, usually well exserted:
  - Leaf margin flat, not revolute:
    - Leaf margin crenate-dentate (sometimes indistinct in *H. incana, H. cinerea* and *H. parvifolia*):
      - Verticillasters 3–6-flowered:
        - Leaf blade 5–9 cm long; inflorescence laxly branched, up to 60 cm long; calyx setose in the throat.....1. *H. macrophylla*
        - Leaf blade less than 5 cm long (rarely to 6 cm in *H. obermeyerae*); inflorescence lax to dense, up to 25 cm long; calyx not setose in the throat:
          - Leaf blade ovate, 2,5–6 cm long, subglabrous and rugose above..2. *H. obermeyerae*
          - Leaf blade lanceolate to narrowly elliptic, grey-velvety above:
            - Calyx 8–9 mm long; corolla 12–15 (tube 10–12) mm long; leaves 15–35 × 6–12 mm, upper surface coarsely velvety.....5. *H. incana*
            - Calyx 5–7 mm long; corolla 8–11 (tube 6–9) mm long; leaves 7–20 × 2–7 mm, upper surface finely velvety, often darker than the lower.....6. *H. cinerea*
      - Verticillasters 2-flowered:
        - Leaf blade small, rarely exceeding 2,5 cm long, upper surface subglabrous, rugose; petiole up to 2 mm long:
          - Leaf blade lanceolate-elliptic, 15–25 mm long; apical bracts conspicuous, up to 15 mm long.....3. *H. rugosifolia*
          - Leaf blade ovate, 6–11 mm long; apical bracts inconspicuous, up to 3,5 mm long.....4. *H. parvifolia*
        - Leaf blade ovate, usually exceeding 2,5 cm long, sparsely to densely floccose on both surfaces; petiole 5–8 mm long, densely floccose.....9. *H. floccosa*
    - Leaf margin entire:
      - Leaf blade lanceolate-elliptic to linear-elliptic, upper side often darker and with finer tomentum; bracts inconspicuous, about 5 mm long.....6. *H. cinerea*
      - Leaf blade ovate-lanceolate to broadly ovate, densely grey velvety on both surfaces; bracts colourful, 7–10 mm long:
        - Calyx 5 mm long; upper stamens pubescent to above the middle; stigma capitate.....7. *H. elliottii*
        - Calyx 8–10 mm long; upper stamens pubescent only in the lower part; stigma shortly bifid.....8. *H. gerrardii*
  - Leaf margin revolute:
    - Corolla tube widening towards the mouth; stamens exserted well beyond the anterior lip of the corolla:
      - Bracts 10–15 mm long, colourful.....10. *H. stenophylla*
      - Bracts up to 7 mm long, inconspicuous:
        - Leaves finely grey velvety on both surfaces; stem finely grey tomentulose..6. *H. cinerea*
        - Leaves coarsely stellate-pubescent and often yellowish below, much darker and rugose above; stems villous.....11. *H. rehmannii*
    - Corolla tube cylindrical, often slightly narrowed at the mouth; stamens exserted scarcely beyond the anterior lip of the corolla:
      - Lower internodes of main stems usually more than 2 cm long; leaves 3–6 mm or more broad, especially the lower.....13. *H. teucriifolia*
      - Lower internodes of main stems less than 2 cm long; leaves usually not more than 4 mm broad.....12. *H. subvelutina*

Stellate (branched) hairs absent:
- Leaves narrow, leathery, revolute at the margin, thickly tomentose beneath with long white hairs, somewhat varnished above....14. *H. albiflora*
- Leaves broad or narrow, not revolute at the margin, glabrous to tomentose beneath but not as above:
  - Terminal bracts of the inflorescence like the lower ones, deciduous, small and inconspicuous:
    - Upper (posterior) stamens included in the corolla tube...15a. *H. pretoriae* subsp. *pretoriae*
    - Upper (posterior) stamens exserted from the corolla tube:
      - Verticillasters 2-flowered; leaves 6–15 × 3–7 mm:
        - Stems 12–25 cm tall, usually sparingly branched, arising annually from a woody rootstock....16. *H. modesta*
        - Stems 60–120 cm tall, shrubby, much branched....17. *H. punctata*
      - Verticillasters 4–6-flowered, leaves usually longer than above:
        - Leaves elliptic-ovate to broadly ovate, obtuse to rounded at the apex, obtuse or broadly cuneate at the base; stems 25–40 cm arising annually from a woody rootstock....18. *H. bolusii*
        - Leaves linear to ovate, apex acute, base cuneate; annual or perennial herbs not arising from a perennial woody rootstock:
          - Stem and leaves with pubescence of short or fairly short dense and often crisped hairs:
            - Leaves ovate-lanceolate to ovate; petiole 6–14 mm long....24. *H. petiolata*
            - Leaves linear to lanceolate or, rarely, ovate-lanceolate; petiole usually less than 5 mm long....25. *H. canescens*
          - Stem villous to subglabrous, not as above; leaves subglabrous or sparingly pubescent to canescent or villous, often with long and short hairs intermingled:
            - Leaves linear or with some leaves on a plant up to 5 mm broad, subglabrous; stems subglabrous with few long hairs, often somewhat varnished....26. *H. linearis*
            - Leaves linear-lanceolate to ovate-lanceolate, usually more than 5 mm broad; stems and leaves sparingly to densely villous....27. *H. petrensis*
  - Terminal bracts of inflorescence distinct from the lower ones, membranous, forming a persistent colourful coma (often small but coloured in *H. petiolata* and *H. petrensis*):
    - Stamens not exserted beyond the lower lip of the corolla; filaments of upper pair of stamens pubescent from the base to near the apex....23. *H. persimilis*
    - Stamens exserted beyond the lower lip of the corolla; filaments of upper pair pubescent only near the base:
      - Verticillasters 2-flowered:
        - Stems shrubby, up to 1 m tall, much-branched; leaves obovate to oblanceolate, 15–25 × 6–11 mm; corolla 25–28 mm long....19. *H. ramosa*
        - Stems up to 30 cm long arising annually from a woody rootstock; leaves ovate, usually exceeding 25 mm long and 11 mm wide; corolla 12–15 mm long 21. *H. foliosa*
      - Verticillasters 4–6-flowered:
        - Terminal bracts ovate to linear-lanceolate, cuneate at the base, pairs of bracts often spaced 1–2 cm apart, more than twice as long as broad (sometimes less in *H. transvaalensis* but then corolla tube more than 12 mm long):
          - Corolla tube more than 12 mm long; terminal bracts ovate to lanceolate, rarely linear-lanceolate....20. *H. transvaalensis*
          - Corolla tube less than 12 mm long; terminal bracts lanceolate to linear-lanceolate....22. *H. thorncroftii*
        - Terminal bracts broadly ovate, not cuneate at the base, densely crowded, usually less than twice as long as broad:
          - Petiole of mature leaves more than 5 mm long; leaves covered beneath with a fine greyish-white pubescence....24. *H. petiolata*
          - Petiole of mature leaves less than 5 mm long or leaves sessile; underside of leaves glabrous to variously pubescent:
            - Terminal bracts conspicuous, violet or white, up to 14 × 9 mm; corolla white....28. *H. bracteosa*
            - Terminal bracts small, often purplish, about 5 × 3 mm; corolla mauve 27. *H. petrensis*

1. **Hemizygia macrophylla** (*Guerke*) *Codd*, comb. nov.

Syncolostemon macrophyllus Guerke in Bull. Herb. Boiss. 6: 555 (1898); Ross, Fl. Natal 306 (1972). Type: Natal, Drakensberg, *Rehmann* 7016 (Z, holo.).

Orthosiphon macrophyllus (Guerke) N. E. Br. in Fl. Cap. 5, 1: 241 (1910).

Soft shrub 1–1,5 m tall, branching from the base, highly aromatic; stems several, woody at the base, arising from a perennial woody rootstock, sparingly branched, leafy towards the base, densely grey pubescent. *Leaves* shortly petiolate; petiole up to 4 mm long; blade ovate-lanceolate to lanceolate, 6–9 cm long, 2,5–3 cm broad, both surfaces densely and coarsely stellate-velvety, tending to fold along the midrib and then somewhat falcate; apex acute, base cuneate, tapering into the petiole; nerves impressed above, reticulate beneath; margin regularly serrate in the upper two-thirds. *Inflorescence* very lax, branched, up to 60 cm long and 25 cm broad; rhachis glandular-hispid; bracts early caducous, broadly ovate, acute, 6–8 mm long, concave, with a white margin and patches of white tomentum; verticillasters 3–6-flowered, up to 2 cm or more apart. *Calyx* 7 mm long, glandular-hispid, setose in the throat, becoming swollen and narrow at the mouth when in the fruiting stage; upper lip ovate, acuminate, 2 mm long: lower 4 teeth deltoid-subulate, 2 mm long. *Corolla* purple, 17–18 mm long, pubescent on the lobes; tube 11–12 mm long, widening to 5–6 mm at the mouth; upper lip a small appendage, 1 mm long; lower lip concave, 5–6 mm long, horizontal. *Stamens* exserted

well beyond the lower lip, curled upwards; upper pair attached below the middle of the corolla tube, puberulous near the base; lower pair united to near the apex. *Stigma* bifid.

Recorded from the foothills of the Drakensberg in northern Natal and southern Transvaal, in dense grass, often among dolerite rocks, at altitudes from 1 500 to 1 800 m. Flowering is mainly from January to April.

TRANSVAAL.—2730 (Vryheid): Mooihoek (-BC), *Devenish 444*

NATAL.—2729 (Volksrus): Normandien Pass (-DC), *Codd 9979;* near Ingogo (-DB), *Medley Wood 6398* (K); *Obermeyer sub TRV 35941; Codd 9694; Mayne s.n.*

Distinguished from all other species by the large leaves covered on both surfaces with a dense, coarse stellate pubescence and by the large, laxly branched inflorescence. Its nearest affinity is probably with *Syncolostemon parviflorus* but the upper calyx tooth is broadly ovate. It is, therefore, somewhat intermediate between *Hemizygia* and *Syncolostemon.*

2. **Hemizygia obermeyerae** *Ashby* in J. Bot. Lond. 73: 343 (1935). Type: Soutpansberg, Entabeni, *Obermeyer* sub TRV 31556 (PRE, holo.).

Soft shrub, freely branched, 1–1,5 mm tall; branches shortly stellate tomentose. *Leaves* petiolate; petiole 6–12 mm long; blade broadly ovate to ovate-lanceolate, 3–6 cm long, 1,8–3 cm broad, subglabrous, brownish and rugose above, fairly densely grey stellate pubescent below; apex obtuse to rounded, base truncate to obtuse; margin finely crenate-dentate. *Inflorescence* usually branched, fairly dense, 8–18 cm long, up to 10 cm in diameter; rhachis stellate pubescent; bracts persisting at the apex, mauve-purple, ovate, acute, up to 10–15×5–10 mm, sparingly pubescent; verticillasters 6–flowered, 1–2 cm apart. *Calyx* 8 mm long, glandular-setulose; upper lip ovate, 2 mm long, decurrent on the tube; lower 4 teeth deltoid-subulate, the lowest pair the longest, 2 mm long. *Corolla* mauve-pink, 18–22 mm long, glabrous; tube 15–17 mm long, widening to 6–8 mm at the mouth; upper lip a small appendage, 1 mm long: lower lip concave, 4–6 mm long, horizontal, to slightly deflexed. *Stamens* exserted well beyond the lower lip, curled upwards; upper pair attached below the middle of the tube, puberulous at the base; lower pair united to the apex. *Stigma* bifid.

Grows with bracken and shrub on stony hillsides and forest margins at altitudes of 1 400 to 1 800 m in north-eastern Transvaal.

TRANSVAAL.—2230 (Messina): Entabeni Forest Reserve (-CC), *Obermeyer sub TRV 31556; 876; Bruce & Kies 8A; Taylor 727; Codd 4188; 8393;* Piesanghoek (-CC), *Gerstner 5745;* Pepiti Falls (-CD), *Smuts & Gillett 3189;* near Lake Funduzi (-CD), *Weintroub sub J35682;* Thate Vondo Forest Reserve (-CD), *Van Graan & Hardy 564.* 2330 (Tzaneen): Woodbush (-CC), *Hutchinson 2238.* 2430 (Pilgrim's Rest): The Downs (-AA), *Codd 9472; Marais 96;* near The Downs (-AC), *Vahrmeijer 2360.*

A distinct species easily separated from others with stellate pubescence by the large, petiolate leaves. With its large purplish bracts and mauve-pink flowers, this is a showy species which grows well under humid conditions but has not succeeded in cultivation in the drier parts of the Transvaal.

3. **Hemizygia rugosifolia** *Ashby* in J. Bot. Lond. 73: 344 (1935). Type: Transvaal, The Downs, *Junod* 4342 (PRE, holo.).

Erect soft shrub, branched, probably about 1 m tall; branches shortly stellate tomentose. *Leaves* shortly petiolate; petiole 2–4 mm long; blade ovate-lanceolate to elliptic, 15–25 mm long, 6–10 mm broad, slightly coriaceous, upper surface rugose, puberulous and with nerves immersed, lower surface densely and shortly greyish stellate pubescent; apex obtuse, base cuneate; margin finely and regularly crenate-dentate. *Inflorescence* usually branched, medium lax, 8–13 cm long; rhachis puberulous and gland-dotted; bracts persisting at the apex, purplish, ovate, acute to acuminate, about 10×5 mm, subglabrous with a fringe of hairs; verticillasters 2-flowered, 1–1,5 cm apart. *Calyx* 10 mm long, glandular-hispidulous; upper lip ovate, 3 mm long, decurrent on the tube; lower 4 teeth deltoid-subulate, the lowest pair much longer than the median, narrowly subulate, 3 mm long. *Corolla* 22 mm long; tube 18 mm long, widening to 5–6 mm at the mouth; upper lip a small appendage 1 mm long; lower lip concave, 4 mm long, usually deflexed. *Stamens* well exserted beyond the lower lip; lower pair united to near the apex. *Stigma* minutely bifid.

Known only from three gatherings near The Downs in north-eastern Transvaal, where it apparently grows at forest margins.

TRANSVAAL.—2430 (Pilgrim's Rest): The Downs (-AA), *Junod 4342; Rogers 20188; Crundall s.n.*

A small-leaved species related to the two species described below, *H. parvifolia* and *H. cinerea.* From *H. parvifolia,* which also has 2-flowered verticillasters, it differs in the longer, more lanceolate-elliptic leaves and the larger apical bracts; *H. cinerea* also has small bracts and 6-flowered verticillasters but the leaves, which are similar in shape to *H. rugosifolia,* are finely grey velvety pubescent on both sides.

H. rugosifolia is a little known species last collected in 1945.

4. **Hemizygia parvifolia** *Codd,* sp. nov., a *H. rugosifolia* Ashby foliis parvioribus, ovatis, inflorescentiis brevioribus, bracteis parvioribus differt.

Frutex, ramosus, 50–100 cm altus; ramuli stellato-floccosi. *Folia* breviter petiolata; petiolus 1–2,5 mm longus, dense stellato-floccosus; lamina ovata vel late ovata, 6–11 mm longa, 4–9 mm lata, discolor, supra rugosa, brunnea, hispidula vel subglabra, subtus cinerea, dense stellato-tomentosa, nervis supra impressis, subtus reticulatis, apice obtuso vel rotundato, basi obtusa vel truncata, margine minute crenato-dentato. *Inflorescentia* simplex vel basin versus parce ramosa, 5–8 cm longa; rhachis stellato-floccosa; bracteae ovatae, 2,5–3,5 mm longae, caducae, basin versus stellato-pubescentes; verticillastri 2-flori; pedicelli 3–4 mm longi, stellato-hispidi. *Calyx* 9–10 mm longus, stellato-hispidus, glanduloso-punctatus; tubus 6 mm longus; lobus posticus late ovatus, acutus, suberectus, 2–3 mm longus, margine decurrente; dentes laterales deltoideo-subulati, 1,5 mm longi; antici subulati, 2,5 mm longi. *Corolla* alba, 15–17 mm longa, glabra vel extus labiis puberulis; tubus 11–14 mm longus, rectus, apicem versus sensim ampliatus, ore 4 mm lato; labium posticum parvum; anticum concavum, 4–5 mm longum. *Stamina* 12–14 mm exserta; postica circa medium tubi corollae inserta, filamentis liberis, prope basin pubescentibus; antica fauce corollae inserta, filamentis omnino ad apicem connatis. *Stylus* 10–12 mm exsertus, apice breviter bilobato.

Type.—Transvaal, 2430 (Pilgrim's Rest), farm Belvedere, overlooking Blyde River Gorge (-DB), *Codd 10321* (PRE, holo.).

Shrub, branched, 50–100 cm tall; branchlets stellate-floccose. *Leaves* shortly petiolate; petiole 1–2,5 mm long, densely stellate-floccose; blade ovate to broadly ovate, 6–11 mm long, 9 mm broad, discolorous, upper surface rugose, brown, hispidulous to subglabrous,

lower surface grey, densely stellate-tomentose, nerves impressed above, reticulate below, apex obtuse to rounded, base obtuse to truncate, margin minutely crenate-dentate. *Inflorescence* simple or sparingly branched towards the base, 5–8 cm long; rhachis stellate-floccose; bracts ovate, 2,5–3,5 mm long, caducous, stellate-pubescent towards the base; verticillasters 2-flowered; pedicels 3–4 mm long, stellate-hispid. *Calyx* 9–10 mm long, stellate-hispid and gland-dotted; tube 6 mm long; posticous lobe broadly ovate, acute, suberect, 2–3 mm long, margin decurrent; lateral teeth deltoid-subulate, 1,5 mm long; anticous teeth subulate 2,5 mm long. *Corolla* white 15–17 mm long, glabrous with outer surfaces of lips puberulous; tube 11–14 mm long, straight, widening gradually towards the apex, mouth 4 mm wide; posticous lip small; anticous lip concave, 4–5 mm long. *Stamens* exserted by 12–14 mm; posticous stamens inserted about the middle of the corolla tube filaments free, pubescent near the base; anticous stamens inserted in the corolla throat, filaments completely united to the apex. *Style* exserted by 10–12 mm, apex shortly bilobed. FIG. 1.

FIG. 1.—*Hemizygia parvifolia* (*Codd* 9802, PRE, holotype).

Found among quartzite rocks at altitudes of 1 300 to 1 500 m on the eastern Transvaal Drakensberg escarpment; in flower from October to March.

TRANSVAAL.—2430 (Pilgrim's Rest): 6 km N. of Vaalhoek (–DB), *Codd 9802;* farm Belvedere, overlooking Blyde River Gorge (–DB), *Codd 10321;* Blyde River Reserve (–DB), *Davidson 2663;* Blyde River hills (–DB), *Rauh & Schlieben 9689;* Bourke's Luck (–DB), *Davidson & Mogg 33354; Davidson 73* (J); 2530 (Lydenburg): Nelshoogte Forestry Station, "The Knuckles" (–DD), *Codd 9555.*

H. parvifolia is a much-branched shrub up to 1 m tall, related to *H. rugosifolia* Ashby, a species known as yet only from The Downs, grid 2430 (–AA), some 100 km to the north-west of Blyde River Gorge, on the same escarpment. *H. parvifolia* may be separated on the basis of the smaller, more broadly ovate leaves, the grey indumentum of the underside of the leaves, the smaller inflorescence which is simple or sparingly branched, the shorter bracts and the presence of stellate hairs on the calyx.

It would be interesting to know whether either species or intermediates occur on the escarpment between The Downs and Blyde River Gorge. This is a relatively inaccessible area which is scarcely known botanically. Further study is also required of the escarpment between the Blyde River Gorge and the other known locality on the Nelshoogte Forestry Station near Kaapsche Hoop.

5. **Hemizygia incana** *Codd,* sp. nov, a *H. rugosifolia* Ashby foliis dense griseo-tomentosis, bracteis parvioribus, calyce villoso differt.

H. rehmannii sensu Ashby in J. Bot. Lond. 73: 347 (1935), pro parte quoad *Wager* sub TRV 15598.

Frutex parce ramosus, 60 cm altus; ramuli dense griseo-tomentosi, pilis stellatis et longis simplicibus. *Folia* sessilia vel subsessilia; lamina ovata vel lanceolata vel elliptico-lanceolata, 1,5–3,5 cm longa, 6–12 mm lata, dense stellato-velutina, subtus argentea, supra cinerea, nervis obscuris, apice obtuse vel rotundato, basi obtusa, margine supra medium minute crenato-dentato. *Inflorescentia* simplex vel basin versus parce ramosa, 8–20 cm longa; rhachis dense albo-tomentosa; bracteae late ovatae, acuminatae, caducae, parce vel dense pubescentes; verticillastri plerumque 6-flori; pedicelli 2–3 mm longi villosi. *Calyx* 8–9 mm longus, purpureo-suffusus, glanduloso-villosus; tubus 5 mm longus; lobus posticus late ovatus, acutus, suberectus, 2–3 mm longus, margine decurrente; dentes laterales deltoideo-subulati, 1,5 mm longi; antici subulati 2,5 longi. *Corolla* malvina, 12–15 mm longa, glabra vel extus labiis puberulis; tubus 10–12 mm longus, rectus, apicem versus sensim ampliatus, ore 3–4 mm lato; labium posticum 1,5 mm longum; anticum concavum, 3 mm longum. *Stamina* 10–12 mm exserta; postica prope basin tubi corollae inserta, filamentis liberis prope basin pubescentibus; antica fauce corollae inserta, filamentis fere ad apicem connatis. *Stylus* 15 mm exsertus, apice breviter bifidus.

Type: Transvaal, 2530 (Lydenburg), Kaapsche Hoop (–DB), *Codd* 5758 (PRE, holo.).

Shrub, sparingly branched, 60 cm tall; branchlets densely grey-tomentose with stellate and long simple hairs. *Leaves* sessile to subsessile; blade ovate or lanceolate to elliptic-lanceolate, 1,5–3,5 cm long, 6–12 mm broad densely stellate-velvety, silvery below, darker grey above, nerves obscure, apex obtuse to rounded, base obtuse, margin minutely crenate-dentate above the middle. *Inflorescence* simple or sparingly branched towards the base, 8–20 cm long; rhachis densely white-tomentose; bracts broadly ovate, acuminate, caducous, sparingly to densely pubescent; verticillasters usually 6-flowered; pedicels 2–3 mm long, villous. *Calyx* 8–9 mm long, purple-tinged, glandular-villous with long white hairs and short gland-tipped hairs; tube 5 mm long; posticous lobe broadly ovate, acute, suberect, 2–3 mm long, margin decurrent; lateral teeth deltoid-subulate, 1,5 mm long; anticous teeth subulate, 2,5 mm long. *Corolla* mauve, 12–15 mm long, glabrous, with the outer surfaces of the lips puberulous; tube 10–12 mm

long, straight, widening gradually towards the apex, mouth 3–4 mm wide; posticous lobe 1,5 mm long; anticous lobe concave 3 mm long. *Stamens* exserted by 10–12 mm; posticous stamens inserted near the base of the corolla tube, filaments free, pubescent near the base; anticous stamens inserted in the throat of the corolla, filaments united almost to the apex. *Style* exserted by 15 mm, apex shortly bifid. FIG. 2.

FIG. 2.—*Hemizygia incana* (*Codd* 5758, PRE, holotype).

Found in shallow sandy soil among quartzite rocks in the neighbourhood of Kaapsche Hoop at an altitude of about 1 800 m; flowering has been recorded from September to January.

TRANSVAAL.—2530 (Lydenburg): Berlin, Godwan River (–DA), *Hofmeyr 98;* Kaapsche Hoop (–DB), *Wager sub TRV 15598; Pole Evans 984; Thode A 1637; Codd 5758.*

H. incana is related to *H. rugosifolia* Ashby but may readily be distinguished by the dense grey-white tomentum on both surfaces of the leaves, obscuring the veins, the smaller and more pubescent bracts and the villous calyx. For differences between this species and *H. cinerea* Codd, described below, see notes at the end of the latter description.

6. **Hemizygia cinerea** *Codd*, sp. nov., a *H. incana* Codd foliis parvioribus, cinereis, floribus parvioribus differt.

H. elliottii sensu Ashby in J. Bot. Lond. 73: 345 (1935), pro parte quoad *Bayer & McClean* 217; *Hutchinson, Forbes & Verdoorn* 52; sensu Ross, Fl. Natal 306 (1972), pro parte quoad spec. cit.

H. stenophylla sensu Ashby, l.c. 347 (1935), pro parte quoad *Galpin* 10168; 11846; sensu Edwards, Mem. Bot. Surv. S. Afr. 36: 274 (1967).

H. aff. *stenophylla* sensu Killick, Mem. Bot. Surv. S. Afr. 34: 136 (1963); sensu Ross, l.c. 306 (1972).

Frutex ramosus, 40–150 cm altus: ramuli stellato-tomentosi. *Folia* breviter petiolata; petiolus 1–2 mm longus, dense stellato-tomentosus; lamina lanceolato-elliptica, oblanceolato-elliptica vel lineari-elliptica, 7–20 mm longa, 2–7 mm lata, discolor, dense stellato-tomentosa, supra grisea, subtus pallidior, reticulata, apice obtuso vel rotundato, basi cuneata, margine integra vel supra medium minute crenato-dentato. *Inflorescentia* simplex vel basin versus parce ramosa, 7–15 cm longa; rhachis stellato-tomentosa; bracteae late ovatae, acutae, 4–7 mm longae, caducae, stellato-pubescentes; verticillastri plerumque 6-flori; pedicelli 2–3 mm longi, villosi. *Calyx* 5–7 mm longus, villosus, glanduloso-punctatus; tubus 4–5 mm longus; lobus posticus late ovatus, obtusus vel rotundatus, suberectus, 2 mm longus, margine decurrente; dentes laterales deltoideo-subulati, 1 mm longi; antici lineari-subulati, 2 mm longi. *Corolla* pallide rosea vel malvina, 8–11 mm longa, glabra vel extus labiis puberulis; tubus 6–9 mm longus, rectus, apicem versus sensim apliatus, ore 3 mm lato; labium posticum parvum; anticum concavum, 3 mm longum. *Stamina* 9–12 mm exserta; postica prope basin tubi corollae inserta, filamentis liberis prope basin minute pubescentibus, antica fauce corollae inserta, filamentis fere ad apicem connatis. *Stylus* 10 mm exserta, apice breviter bifidus.

Type.—Natal, 2829 (Harrismith), Cathedral Peak Forest Research Station (–CC), *Killick 1644* (PRE, holo.).

Shrub, branched, 40–150 cm tall; branchlets stellate-tomentose. *Leaves* shortly petiolate; petiole 1–2 mm long, densely stellate-tomentose; blade lanceolate-elliptic to oblanceolate-elliptic or linear-elliptic, 7–20 mm long, 2–7 mm broad, discolorous, densely stellate-tomentose, dark grey above, paler below, reticulate, apex obtuse to rounded, base cuneate, margin entire or minutely crenate-dentate above the middle. *Inflorescence* simple or sparingly branched towards the base, 7–15 cm long; rhachis stellate-tomentose; bracts broadly ovate, acute, 4–7 mm long, caducous, stellate-pubescent; verticillasters usually 6-flowered; pedicels 2–3 mm long, villous. *Calyx* 5–7 mm long, villous and freely gland-dotted; tube 4–5 mm long; posticous lobe broadly ovate, obtuse to rounded, suberect, 2 mm long, margin decurrent; lateral teeth deltoid-subulate, 1 mm long; anticous teeth linear-subulate, 2 mm long. *Corolla* pinkish to mauve, 8–11 mm long, glabrous with outer surfaces of lips puberulous; tube 6–9 mm long, straight, widening gradually towards the apex, mouth 3 mm wide; posticous lip small; anticous lip concave, 3 mm long. *Stamens* exserted by 9–12 mm; posticous stamens inserted near the base of the corolla tube, filaments free, minutely pubescent near the base; anticous stamens inserted at the throat of the corolla, filaments united almost to the apex. *Style* exserted by 10 mm, apex shortly bifid. FIG. 3.

Found at altitudes of 1 700 to 2 300 m in the Natal Drakensberg between Mont-aux-Sources and Cathkin Peak where it is a common shrub along stream banks, at the foot of cliffs, and on mountain sides. It flowers mainly from December to April.

NATAL.—2828 (Bethlehem): Royal Natal National Park (–DB), *Bayer & McClean 147; 217; Galpin 10168; Hutchinson, Forbes & Verdoorn 52; Sidey 1655; Edwards 459; Trauseld 240; 1114.* 2829 (Harrismith): Cathedral Peak (–CC), *Killick 1644; Hilliard & Burtt 3427.* 2929 (Underberg): Cathkin Park (–AB), *Galpin 11846;* above Champagne Hostel (–AB), *Edwards 2300.*

FIG. 3.—*Hemizygia cinerea* (*Killick* 1644, PRE, holotype).

The few specimens of this species which Ashby had at his disposal were confused with *H. elliottii* (Bak.) Ashby and *H. stenophylla* (Guerke) Ashby, and those specimens with entire leaf margins would tend to run to *H. elliottii* in his key. However, *H. elliottii* differs in having ovate-lanceolate leaves and a capitate stigma, while the calyx is stellate-pubescent, not villous as in *H. cinerea*. *H. elliottii* is essentially a plant of hot, dry savanna country, extending from Rhodesia to Botswana and to the western, northern and eastern Transvaal lowveld, but does not enter Natal.

H. stenophylla, on the other hand, has linear-lanceolate leaves with somewhat thickened and inrolled margins and colourful lanceolate bracts 12–15 mm long, while the calyx is glandular-hispid, also lacking the villous hairs possessed by *H. cinerea*. *H. stenophylla* occurs well to the south of *H. cinerea* and at lower altitudes, from the Transkei to southern Natal.

H. cinerea is probably more closely allied to the two Transvaal species, *H. rugosifolia* Ashby and *H. incana* Codd (described above). From *H. rugosifolia* it differs in the dense tomentum on both surfaces of the leaf, the smaller bracts and the villous calyx. From *H. incana* it can be distinguished by the smaller leaves, which are usually dark grey on the upper surface and which are often entire or toothed only in the upper half, while the flower parts (calyx, corolla and stamens) are smaller. *H. cinerea* is known only from the Natal Drakensberg between Cathkin Park and Mont-aux-Sources, while *H. incana* appears to be restricted to the Kaapsche Hoop area in the eastern Transvaal.

7. **Hemizygia elliottii** (*Bak.*) *Ashby* in J. Bot. Lond. 73: 345 (1935), pro parte excl. Natal spec. Type: Matabeleland, *Elliott* s.n. (K, holo.).

Orthosiphon elliottii Bak. in Fl. Trop. Afr. 5: 376 (1900). *O. messinensis* Good in J. Bot. Lond. 63: 173 (1925). Type: Transvaal, Messina, *Moss & Rogers* 153 (BM, holo.; PRE).

Soft shrub 35–60 cm tall, woody at the base; branches stellate-tomentose. *Leaves* subsessile to shortly petiolate; blade lanceolate to ovate, 15–25 mm long, 4–12 mm broad, densely stellate grey velvety on both surfaces; apex acute, base obtuse; margin entire. *Inflorescence* simple or occasionally with a pair of branches near the base, 6–12 cm long; rhachis densely and shortly stellate-tomentose; bracts broadly ovate to subrotund, persisting as a dense mauve-purple coma, 7–11 × 5–8 mm, stellate-pubescent near the truncate base, apex rounded; verticillasters 2–6-flowered, up to 12 mm apart. *Calyx* 5 mm long, sparingly stellate-tomentose mainly on the tube; upper lip subrotund, rounded at the apex, 2 mm long, markedly decurrent on the tube; lower 4 teeth deltoid-subulate, up to 2 mm long. *Corolla* white to pale mauve, 13 mm long, glabrous; tube 9 mm long, widening to 3 mm at the throat; upper lip a small appendage 1 mm long; lower lip concave, 4 mm long, often deflexed. *Stamens* shortly exserted, not or only slightly exceeding the lower corolla lip; upper pair attached about the middle of the tube, filaments pubescent for about two-thirds their length; lower pair attached at the throat, adhering loosely at the base for a few mm. *Style* capitate.

Found in dry, subtropical woodland in western, northern and eastern Transvaal, at altitudes of 300 to 1 300 m, often on red sandy loam soil; also in Botswana and Rhodesia. Collected in flower between October and April.

BOTSWANA.—2326 (Mahalapye): Mahalapye (–BB), *Yalala 143; Bayliss 1839* (NBG). 2425 (Gaberones): Pharing, *Hillary & Robertson 490; Miller B/975;* 15 km S. of Gaberones (–DB), *Gillett 17480*. 2426 (Mochudi): Mochudi (–AC), *Harbor sub Rogers 6554;* Derdepoort (–CB), *Codd 8857*.

TRANSVAAL.—2229 (Waterpoort): Schroda (–AB), *Pole Evans 1963*. 2230 (Messina): Messina (–AC), *Moss & Rogers 153; Wild 7632*. 2329 (Pietersburg): between Bochem and Leipzig (–AA), *Bremekamp & Schweickerdt 150;* near Bochem (–AC), *Bremekamp & Schweikerdt 46;* 10 km N. E. of Pietersburg (–CD), *Codd 8324*. 2330 (Tzaneen): near Blackhills (–DA), *Oates 90*. 2331 (Phalaborwa): 21 km N. of Letaba Camp (–DC), *Codd & Dyer 4682*. 2426 (Mochudi): 3 km S. of Rooibokkraal (–BB), *Leistner 3184;* 22 km S.W. of Rooibokkraal (–BD), *Codd 8658*. 2427 (Thabazimbi): near Sentrum (–AD), *Vahrmeijer 1358;* farm Vaalpenskraal (–CB?), *Theron & Marsh 251*. 2428 (Nylstroom): Towoomba Pasture Research Station (–CD), *Irvine 56*. 2430 (Pilgrim's Rest): near Mica (–BB), *Acocks 16754; Schlieben 9348*. 2431 (Acornhoek): between Klaserie and Acornhoek (–CA), *Rauh & Schlieben 9706;* 13 km E. of Skukuza (–DC), *Codd 5036*. 2526 (Zeerust): Zeerust (–CA), *Pole Evans 407*.

Superficially similar to *H. cinerea* Codd but the small grey leaves are usually broader and the margins are always entire. It is, however, not closely related to *H. cinerea* because the stamen filaments are pubescent to well above the middle (this can often be seen on dried specimens without dissecting the flowers), the stigma is capitate and there is a coma of colourful bracts at the apex of the inflorescence.

An interesting variation is found in the numbers of flowers produced per verticillaster. Normally a constant character for a species, two series are found in *H. elliottii*. In all specimens from Rhodesia, Botswana, western and northern Transvaal, the verticillasters are 2-flowered, while the specimens from the

eastern Transvaal lowveld have 6-flowered verticillasters. As no other difference can be found it is not proposed to accord separate rank for the latter form.

8. **Hemizygia gerrardii** (*N.E. Br.*) *Ashby* in J. Bot. Lond. 73: 345 (1935); Ross, Fl. Natal 306 (1972). Type: Natal: "near Ingoma", *Gerrard* 1239 (K, holo.).

Orthosiphon gerrardii N.E. Br. in Fl. Cap. 5,1: 249 (1910).

Soft branched shrub ca. 1 m. tall; branches stellate-pubescent, glabrescent with age, bark flaking off in strips. *Leaves* petiolate; petiole 1–3 mm long; blade ovate to broadly elliptic, ca. 15×10 mm, thickish, densely, and somewhat coarsely stellate grey velvety on both surfaces; apex obtuse, base obtuse to truncate; margin entire. *Inflorescence* usually simple, 4–5 cm long; rhachis stellate-floccose; bracts broadly elliptical, persisting as a mauve-purple coma, ca. 8×5 mm, stellate-pubescent; verticillasters 2-flowered, 3–4 mm apart. *Calyx* 8–10 mm long, stellate-tomentose; upper lip ovate, 2 mm long, decurrent on the tube; lower 4 teeth deltoid-subulate, the lowest pair distinctly the longest, 3 mm long. *Corolla* mauve-pink; tube 17–20 mm long, pubescent; upper lip short; lower lip concave, 6 mm long. *Stamens* well exserted; upper pair attached near the throat; lower pair attached at the throat, filaments connate to half-way up.* *Stigma* entire or minutely bifid.

Known from two gatherings, one in northern Natal and the other from southern Transvaal; found in grass among rocks.

TRANSVAAL.—2731 (Louwsberg): 30 km S. of Sulphur Spring (–AC), *Dyer & Verdoorn* 5829.

NATAL.—Grid unknown: "near Ingoma", *Gerrard 1239* (K).

Resembles *H. elliottii* but the calyx and corolla are distinctly larger.

9. **Hemizygia floccosa** *Launert* in Mitt. Bot. München 7: 302 (1968); Launert & Schreiber in Prodr. Fl. S.W. Afr. 123: 13 (1969). Type: S.W. Africa, Outjo, *De Winter & Hardy* 8139 (PRE, holo.; M).

A soft shrublet 40–80 cm tall, woody below, sparingly branched; branches pale reddish-brown, loosely stellate-floccose, glabrescent with age. *Leaves* petiolate; petiole 5–10 mm long; blade ovate 2,8–4,5 cm long, 1,5–2,2 cm broad, loosely to densely stellate-floccose on both surfaces, nerves reticulate below; apex subacute, base obtuse; margin obscurely and somewhat distantly crenate-dentate. *Inflorescence* simple or with a pair of branches near the base, lax; rhachis glandular-puberulous; bracts deciduous, small, ovate, 5×2,5 mm, pubescent; verticillasters 2-flowered, 2–3 cm apart. *Calyx* 11 mm long, glandular-strigose; upper lip broadly ovate, rounded, 2,5 mm long, decurrent; lower 4 teeth deltoid subulate to spinescent, the lowest pair the longest, 3 mm long. *Corolla* pale mauve, 20 mm long, glabrous; tube 15 mm long widening from below the middle to 5 mm wide at the throat; upper lip broad, 3 mm long; lower lip concave, 5 mm long, usually deflexed. *Stamens* shortly exserted, not exceeding the lower lip of the corolla; upper pair attached near the middle of the tube, scarcely exserted, filaments pubescent below; lower pair attached at the throat, filaments 4 mm long, connate for about half their length. *Stigma* capitate.

A rare plant occurring along dry watercourses in the central Namib area of South West Africa.

S.W.A.—2014 (Welwitschia): near Bethanis (–AD), *Giess 3929;* 55 km W. of Welwitschia on road to Torra Bay (–BC), *De Winter & Hardy 8139.* 2114 (Uis): Brandberg (–AB), *Liebenberg 5001.*

Easily distinguished from other species in South West Africa by the dense floccose pubescence of stellate (branched) hairs on the relatively large petiolate leaves, and 2-flowered verticillasters.

10. **Hemizygia stenophylla** (*Guerke*) *Ashby* in J. Bot. Lond. 73: 347 (1935); Ross, Fl. Natal, 306 (1972). Lectotype: Cape, E. Griqualand, near Enyembe, *Tyson* in Herb. Austr. Afr. 1293 (K, lecto.).

Orthosiphon stenophyllus Guerke in Bot. Jahrb. 26: 84 (1898); N.E. Br. in Fl. Cap. 5,1: 250 (1910).

Soft shrub 30–90 cm tall, branching from the base; branches arising from a perennial woody rootstock, ascending, sparingly to freely branched, densely leafy, shortly stellate-tomentose. *Leaves* subsessile; blade linear-lanceolate or elliptic-lanceolate to lanceolate, 12–30 mm long, 3–5 mm broad, upper surface, dark grey to blackish, finely and shortly pubescent with nerves impressed, lower surface densely grey stellate-velvety with nerves raised and almost parallel to the main nerve: apex tapering gradually, base obtuse; margin revolute, entire. *Inflorescence* simple or with one or two pairs of branches near the base, 8–18 cm long; rhachis glandular-hispidulous often with some branched hairs; bracts persisting as a colourful coma, lanceolate to ovate-lanceolate, 10–15 mm long, acute, mauve to purple, stellate-tomentose; verticillasters 4–6-flowered. *Calyx* 7–8 mm long, glandular-hispidulous; upper lip ovate, rounded, 3 mm long, decurrent; lower 4 teeth subulate to bristle-like, the lowest pair the longest, up to 4 mm long. *Corolla* pale mauve to rosy-mauve, 13 mm long, glabrous except for the lips; tube 10 mm long, widening to 3 mm at the throat; upper lip a small appendage; lower lip concave, 3 mm long, often deflexed. *Stamens* exserted by 10 mm, well exceeding the lower lip; upper pair attached about the middle of the tube, filaments pubescent in the lower part; lower pair attached at the throat, filaments united to or near the apex. *Stigma* minutely bifid.

Found in dense grassland often near forest and among rocks in southern Natal and East Griqualand. Flowers mainly from January to March.

NATAL.—2930 (Pietermaritzburg): Boston (–CA), *Medley Wood 966* (SAM); *4624* (NH). 3029 (Kokstad): Mt. Ingeli, near Weza (–DA), *Medley Wood 3107* (NH); *Strey 6300; 6334; 10923; Nicholson 1218.*

CAPE.—3029 (Kokstad): Mt. Emyembe (–BA), *Tyson in Herb. Austr.-Afr. 1293* (SAM); *1720* (SAM); *1760; 2137* (SAM); Insikeni Forest (–BA), *Tonder 5;* 16 km S. of Umzimkulu (–BD), *Codd 8568;* between Brooks Nek and Bizana (–DA?), *Hilliard & Burtt 6748;* near Fort Donald (–DC), *Tyson 1666* (SAM).

Resembles *H. rehmannii* (Guerke) Ashby from the north-eastern Transvaal but has slightly narrower, more lanceolate leaves and a tuft of conspicuous mauve-purple bracts at the apex of the inflorescence. Although it has been confused with the species now described as *H. cinerea* Codd, the latter tends to have more elliptical leaves and also lacks the coma of colourful bracts. Although both occur in Natal, *H. cinerea* occurs further to the north and at higher altitudes, between Cathedral Peak and Mont-aux-Sources.

* Description of stamens taken largely from N. E. Brown, l.c.

11. **Hemizygia rehmannii** (*Guerke*) *Ashby* in J. Bot. Lond. 73: 347 (1935). Type: Transvaal, Houtboschberg, *Rehmann* 6172 (Z, holo; BM).

Orthosiphon rehmannii Guerke in Bull. Herb. Boiss. 6: 557 (1898); N.E. Br. in Fl. Cap. 5,1: 251(1910).

Soft shrub branching from a perennial woody rootstock, forming a round bush 30–80 cm tall; branches erect or ascending, usually sparingly branched, with dense short stellate hairs and villous hairs intermingled, densely beset with leaves. *Leaves* sessile; blade narrowly elliptic to oblong-elliptic, 10–22 mm long, 3–8 mm broad, upper surface dark grey to brownish, finely pubescent to rugose with nerves impressed, lower surface densely grey to yellowish-grey stellate-velvety with nerves raised; apex acute to obtuse, base somewhat cuneate; margin revolute, entire or finely crenate-dentate in the upper half. *Inflorescence* simple or branched, 6–22 cm long; rhachis finely to coarsely stellate-pubescent; bracts small, ovate, acute, 5–6 mm long, stellate-pubescent; verticillasters 6-flowered, 10 mm apart. *Calyx* 9–10 mm long, glandular-hispid; upper lip ovate, rounded, 2,5 mm long, decurrent; lower 4 teeth weakly subulate, the lowest pair the longest, 2,5 mm long. *Corolla* pale mauve, 17 mm long, glabrous except for the lips; tube 14 mm long, widening to 4 mm at the throat; upper lip a small appendage; lower lip concave, 3 mm long, eventually deflexed. *Stamens* exserted by 10 mm, well exceeding the lower lip; upper pair attached below the middle of the tube, filaments glabrous; lower pair attached at the throat, filaments united to near the apex. *Stigma* minutely bifid.

Occurs usually in shallow sandy soil among rocks in grassland, often near forest margins, from Woodbush to The Downs in north-eastern Transvaal, at altitudes of 1 500–2 000 m. Flowering is mainly from January to March.

TRANSVAAL.—2329 (Pietersburg): Houtboschberg (–DD), *Schlechter 4442;* Iron Crown Mt. (–DD), *Mogg 16652;* Wolkberg (–DD), *Meeuse 9866;* near Houtboschdorp (–DD), *Codd 9426.* 2330 (Tzaneen): Westfalia Estate (–CA), *Scheepers 909;* Woodbush (–CC), *Pole Evans 4746; Pott sub TRV 13393;* New Agatha (–CC), *McCallum s.n.; Muller & Scheepers 111.* 2429 (Zebediela): Ashmoledales (–BB), *Pole Evans H. 19010.* 2430 (Pilgrim's Rest): mountains near Trichardsdal and The Downs (–AA), *Vahrmeijer 2369.*

Its affinity with *H. stenophylla* is discussed under that species. From *H. cinerea*, a Natal species which also has small, inconspicuous bracts, it differs in the leaves being rather more rugose above and usually greyish-yellow below, and the larger corolla, which is only 8–11 mm long in *H. cinerea* as against about 17 mm long in *H. rehmannii.*

12. **Hemizygia subvelutina** (*Guerke*) *Ashby* in J. Bot. Lond. 73: 346 (1935). Type: Lydenburg, near Paarde Plaats, *Wilms* 1152 (BM, K).

Orthosiphon subvelutinus Guerke in Bot. Jahrb. 26: 80 (1898); N.E. Br. in Fl. Cap 5,1: 253 (1910). *O. heterophyllus* Guerke, l.c. 82 (1898). Syntypes: eastern Transvaal, near Spitzkop, *Wilms* 1148 (BM); 1155 (K).

Bushy herb or soft shrublet 20–50 (–80) cm tall, branching from the base; branches few to many from a perennial woody rootstock, erect or ascending, sparingly branched, densely beset with leaves and short leafy shoots, densely stellate-pubescent, often with a yellowish tinge. *Leaves* sessile, usually ericoid, linear to linear-lanceolate, 5–10 (–15) mm long, 1–2 (–5) mm broad, coriaceous, stellate-scabrid above, usually yellowish stellate-tomentose below; margin revolute, entire. *Inflorescence* simple, 5–11 cm long; rhachis densely stellate-hispid with branched, usually yellowish hairs; bracts persistent, 4–7×2–3 mm, stellate-hispid, somewhat leaf-like; verticillasters 4–6-flowered, occasionally less, 5–10 mm apart. *Calyx* 5–6 mm long, stellate-hispid; upper lip ovate, acute, 2 mm long, decurrent; lower 4 teeth deltoid-subulate, up to 2 mm long. *Corolla* white, often tinged with mauve, 12–16 mm long; tube 10–12 mm long, tubular, 2,5 mm wide, often slightly constricted at the throat, sparingly pubescent (densely so on the lips); upper lip 1,5 mm long; lower lip shallowly concave, 2–4 mm long. *Stamens* shortly exserted by 1,5–3 mm, not or scarcely exceeding the lower lip of the corolla; upper pair attached below the middle of the tube, filaments puberulous near the base; lower pair attached at the throat, filaments united only near the base or to about half their length. *Stigma* shortly bifid.

Localized on the eastern Transvaal mountains from Lydenburg and Pilgrim's Rest to Kaapsche Hoop, in dense grass among quartzite rocks and in rock crevices, at altitudes of 1 400 to 2 200 m. Flowers from November to March.

TRANSVAAL.—2430 (Pilgrim's Rest): Pilgrim's Rest (–DD), *Rogers 14321; 14871; 18328; Galpin 14447;* Graskop (–DD), *Pole Evans 128; Holt 366;* between Kowyns Pass and Sabie (–DD?), *Gillett 1017;* Mac Mac Falls (–DD), *Burtt Davy 2536; Codd 6446; 9480.* 2530 (Lydenburg): farm Zwagershoek, S.W. of Lydenburg (–AB), *Obermeyer 327;* Mount Anderson (–BA), *Smuts & Gillett 2403; Meeuse 10074;* Long Tom Pass, *Werdermann & Oberdieck 2103; Leistner & Mauve 3224;* Kemps Heights, 24 km S.W. of Lydenburg (–BA), *Codd 8306;* Sabie Valley (–BA), *Galpin 13811;* Sabie (–BB), *Rogers sub TRV 14869; Wager A118;* Witklip (–BD), *Kluge 301;* 27 km S.E. of Machadodorp (–CB), *Bruce 487;* Ohrigstad Nature Reserve (–DC), *Jacobsen 1493;* Kaapsche Hoop (–DB), *Pole Evans 985; Wager sub TRV 15561; Codd 5751.*

Closely related to *H. teucriifolia* (Hochst.) Briq. as will be seen from the tubular corolla which is slightly constricted at the mouth, and the very shortly exserted stamens. It differs from *H. teucriifolia* in a few minor respects, namely, the narrower, "ericoid" leaves (although occasional broader, ovate leaves may be present), the shorter internodes, the tendency for the tomentum to be yellower in colour and the usually pubescent corolla tube. The two meet in the Transvaal, but do not appear to overlap; *H. subvelutina* is restricted to the mountains from near Lydenburg and Pilgrim's Rest to Kaapsche Hoop, while *H. teucriifolia* is distributed from the eastern Cape Province through Natal to the Barberton area, appearing again in the mountains of eastern Rhodesia.

There is some indication of introgression in the south-eastern Transvaal. Specimens from Kaapsche Hoop tend to have longer internodes and, occasionally, glabrous corolla tubes, while an occasional specimen from near Barberton may have pubescence on the corolla tube (apart from the lips which are always pubescent on the outer surface). Usually leaf shape and the colour of the pubescence can be used as a guide in such cases and it is felt that both species can justifiably be upheld. See also notes under *H. albiflora* (p. 10).

N. E. Brown, l.c., considered that in some specimens the filaments of the anterior pair of stamens were free to the base. This was not confirmed in the present study though admitedly more flowers should be examined than is possible in a herbarium. The degree of union was variable, from about 0,5 mm to 1,5 mm, the latter representing about half the length of the filaments.

13. **Hemizygia teucriifolia** (*Hochst.*) *Briq.* in Pflanzenfam. 4, 3a: 369 (1897); Annu. Conserv. Jard. Bot. Genève 2: 247 (1898); Ashby in J. Bot. Lond. 73: 346 (1935); Ross, Fl. Natal 306 (1972). Type: Natal, Table Mt., *Krauss* 448 (BM, K).

Ocimum teucriifolia Hochst. in Flora 28: 66 (1845); Benth. in DC., Prodr. 12: 41 (1848).

Orthosiphon woodii Guerke in Bot. Jahrb. 26: 83 (1898). Type: Natal, Entumeni, *Medley Wood* sub NH 783 (SAM) (= *Medley Wood* 3964 in K, NH). *O. galpiniana* Briq. in Bull. Herb. Boiss. ser. 2,3: 993 (1903). Type: Transvaal, Barberton, Saddleback, *Galpin* 1217 (K, NH, PRE). *O. teucriifolius* (Hochst.) N.E. Br. in Fl. Cap. 5,1: 254 (1910).—var. *galpinianus* (Briq.) N.E. Br., l.c. 254 (1910).

Bushy herb 15–30 cm tall, branching freely from a woody, perennial base; branches erect or ascending, usually simple, greyish stellate-pubescent. *Leaves* linear to lanceolate or elliptic, 8–18 mm long, 3–6 mm broad, stiffish, stellate-scabrid and blackish above, greyish stellate-tomentose below; apex acute, base obtuse; margin revolute, entire. *Inflorescence* simple, 4–8 cm long, fairly lax or congested; rhachis stellate-villous; bracts persistent, 4–6×2–3 mm, stellate-hispid, somewhat leaf-like; verticillasters 4–6-flowered, 2–10 mm apart. *Calyx* 5–6 mm long, stellate-pubescent; upper lip ovate, rounded, 2 mm long, decurrent; lower 4 teeth deltoid-subulate, up to 2 mm long. *Corolla* mauve, 10–12 mm long; tube 9–10 mm long, tubular, 2,5 mm wide, slightly constricted at the throat, glabrous (pubescent on the lips); upper lip 1,5 mm long; lower lip slightly concave 2 mm long. *Stamens* shortly exserted by 1–3 mm or the upper pair scarcely exserted; upper pair attached below the middle of the tube, filaments puberulous in the lower half; lower pair attached at the throat, filaments united for half or more of their length. *Stigma* minutely bifid.

Locally frequent in mountain grassland at altitudes of 600 to 1 500 m at scattered localities from Stutterheim District in the eastern Cape, to Natal and the Barberton District of the Transvaal, appearing again in the mountains of eastern Rhodesia.

TRANSVAAL.—2530 (Lydenburg): Nelshoogte (–DB), *Muller 2151; Barker s.n.* (NBG). 2531 (Komatipoort): Saddleback Mt. (–CC), *Galpin 1217;* Lomati Valley (–DA), *Thorncroft 2013.*

NATAL.—2731 (Louwsburg): Ngome (–CD), *Gertsner 5120; Strey 9338.* 2831 (Nkandla): Babanango (–AC), *King 296; Acocks 11781; Codd 1773;* Nkandla (–CA), *Wylie sub NH 9405* (NH); Melmoth (–CB), *Mogg 6059;* Ntumeni (–CD), *Medley Wood sub NH 783* (SAM); *3964* (NH). 2930 (Pietermaritzburg): near Howick (–AC), *Medley Wood 8730;* near The Dargle (–AC), *Hilliard & Burtt 3193;* Swartkop (–CB), *Wylie sub Wood 10106; Fisher 703;* near Hela Hela (–CC), *Strey 9217;* near Richmond (–CD), *Medley Wood 10068.* 3029 (Kokstad): Ngeli Mt. (–DA), *Hilliard & Burtt 3483.* 3030 (Port Shepstone): Campbellton (–AD), *Rudatis 1790;* Illovo (–BB?), *Medley Wood 1877* (NH).

CAPE.—3029 (Kokstad): Zuurberg (–BA), *Tyson 1561.* 3227 (Stutterheim): Mt. Kemp (–CB), *Sim s.n.; 19595;* Pirie (–CC), *Sim 107.*

Its relationship with *H. subvelutina* is discussed under that species. It also resembles the following species, *H. albiflora*, which can readily be separated by its lack of stellate (branched) hairs.

Apparently *H. teucriifolia* is not readily eaten by stock and tends to increase on veld which is subjected to overgrazing.

14. **Hemizygia albiflora** (*N.E. Br.*) *Ashby* in J. Bot. Lond. 73: 348 (1935): Type: Transvaal, Mac Mac, *Mudd* s.n. (K., holo.).

Ortosiphon albiflorus N.E. Br., in Fl. Cap. 5,1: 251 (1910). *O. decipiens* N.E. Br., l.c. 252 (1910). Type: Transvaal, Mac Mac, *Mudd* s.n. (K,holo.).

Hemizygia rehmannii sensu Compton, Fl. Swaz. 67 (1966).

Woody shrublet 30–150 cm tall; branches markedly woody towards the base, somewhat gnarled and branching, procumbent to ascending, villous, densely beset with leaves and short leafy shoots. *Leaves* sessile, ericoid; blade linear to linear-elliptic, 10–30 mm long, 1,5–5 mm broad, stiff, subglabrous and shiny to appressed villous and blackish above, densely appressed villous below with long white matted hairs; apex and base tapering; margin strongly revolute, entire. *Inflorescence* simple or with a pair of branches near the base, 5–10 cm long; rhachis glandular-hispid; bracts deciduous, ovate, acute, 5–8×3–5 mm, sparingly pubescent; verticillasters mainly 6-flowered, 5–15 mm apart. *Calyx* 6–8 mm long, glandular-hispid; upper lip ovate, rounded, 2 mm long, decurrent; lower 4 teeth deltoid-subulate, up to 2 mm long. *Corolla* white, 12–15 mm long; tube 10–12 mm long, curved, glabrous, tubular, expanding to 3 mm wide about the middle and then parallel sided or slightly constricted at the mouth, upper lip very small, less than 1 mm long; lower lip concave, 2–3 mm long *Stamens* exserted by 4–6 mm, exceeding the lower lip of the corolla; upper pair attached below the middle of the tube, filaments finely puberulous in the lower half; upper pair attached at the throat, filaments united for almost their entire length. *Stigma* minutely bifid.

Found among quartzite rocks, often with semi-alpine flora at altitudes of 1 800 to 2 400 m, in the mountains of the eastern Transvaal and extending to northern Swaziland. The main flowering season is from November to March.

Transvaal.—2430 (Pilgrim's Rest): Mariepskop (–DB) *Smuts & Gillett 3598; Codd 7853; Meeuse 9960; Van der Schijff 4366; 4777; 4827; 4922; 6189; 6340; Werdermann & Oberdieck 1838; 1905; Killick & Strey 2390; 2400;* Blyde River Gorge (–DB), *Galpin 14628;* Hebronberg (–DB), *Hilliard & Burtt 6002:* God's Window, N. of Pilgrim's Rest (–DD), *Davidson & Mogg 32922; 33473;* Graskop (–DD), *Burtt Davy 1478; Galpin 14352;* between Graskop and Mac Mac (–DD), *Loock s.n.;* Mac Mac (–DD), *Nel 262.* 2530 (Lydenburg): Steenkampsberg, 46 km W. of Lydenburg (–AA), *Codd 8207;* 13 km E. of Draaikraal (–AA), *Bruce 328;* Dullstroom, Suikerboskop (–AC), *Galpin 13052; 13068;* Mt. Anderson (–BA), *Pole Evans 4296 (39);* *Smuts & Gillett 2419; 2430;* Long Tom Pass (–BA), *Werdermann & Oberdieck 2088;* Bakenkop 14 km E. of Sabie (–BB), *Leistner & Mauve 3235;* Schoemanskloof, Rietvlei (–BC), *Smuts 5;* 13 km N.W. of Belfast (–CA), *Story 5345;* Mareskop, near Machadodorp (–CA), *Bruce 518;* near Waterval Boven (–CB), *Codd 10481;* 25 km S.E. of Machadodorp (–CB), *Codd 8269; 8270;* Kaapschehoop (–DB), *Pole Evans 983; Rogers 19571; Thode A 1636.* 2531 (Komatipoort): between Barberton and Havelock (–CC), *Hilliard & Burtt 3663.* 2630 (Carolina): Ermelo, Billy's Vlei (–CA), *Burtt Davy 8092.*

SWAZILAND.—2631 (Mbabane): Ngwenya Mts. (–AC) *Compton 26683.*

The hard, narrow ("ericoid") leaves superficially, resemble those of *H. subvelutina* and *H. teucriifolia* but are easily distinguished by the lack of stellate (branched) hairs. *H. albiflora* is a woody, freely branched plant which grows among rocks where it is fairly well protected against fire, whereas the other two species form annually a number of slender stems from a thick woody rootstock in response to repeated grass fires. *H. albiflora* also has a slightly longer corolla and the stamens are exserted beyond the lower corolla lip, while the filaments of the lower pair of stamens are united nearly to the apex.

15. **Hemizygia pretoriae** (*Guerke*) *Ashby* in J. Bot. Lond. 73: 356 (1935). Type: Transvaal, Pretoria, *Wilms* 1151 (BM).

Bushy herb 10–30 cm tall, branching freely from a perennial woody base; branches arising annually, several to many, simple, erect or ascending, hispid to villous, sometimes with branched hairs intermingled (subsp. *heterotricha*). *Leaves* subsessile to shortly petiolate; blade narrowly elliptic or oblanceolate to ovate, or subrotund, 8–24 mm long, 2–15 mm broad, subglabrous to villous, sometimes with stellate (branched) hairs, conspicuously gland-dotted, often folding along the midrib; apex acute to obtuse, base cuneate, often tapering gradually; margin entire or rarely with a few small teeth. *Inflorescence* simple

4–8 cm long, medium-dense; rhachis glandular-hispid to villous; bracts persistent, leaflike, ca. 10×4 mm, hispid to stellate-pubescent; verticillasters (2–) 4–6-flowered, 10–20 mm apart. *Calyx* 7–8 mm long at flowering, enlarging considerably in fruit, glandular-hispid; upper lip ovate-elliptic, rounded, 2,5 mm long, decurrent; lower 4 teeth deltoid-subulate, up to 2,5 mm long, the lower pair in particular becoming bristle-like. *Corolla* whitish to pale mauve, 14–16 mm long, puberulous; tube 10–12 mm long, narrowly tubular, scarcely widening to 2 mm wide at the throat; upper lip relatively long and narrow, 3 mm long; lower lip shallowly concave, 4 mm long. *Stamens* with only the lower pair shortly exserted by 2–3 mm (less than the lower lip); upper pair included, attached near or above the middle of the tube, filaments very slender, glabrous; lower stamens attached at the throat, united for more than half their length. *Stigma* minutely bilobed.

Distributed from central to eastern Transvaal, Swaziland and northern Natal, in dense grassland, often among rocks, mainly at altitudes of 1 000 to 1 800 m. The species is characterized by the narrowly tubular corolla, scarcely expanding towards the throat; the longish upper lip of the corolla which almost equals the lower lip; and the fact that the upper pair of stamens are never exserted. In certain other species the upper pair of stamens are very short but eventually they are slightly exserted, e.g. *H. subvelutina, H. teucriifolia* and *H. persimilis.*

Two subspecies are recognized which are separated mainly on the presence or absence of stellate (branched) hairs (see key to species, p. 2) and to some extent of leaf shape.

(a) subsp. **pretoriae.**

Hemizygia pretoriae (Guerke) Ashby in J. Bot. Lond. 73: 356 (1935); Compton, Fl. Swaz. 67 (1966), pro parte; Ross, Fl. Natal 306 (1972). Type: Transvaal, Pretoria, *Wilms* 1151 (BM).

Orthosiphon pretoriae Guerke in Bot. Jahrb. 26: 81 (1898); N.E. Br. in Fl. Cap. 5,1: 254 (1910). *O. natalensis* Guerke, l.c. 82 (1898). Syntypes: Natal, Glencoe, *Medley Wood* 4756 (K, NH); *Kuntze* s.n.; Coldstream, *Rehmann* 6918.

Stellate (branched) hairs absent throughout the plant; leaves narrowly elliptic to oblanceolate or obovate.

Distribution and ecology as for the species, though absent from southern Swaziland; flowering is mainly from October to February.

TRANSVAAL.—2527 (Rustenburg): Uitkomst (–DC), *Coetzee 416;* Jack Scott Nature Reserve (–DD), *Wells 2394.* 2528 (Pretoria): near Silverton (–CB), *Phillips 3028;* Baviaanspoort (–CB), *C. A. Smith* 1062: Rietvlei Dam area (–CD), *Pole Evans 287; Acocks 11256; Codd 2195; Meeuse 9249;* Tygerpoort (–CD), *Repton 608;* Premier Mine (–DA), *Menzies s.n.;* Rayton (–DA), *Rogers 21806;* Bronkhorstspruit (–DC), *Janse 59.* 2529 (Witbank): Loskopdam (–AD), *Theron 869;* near Monsterlus (–BA), *Acocks 20880;* near Witbank, *Gilfillan sub. Galpin 7233; Bruce 95;* near Middelburg (–CD), *Jenkins sub TRV 10700; Hewitt sub TRV 10431; Young A23; Codd 10079;* Doornkop 273 (–CD), *Du Plessis 616.* 2530 (Lydenburg): near Helvetia North (–CB), *Young A261;* near Machadodorp (–CB), *Jenkins sub TRV 12705;* 15 km W. of Machadodorp (–CB), *Codd 8027.* 2627 (Potchefstroom): Little Falls (–BB), *Mogg 20249* (J). 2628 (Johannesburg): Johannesburg (–AA), *Gilfillan sub Galpin 1440; Leendertz 1721; Bryant D52; Gertner 6720; Macnae 1244* (J); *Lucas 70* (J); *Moss 2803* (J); *2804* (J);*2389* (J); *2770* (J); Kaalfontein (–AB), *Pole Evans H 13532; H 16794.* 2629 (Bethal): near Ermelo (–DB), *Pott sub TRV 15112.* 2630 (Carolina): Bushmans River Valley (–AA), *Galpin 12442.* 2730 (Vryheid): Mooihoek (–AB), *Devenish 1052;* Piet Retief (–BB), *Galpin 9645.*

SWAZILAND.—2631 (Mbabane): Mbabane (–AC), *Compton 26785.*

NATAL.—2729 (Volksrust): Newcastle (–DD), *Schlechter 3420.* 2730 (Vryheid): "Retirement" (–AD?), *Devenish 1335;* near Grootspruit (–BC), *Strey 8042;* Kaffir Drift (–CD), *Thode A244.* 2830 (Dundee): near Glencoe (–AA), *Medley Wood 4756;* Dundee (–AA), *Edwards 1084.* 2831 (Nkandla): 20 km E. of Babanango (–AC), *Codd 1775.*

(b) subsp. **heterotricha** *Codd*, var. nov. a typica foliis stellato-pubescentibus differt.

Type: Swaziland, 2631 (Mbabane), near Hlatikulu (–CD), *Compton 26320* (PRE, holo.).

Stellate (branched) hairs present on stems, leaves and bracts; leaves ovate to ovate-rotund; florally in no way different from the typical. FIG. 4.

FIG. 4.—*Hemizygia pretoriae* var. *heterotricha* (*Compton* 26320, PRE, holotype).

Found in south-western Swaziland, the Piet Retief District of Transvaal and the Hluhluwe area of Natal; recorded in flower from October to January.

TRANSVAAL.—2731 (Lowsburg): 32 km W. of Pongola Settlement on road to Piet Retief (–AD), *Acocks 13154; Codd 2102.*

SWAZILAND.—2631 (Mbabane): near Mankaiana (–CA), *Compton 30458;* near Hlatikulu (–CD), *Compton 26259; 26320; 28323; 29251.*

NATAL.—2832 (Mtubatuba): Hluhluwe Game Reserve (–AA), *Ward 3960.*

Normally, subsp. *heterotricha* does not differ in floral characters or growth habit from the typical and thus subspecific status is considered appropriate. It occurs slightly to the south-west of subsp. *pretoriae* and no overlapping in distribution has yet been found.

The specimen *Ward* 3960 has an unusual habit consisting of a slender branched stem about 30 cm tall, apparently not arising from a woody rootstock

as in the normal behaviour of the species. Florally it does not deviate from *H. pretoriae* and it possesses the stellate pubescence of subsp. *heterotricha*. The unusual habit may be the result of the absence of fire over a period of years or it may represent a distinct ecological form adapted to the lower altitude.

16. **Hemizygia modesta** *Codd*, sp. nov. a *H. thorncroftii* (N.E. Br.) Ashby foliis brevioribus, bracteis parvioribus, inconspicuis, verticillastris 2-floribus differt.

Fruticulus 12–25 cm altus; caules annui, graciles, erecti, caudice lignoso exoriens, hispidi vel villosi. *Folia* sessilia vel subsessilia, late ovata, ovata, elliptica vel lanceolato-elliptica, 6–12 mm longa, 4–6 mm lata, parce vel dense hispida, glanduloso-punctata, nervis obscuris, apice acuto vel obtuso, basi obtusa, margine integro. *Inflorescentia* simplex, 5–10 cm longa; rhachis glanduloso-hispidus vel villosus; bracteae ovatae, acuminatae, 4–5 mm longae, inconspicuae, caducae, hispidae vel villosae, glanduloso-punctatae; verticillastri 2-flori; pedicelli 2 mm longi. *Calyx* per anthesin 7–8 mm longus, hispidus, copiose glanduloso-punctatus; tubus 4–5 mm longus; lobus posticus late ovatus, suberectus, obtusus vel rotundatus, 2 mm longus, margine decurrenti; dentes laterales deltoideo-subulati, 2 mm longi; antici linear-subulati, 2,5–3 mm longi. *Corolla* alba vel pallido-malvina, 15–16 mm longa, glabra vel extus labiis puberulis; tubus 11–12 mm longus, apicem versus sensim ampliatus, ore 4 mm lato; labium posticum 1,5 mm longum; anticum concavum, 4–5 mm longum, horizontale vel recurvum. *Stamina* 10 mm exserta; postica circa medium tubi corollae inserta, filamentis libris basin versus pubescentibus; antica fauce corollae inserta, filamentis ad apicem connatis. *Stylus* 15 mm exsertus, apice breviter bifido.

TYPE.—Swaziland, 2631 (Mbabane), Bomvu Ridge (–AA), *Compton 28368* (PRE, holo.).

Shrublet 12–25 cm tall; stems annual, slender, erect, arising from a woody rootstock, hispid to villous. *Leaves* sessile or subsessile, broadly ovate to elliptic or lanceolate-elliptic, 6–12 mm long, 4–6 mm broad, sparingly to densely hispid, gland-dotted, nerves indistinct, apex acute to obtuse, base obtuse, margin entire. *Inflorescence* simple, 5–10 cm long; rhachis glandular-hispid to villous; bracts ovate, acuminate, 4–5 mm long, inconspicuous, caducous, hispid to villous, gland-dotted; verticillasters 2-flowered; pedicels 2 mm long. *Calyx* when flowering 7–8 mm long, hispid, freely gland-dotted; tube 4–5 mm long; posticous lobe broadly ovate, suberect, obtuse to rounded, 2 mm long, margin decurrent; lateral teeth deltoid-subulate, 2 mm long; anticous teeth linear-subulate, 2,5–3 mm long. *Corolla* white to pale mauve, glabrous with outer surfaces of lips puberulous; tube 11–12 mm long, widening gradually towards the apex, mouth 4 mm wide; posticous lip 1,5 mm long; anticous lip concave, 4–5 mm long, horizontal to recurved. *Stamens* exserted by 10 mm; posticous stamens inserted about the middle of the corolla tube, filaments free, pubescent towards the base; anticous stamens inserted in the throat of the corolla, filaments united to the apex. *Style* exserted by 15 mm, apex shortly bifid. FIG. 5.

Found in mountain grassland subjected to periodic burning, in the mountains behind Barberton, in Swaziland and in the Piet Retief district; flowering takes place in spring while the grass is still short, though it can continue until later depending on local conditions.

FIG. 5.—*Hemizygia modesta* (*Compton* 28368, PRE, holotype).

TRANSVAAL.—2531 (Komatipoort): Cythna Letty Reserve (–CC), *Mauve 4807;* 16 km S.E. of Barberton on road to Havelock (–CC), *Acocks 12867; Codd 1623.* 2730 (Vryheid): Piet Retief (–BB), *Leipoldt s.n.*

SWAZILAND.—2531 (Komatipoort): Havelock (–CC), *Compton 29123.* 2631 (Mbabane): Bomvu Ridge (–AA), *Compton 28368;* Forbes Reef (–AC), *Compton 30975; 32443;* Mankaiana, near Gege (–CA), *Compton 30013.*

In habit and ecology *H. modesta* resembles *H. pretoriae* (Guerke) Ashby and *H. thorncroftii* (N.E. Br.) Ashby in being small, spring-flowering shrublets, sending up annual shoots from a woody rootstock often before the first rains occur, and is most noticeable after the grass has been burnt.

From *H. pretoriae* it is readily distinguished on the floral characters: in *H. pretoriae* the verticillasters are 6-flowered, the corolla scarcely widens towards the mouth and the upper pair of stamens remains included in the corolla tube; in *H. modesta* the verticillasters are 2-flowered, while the corolla widens towards the mouth and all four stamens are well exserted.

The individual flowers of *H. thorncroftii* are similar to those of *H. modesta* but again the verticillasters are 6-flowered, the leaves are long and narrow (1,5–3,5 cm long), and the bracts are longer (8–20 mm) and more colourful, persisting as a conspicuous apical coma. An occasional specimen of *H. thorncroftii* has leaves shorter and wider than usual and such specimens appear to be somewhat intermediate, but the 6-flowered verticillasters and conspicuous bracts place them without doubt in *H. thorncroftii*.

Another dwarf species of the eastern Transvaal highveld, *S. foloisa* S. Moore, has 2-flowered verticillasters, but the leaves are much larger (2–6× 1–3 cm), the inflorescence is usually paniculate and the bracts are large and conspicuous.

There is a certain amount of variation included in the specimens of *H. modesta* cited above, which calls for further investigation. Three specimens from near Havelock, *Acocks* 12867, *Codd* 1623 and *Compton* 29123, have shorter and broader leaves with more villous pubescence on stems and leaves than the typical form. However, *Mauve* 4807 from near Barberton is somewhat intermediate and so separate rank for the villous form does not seem to be justified. The specimen *Leipoldt* s.n. from Piet Retief is more robust than usual for the species. It was given the manuscript name *H. nervosa* by Ashby, who refrained from publishing it until further material became available.

17. **Hemizygia punctata** *Codd*, sp. nov. a *H. transvaalensis* (Schltr.) Ashby foliis, bracteis et floribus parvioribus, verticillastris 2-floribus differt

Frutex ramosus, 60–120 cm altus; ramuli graciles, hispiduli. *Folia* subcoriacea, breviter petiolata; petiolus 1–2 mm longus; lamina elliptica vel elliptico-oblanceolata, 10–15 mm longa, 3–7 mm lata, utrinque hispidula, glanduloso-punctata, nervis obscuris, apice acuto vel obtuso, basi cuneata, margine integro vel supra medium minute crenato-dentato. *Inflorescentia* simplex vel basin versus parce ramosa, 8–15 cm longa; rhachis breviter hispidus; bracteae late ovatae, 4–6 mm longae, caducae, parce pubescentes; verticillastri 2-flori; pedicelli 3 mm longi, hispidi. *Calyx* per anthesin 6–8 mm longus, glanduloso-hispidus; tubus 4 mm longus; lobus posticus late ovatus, obtusus, suberectus, 2 mm longus, margine decurrenti; dentes laterales deltoideo-subulati, 1,5 mm longi; antici subulati, 2,5 mm longi. *Corolla* pallide malvina, 9–12 mm longa, glabra; tubus 7–10 mm longus, rectus, apicem versus sensim ampliatus, ore 4 mm lato; labium posticum parvum; anticum concavum, 2 mm longum. *Stamina* 7–9 mm exserta; postica prope basin tubi corollae inserta, filamentis libris, basin versus pubescentibus; antica fauce corollae inserta, filamentis ad apicem connatis. *Stylus* 7–8 mm exsertus, apice breviter bilobato.

TYPE: Transvaal, 2530 (Lydenburg), 18 km S.W. of Lydenburg (–AB), *Codd 8038* (PRE, holo.).

Shrub, branching, 60–120 cm tall; branchlets slender, hispidulous. *Leaves* subcoriaceous, shortly petiolate; petiole 1–2 mm long; blade elliptic to elliptic-oblanceolate, 10–15 mm long, 3–7 mm broad, both surfaces hispidulous and gland-dotted with the nerves obscure, apex acute to obtuse, base cuneate, margin entire or minutely crenate dentate above the middle. *Inflorescence* simple or sparingly branched towards the base, 8–15 cm long; rhachis shortly hispid; bracts broadly ovate, 4–6 mm long, caducous, sparingly pubescent; verticillasters 2-flowered; pedicels 3 mm long, hispid. *Calyx* when flowering 6–8 mm long, glandular-hispid; tube 4 mm long; posticous lobe broadly ovate, obtuse, suberect, 2 mm long, margin decurrent; lateral teeth deltoid-subulate, 1,5 mm long; anticous teeth subulate, 2,5 mm long. *Corolla* pale mauve, 9–12 mm long, glabrous; tube 7–10 mm long, straight, widening gradually towards the apex, mouth 4 mm wide; posticous lip small; anticous lip concave, 2 mm long. *Stamens* exserted by 7–9 mm; posticous stamens inserted near the base of the corolla tube, filaments free, pubescent towards the base; anticous stamens inserted in the throat of the corolla, filaments united to the apex. *Style* exserted by 7–8 mm, apex shortly bilobed. FIG. 6.

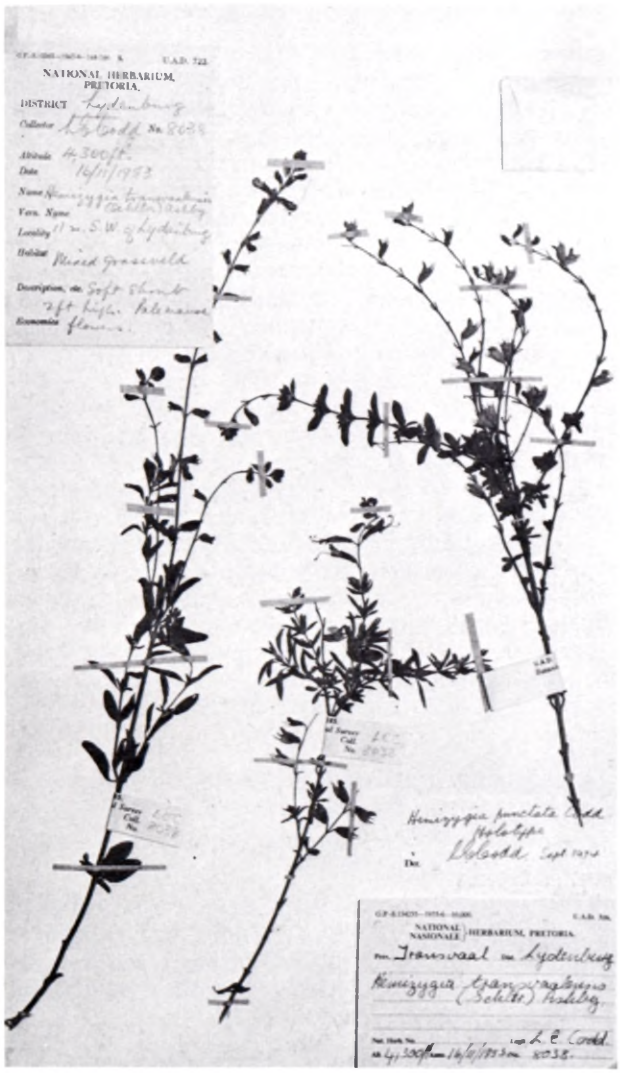

FIG. 6.—*Hemizygia punctata* (*Codd* 8038, PRE, holotype).

Grows on stony slopes in grassland, often with scattered trees and shrubs, and has been recorded from the Lydenburg, Nelspruit and Barberton Districts.

TRANSVAAL.—2530 (Lydenburg): 18 km S.W. of Lydenburg (–AB), *Codd 8038;* Amajuba Mt., Schagen (–BD), *Liebenberg 3088;* above Rivulets Station, (–BD), *Liebenberg 3323.* 2531 (Komatipoort): Thorncroft Nature Reserve, off Agnes Mine road (–CC), *Edwards 4113.*

Although superficially resembling the small-leaved form of *H. transvaalensis* (Schltr.) Ashby (described as *Ocimum wilmsii* Guerke, but now included in *H. transvaalensis*), *H. punctata* differs in many details. It is a slender-stemmed shrub, branching above, in contrast to *H. transvaalensis* which branches mainly from the base; the leaves are smaller, subentire to minutely toothed in the upper half, the nerves are indistinct and minute gland-dots are impressed in both the upper and lower surfaces; the flowers are smaller; and the bracts are small and inconspicuous.

Ashby attached the manuscript name *H. glandulifolia* to the specimen *Liebenberg* 3323, which he saw in 1936, but refrained from describing due to inadequate material.

18. **Hemizygia bolusii** (*N.E. Br.*) *Codd* in Bothalia 8: 159 (1964); Ross, Fl. Natal 306 (1972). Type: Natal, Giants Castle, *A. Bolus* in Herb. Guthrie 4894 (BOL!, holo.).

Orthosiphon bolusii N.E.Br. in Fl. Cap. 5,1: 258 (1910).

Stems several, erect, 25–30 cm tall arising annually from a woody perennial base, softly woody at the base, herbaceous above, sparingly branched, villous. *Leaves* petiolate; petiole 2–4 mm long; blade ovate, 2–2,5 cm long, 1,4–1,8 cm broad, brownish and appressed hispid above, paler, hispid to villous especially on the nerves and minutely gland-dotted below; apex and base obtuse to rounded; margin with a few minute teeth above the middle. *Inflorescence* simple, 10–14 cm long, lax; rhachis glandular hispid; bracts caducous, inconspicuous, ovate, 4–5×2–2,5 mm, glandular-villous; verticillasters 4–6-flowered, 2–3,5 cm apart. *Calyx* 9 mm long at anthesis, glandular-villous; upper tooth broadly ovate, rounded, 2,5 mm long, decurrent; lower 4 teeth deltoid-subulate, the lowermost pair the longest, up to 2,5 mm long. *Corolla* 14 mm long, minutely puberulous; tube 10 mm long, widening from the middle to 4–5 mm wide at the mouth; upper lip formed by the oblique mouth of the corolla with a minute lobe; lower lip concave, 4 mm long, usually deflexed. *Stamens* exserted by 10 mm, far exceeding the lower lip; upper pair attached below the middle of the tube, filaments minutely puberulous below; upper pair attached at the throat, filaments united to near the apex.

A mountain grassland species known from only one gathering at 3 000 m in the Natal Drakensberg.

NATAL.—2929 (Underberg): near Giants Castle (–BC), *A. Bolus sub Guthrie 4894* (BOL).

The habit and corolla shape suggest a relationship to *H. transvaalensis* (Schltr.) Ashby, but the leaves of the latter are acute and markedly toothed while the apex of the inflorescence is adorned by a coma of colourful bracts.

N. E. Brown, l.c., quotes this species as affording an example of the lower pair of filaments being free or united on the same plant. There are two capsules mounted on the type specimen, one marked "A, flower with filaments free" and the other "B, flower with lower pair of stamens united nearly to the apex". It must be concluded that Flower A must have been abnormal or badly squashed in pressing. There are several good flowers on the sheet and in at least six of them the lower pair of filaments are obviously united to near the apex without the need for dissecting them. More material of the species is desired for further study.

19. **Hemizygia ramosa** *Codd*, sp. nov. a *H. transvaalensis* (Schltr.)Ashby habitu ramosissimo, foliis obscure dentatis, verticillastris 2-floribus differt.

Frutex ramosissima, 1–1,2 m altus; ramuli breviter tomentosi. *Folia* breviter petiolata; petiolus 1–3 mm longus, tomentosus; lamina obovata vel oblanceolata, 15–25 mm longa, 6–11 mm lata, supra parce hispidula, subtus hispidula, glanduloso-punctata, apice rotundato, basi obtusa vel cuneata, margine praecipue supre medium obscure crenato-dentata. *Inflorescentia* plerumque basin versus parce ramosa, 10–15 cm longa; rhachis parce strigilosis; bracteae ovatae vel late ellipticae, 14–16 mm longae, 6–8 mm latae, lilacinae, subglabrae vel parce pubescentes; verticillastri 2-flori; pedicelli 2–3 mm longi. *Calyx* per anthesin 8 mm longus, parce glanduloso-hispidulus; tubus 6 mm longus; lobus posticus late ovatus, rotundatus, 2 mm longus, margine decurrenti; dentes laterales deltoideo-subulati, 1 mm longi; antici subulati, 2 mm longi. *Corolla* malvina, 25–28 mm longa, puberula; tubus 20–22 mm longus apicem versus sensim ampliatus, ore 4–5 mm lato; labium posticum 2 mm longum; anticum concavum, horizontale vel recurvum, 5 mm longum. *Stamina* 9–11 mm exserta; postica circa medium tubi corollae inserta, filamentis libris, basin versus pubescentibus; antica fauce corollae inserta, filamentis ad apicem connatis. *Stylus* 15 mm exsertus, apice breviter bilobato.

TYPE: Natal, 2732 (Ubombo), near Mkuze (–CA), *Moll 3158* (PRE, holo.).

Shrub, much branched, 1–1,2 m tall; branchlets shortly tomentose. *Leaves* shortly petiolate; petiole 1–3 mm long, tomentose; blade obovate to oblanceolate, 15–25 mm long, 6–11 mm broad, sparingly hispid above, hispid and gland-dotted below, apex rounded, base obtuse to cuneate, margin obscurely crenate-dentate mainly above the middle. *Inflorescence* usually sparingly branched towards the base, 10–15 cm long; rhachis sparingly strigilose; bracts ovate to broadly elliptical, 14–16 mm long, 6–8 mm broad, mauve-pink subglabrous to sparingly pubescent; verticillasters 2-flowered; pedicels 2–3 mm long. *Calyx* when flowering 8 mm long, sparingly glandular-hispidulous; tube 6 mm long; posticous lobe broadly ovate, rounded, 2 mm long, margin decurrent; lateral teeth deltoid-subulate, 1 mm long; anticous teeth subulate, 2 mm long. *Corolla* mauve, 25–28 mm long, puberulous; tube 20–22 mm long, widening gradually towards the apex, mouth 4–5 mm wide; posticous lip 2 mm long; anticous lip concave, horizontal or recurved, 5 mm long. *Stamens* exserted by 9–11 mm; posticous stamens attached about the middle of the corolla tube, filaments free, pubescent towards the base; anticous stamens inserted in the throat of the corolla, filaments united to the apex. *Style* exserted by 15 mm, apex shortly bilobed. FIG. 7.

Found in shallow soil among rocks in open woodland at the southern end of the Lebombo Range near Mkuze.

NATAL.—2732 (Ubombo): Lebombo Mts., near Mkuze (–CA), *Moll 3158;* Mkuze Poort (–CA), *Ward 4074.*

In the herbarium, *H. ramosa* is reminiscent of *H. transvaalensis* (Schltr.) Ashby but the two are not likely to be confused in the field because of differences in habit and ecology. *H. ramosa* is a much-branched bushy shrub growing on rocky, wooded hillsides and cliffs, while *H. transvaalensis* is adapted to grassland which is periodically burnt, with the result that it develops a woody rootstock from which several branches arise annually. There are also differences in shape, pubescence and nervation of leaves, with *H. ramosa* having leaves more obovate and less dentate than those of *H. transvaalensis.* An important difference, in addition, are the flowers produced singly in the axils of the bracts in *H. ramosa* while, in *H. transvaalensis* each bract subtends usually three flowers.

In the field *H. ramosa* would probably remind one of *Syncolostemon latidens* (N.E. Br.) Codd, thus emphasizing the close affinity of the two genera. However, the calyx of *H. ramosa* is clearly of the *Hemizygia* type, having a broad upper lobe, decurrent on the tube, with the remaining four teeth ending in subulate, almost spine-like points.

FIG. 7.—*Hemizygia ramosa* Codd (*Moll* 3158, PRE, holotype).

20. **Hemizygia transvaalensis** (*Schltr.*) *Ashby* in J. Bot. Lond. 73: 349 (1935); Letty, Wild Flow. Transv. 285, t.141, 4 (1962). Type: Transvaal, Barberton, *Galpin* 468 (PRE; SAM).

Orthosiphon transvaalensis Schltr. in J. Bot. Lond. 35: 281 (1897); N.E. Br. in Fl. Cap. 5,1: 244 (1910). *O. wilmsii* Guerke in Bot. Jahrb. 26: 79 (1898). Syntypes: Transvaal, Lydenburg, *Wilms* 1107 (BM; K; PRE); 1108. *O. muddii* N.E. Br. l.c. 245 (1910). Syntypes: Transvaal, Drakensberg, *Mudd* s.n. (K; PRE, fragment); Spitzkop, *Burtt Davy* 1570 (K).

Soft shrublet 30–100 cm tall; stems arising annually from a perennial woody rootstock, becoming woody at the base, sparingly to freely branched and broom-like (in the latter case with many small leaves), sparingly to densely hispid. *Leaves* sessile or shortly petiolate; blade stiff, on main stems ovate to broadly ovate, 15–40 mm long, 8–22 mm broad, on branched form ovate-elliptic to ovate, 12–20 mm long, 4–8 mm broad, pale greenish-brown and veins impressed above, slightly paler and reticulate below, sparingly to densely pubescent and glandular on both surfaces, especially on the nerves below; apex acute to obtuse, base obtuse to rounded; margin fairly coarsely serrate-dentate for the upper two thirds, rarely teeth obscure. *Inflorescence* 7–20 cm long, fairly lax, simple or with 1 or 2 pairs of branches near the base; rhachis glandular-hispid; bracts ovate to lanceolate, the terminal ones, persistent, pairs spaced 10–15 mm apart, pinkish-purple, 12–24×4–10 mm, subglabrous; verticillasters usually 6-flowered, 1–2 cm apart. *Calyx* 10–12 mm long at anthesis, densely glandular-hispidulous, purple; upper lip ovate, rounded, 2,5 mm long, decurrent; lower 4 teeth deltoid-subulate to bristle-like, the lowest pair the longest, up to 3 mm long. *Corolla* whitish to mauve-purple or lilac-pink, 18–22 mm long, glabrous; tube 14–17 mm long widening to 5 mm wide at the mouth; upper lip a small appendage; lower lip concave, 4–6 mm long, often deflexed. *Stamens* exserted by 7–10 mm, exceeding the lower lip of the corolla; upper pair attached about the middle of the tube, filaments pubescent in the lower two thirds; lower pair attached at the throat, filaments united nearly or to the apex. *Stigma* bifid.

Locally common at medium altitudes of 1 000 to 1 700 m in the eastern Transvaal mountains from the Mariepskop and Lydenburg areas southwards to Barberton, on grassy slopes and flats, usually among rocks.

TRANSVAAL.—2430 (Pilgrim's Rest): near Mariepskop (–DB), *Fitzsimons & Van Dam sub TRV 26256; Van der Schijff 5888;* Bourkes Luck Mine (–DB), *Galpin 14313;* Ohrigstad Nature Reserve (–DC), *Jacobsen 1468;* Lisbon Falls (–DD), *Jordaan 99;* Pilgrim's Rest (–DD), *Rogers 14373; 18251; Galpin 14553;* 18 km E. of Graskop, *Codd & de Winter 3123.* 2530 (Lydenburg): 16 km N. of Lydenburg (–AB), *Strey 4113;* near Lydenburg (–AB), *Wilms* 1107; *Young A452; Codd 539;* farm Rietfontein 1240 (–AB?), *Burtt Davy 7256;* farm Zwagershoek (–AB), *Obermeyer 328; Obermeyer & Verdoorn 32;* farm Kleinfontein (–AC), *Burger 13;* 26 km S.E. of Lydenburg (–BA), *Morris 21;* 10 km W. of Sabie (–BA), *Balsinhas & Kersberg 2139;* 11 km E. of Sabie (–BB), *Brent 114;* Crocodile River (–BC?), *Schlechter 3916;* Wonderkloof Nature Reserve (–BC), *Kluge 24; Elan-Puttick 47;* Rosehaugh (–BD), *Mogg 17571;* near Nelspruit (–BD), *Rogers sub TRV 4741; Buitendag 557;* 18 km S.E. of Sewefontein (–CD), *Codd 8112;* Godwan River (DA), *Prosser 1264;* Coetzeestroom Forestry Station (–DA), *Hardy 11;* Kaapschehoop (–DB), *Thode A1634.* 2531 (Komatipoort): Pretorius Kop (–AB), *Lang sub TRV 31557;* White River (–AC); *Thorp sub NH 29672;* near Barberton (–CC), *Galpin 468; Bolus 7604; Thorncroft sub TRV 3123; Williams sub TRV 7655; Rogers 21442; Mauve 4806.*

H. transvaalensis is related to the next two species, *H. foliosa* S. Moore and *H. thorncroftii* (N.E. Br.) Ashby, but is a more robust species, up to 1 m tall, with usually broader bracts and longer flowers (corolla tube 14–17 mm long). Depauperate specimens may be only 20 cm tall with narrow bracts and these may be confused with *H. thorncroftii* which, however, usually has narrowly elliptical leaves while the corolla tube is 8–10 mm long. *H. foliosa* tends to be decumbent, usually with large, elliptical leaves rounded at the apex, the corolla is smaller (tube about 10–12 mm long), and the verticillasters are 2-flowered.

Occasional specimens of *H. transvaalensis* branch freely and produce numerous small leaves, giving specimens a broom-like appearance. Such a specimen was described as *Orthosiphon wilmsii* Guerke. However, there are many intermediates linking it with typical *H. transvaalensis* in which branching is sparing and leaves fewer and larger. There is also a good deal of variation in leaf shape, toothing of the margin and pubescence. It grows under warmer and drier "middleveld" conditions than the majority of eastern Transvaal species and the showy bracts and flowers have led to it being cultivated with some success in Pretoria.

21. **Hemizygia foliosa** *S. Moore* in J. Bot. Lond. 43: 172 (1905); Ashby in J. Bot. Lond. 73: 348 (1935); Compton, Fl. Swaz. 67 (1966). Type: Swaziland, Mbabane, *Burtt Davy* (BM, holo.; K; PRE).

Orthosiphon foliosus (S. Moore) N.E. Br. in Fl. Cap. 5,1: 243 (1910). *O. humilis* N.E. Br., l.c. 259 (1910). Type: Transvaal, Waterval Onder, *Rogers 4375* (K, holo.; PRE).

Hemizygia humilis (N.E. Br.) Ashby, l.c. 348 (1935). Type as above.

Herbaceous stems from a perennial woody rootstock; stems 1–several, erect to decumbent 20–35 cm long, softly woody at the base, thinly to densely villous. *Leaves* sessile or very shortly petiolate; blade ovate to ovate-elliptic or elliptic, varying but usually large when mature, 2,5–7 cm long, 1,5–3,5 cm broad, concolorous, puberulous and somewhat shiny to appressed pilose, gland-dotted on both surfaces; apex obtuse to rounded, base obtuse to truncate; margin entire to somewhat distantly dentate. *Inflorescence* paniculate with 2 or 3 pairs of branches near the base or occasionally simple, lax, 10–20 cm long; rhachis glandular-hispid to villous; bracts deciduous below, usually persisting as a purplish coma at the apex, small to fairly large, ovate-lanceolate, 8–18×3–8 mm; verticillasters 2-flowered, 1–2 cm apart. *Calyx* 7–8 mm long at anthesis, glandular-hispid; upper tooth broadly ovate, 2 mm long, decurrent; lower 4 teeth shortly deltoid-subulate the lower pair the longer, up to 2 mm long. *Corolla* whitish to mauve, 12–14 mm long, puberulous on the lips; tube 9–10 mm long, widening to 4 mm at the mouth; upper lip a small appendage; lower lip concave, 3–4 mm long, often deflexed. *Stamens* exserted by 10–12 mm, well exceeding the lower lip; upper pair attached about the middle of the tube, filaments pubescent below; lower pair attached at the throat, filaments united to the apex. *Stigma* bifid.

Found in dense mountain grassland, often among rocks, at altitudes of 1 300 to 1 700 m in the south-eastern Transvaal and western Swaziland.

TRANSVAAL.—2530 (Lydenburg): Waterval Onder (–CB), *Rogers 4735;* Nelshoogte (–DD), *Prosser 1466.* 2630 (Carolina): Arnhemburg (not located), *Roberts sub TRV 15853.* 2731 (Louwsburg): 30 km W. of Pongola Settlement (–AD), *Codd 2101*

SWAZILAND.—2631 (Mbabane): near Mbabane(–AC), *Burtt Davy 2833; Bolus 12250; Compton 25241; 25271;* Usutu Forests Concession (–AC), *Codd 9507;* near Mankaiana (–CA), *Codd 4726; Sidey 1928;* Hlatikulu (–CD), *Galpin 10207.*

May be distinguished from *H. transvaalensis* and *H. thorncroftii* by the 2-flowered verticillasters and the large, ovate to ovate-elliptic, entire or distantly toothed leaves. In some specimens the leaves are only 2 cm long, but these are probably immature. There is also a good deal of variation in pubescence, from puberulous to pillose leaves. The terminal bracts also vary in size, in some specimens being less than 1 cm long, but are always purplish in colour. The type of *H. humilis* is such a specimen and the leaves are somewhat smaller than usual but the modern range of material links it with *H. foliosa.*

22. **Hemizygia thorncroftii** (*N.E. Br.*) *Ashby* in J. Bot. Lond. 73: 349 (1935); Compton, Fl. Swaz. 67 (1966). Lectotype: Transvaal, Barberton, *Thorncroft 3123* (K, lecto.).*

Orthosiphon thorncroftii N.E. Br. in Fl. Cap. 5,1: 246 (1910).

Herb 15–30 cm; stems several arising annually from a perennial woody rootstock, subglabrous to glandular-hispid. *Leaves* subsessile; blade elliptic to linear-elliptic, 15–40 mm long, 4–10 mm broad, concolorous, sparingly pubescent on both surfaces; apex obtuse to acute, base cuneate to attenuate; margin with a few small distant teeth near the apex. *Inflorescence* simple or occasionally with a pair of branches near the base, 7–20 cm long, lax; rhachis glandular-hispid; bracts deciduous below, the upper ones persisting as a purple coma, lanceolate to linear-lanceolate, 15–30×2–5 mm; verticillasters usually 6-flowered, 1–2,5 cm apart. *Calyx* 8–9 mm long at anthesis, glandular-hispid; upper tooth ovate, 3 mm long, decurrent; lower 4 teeth deltoid-subulate, the lowest pair the longest, up to 3 mm long. *Corolla* mauve, 14–16 mm long, puberulous on the lips; tube 10–12 mm long, widening to 4 mm at the mouth; upper lip a small appendage; lower lip concave, 4 mm long, often deflexed. *Stamens* exserted by 10 mm, well exceeding the lower lip; upper pair attached about the middle of the tube or just below, filaments pubescent in the lower part; lower pair attached at the throat, filaments united for their entire length. *Stigma* minutely bifid.

Found on grassy slopes at altitudes of 1 000 to 1 800 m in the Barberton District of Transvaal and in western Swaziland.

TRANSVAAL.—2531 (Komatipoort): near Barberton (–CC), *Thorncroft sub TRV 3125; Galpin 465; Codd 9791;* Lomati Valley (–CC), *Thorncroft 2015.*

SWAZILAND.—Without locality, *Stewart sub TRV 12737.* 2631 (Mbabane): near Mbabane, *Compton 25222; 26050; 26939; 28090; 29078; 30878;* near Mankaiana, *Compton 29165; Hardy 1623.*

Although resembling depauperate specimens of *H. transvaalensis, H. thorncroftii* can usually be recognized by the long-elliptical leaves and the long, narrow apical bracts, while the shorter corolla tube (10–12 mm as against 14–17 mm in *H. transvaalensis*) will be diagnostic.

Individual flowers resemble those of *H. modesta* but the latter species has 2-flowered verticillasters and lacks the colourful apical bracts of *H. thorncroftii.*

23. **Hemizygia persimilis** (*N.E. Br.*) *Ashby* in J. Bot. Lond. 73: 349 (1935). Lectotype: Transvaal, Barberton, *Thorncroft* sub TRV 3132 (K, lecto.; PRE; SAM).

Orthosiphon persimilis N.E. Br. in Fl. Cap. 5,1: 246 (1910). *O. rogersii* N.E. Br., l.c. 247 (1910). Syntypes: Nelspruit, *Rogers* sub TRV 4740 (K; PRE; SAM); Devil's Kantoor, Kaapschehoop, *Bolus* 9742.

Bushy herb 15–30 cm tall from a perennial rootstock; stems simple or branched, glandular-hispid. *Leaves* subsessile; blade lanceolate-elliptic, 15–20 mm long, 7–9 mm broad, more or less concolorous, sparingly appressed-pubescent, the surface somewhat wrinkled and dotted with brownish gland-dots; apex obtuse, base cuneate; margin entire. *Inflorescence* simple, 3–12 cm long, fairly dense; rhachis densely glandular-villous; bracts both the lower and upper persistent, the upper ovate-lanceolate to broadly ovate, 12–15×7–10 mm, whitish to rose-purple, thinly pubescent and dotted with reddish-brown gland-dots; verticillasters 2–6-flowered, 3–10 mm apart. *Calyx* 8 mm long, glandular-villous and freely gland-dotted; upper tooth ovate, rounded, decurrent; lower 4 teeth deltoid-subulate, the lower pair the longer, up to 2 mm long. *Corolla* white, drying yellow-brown, 11–12 mm long, puberulous both on the outside and within the upper lip; tube 8 mm long, not expanding towards the throat, lips spreading; upper lip formed by the abruptly spreading throat, erect, 3,5 mm long; lower lip concave, 3–4 mm long. *Stamens* shortly exserted by 1–2 mm, the upper pair sometimes scarcely exserted; upper pair attached about 1 mm from the base of the corolla tube, filaments pubescent for their entire length; lower pair attached at the throat, joined at their point of insertion or united only at the base for ca. 0,5 mm, filaments sparingly pubescent. *Stigma* clavate.

Known only from the Nelspruit–Barberton area of the eastern Transvaal where it grows in grassy places among rocks in lowveld woodland at altitudes of about 1 000 m.

* Ashby points out that, in the Transvaal Museum, No. 3125 is *H. thorncroftii* while No. 3123 is *H. transvaalensis.*

TRANSVAAL.—2530 (Lydenburg); near Nelspruit (–BD), *Rogers sub TRV 4740; Holt 300; Mauve 4942; Prosser 1489* (J); *Buitendag 166; 582* (NBG). 2531 (Komatipoort): near Barberton, *Thorncroft sub TRV 3132.*

H. persimilis shows a combination of unusual features in the genus, some of which are also found in *H. pretoriae,* a species of similar stature and ecology. For example, the narrow corolla tube expands abruptly at the mouth forming what appears to be a longish upper lip nearly equal in length to the lower lip, and the stamens are very shortly exserted (the upper pair is included in *H. pretoriae* and exserted by 1–2 mm in *H. persimilis*). In addition, *H. persimilis* differs in the upper pair of stamens being attached very near the base of the corolla (about one third up the tube in *H. pretoriae*); the lower pair of filaments may be free or united for only about 0,5 mm at the base (united for most of their length in *H. pretoriae*); the stigma is clavate (slender and shortly bifid in *H. pretoriae*); and the bracts are large and showy (small and inconspicuous in *H. pretoriae*). There are thus as many differences as there are similarities between the two species, both of which are rather aberrant members of the genus.

The fact that the filaments of the lower pair of stamens are united only at the base may be put forward as an example which breaks down the distinction between *Hemizygia* and *Orthosiphon.* However, the structure is different. In *Orthosiphon* the filaments (free to the point of attachment) continue down as distinct and separate ridges on the corolla tube; in *H. persimilis* the filaments are united at their point of attachment and continue as a single confluent ridge down the corolla-tube.

24. **Hemizygia petiolata** *Ashby* in J. Bot. Lond. 73: 355 (1935). Type: Transvaal, Soutpansberg, Tshakoma, *Obermeyer* sub TRV 31571 (PRE, holo.).

Soft shrub up to 1 m tall, branching usually from the base; stems few to many, ascending, glandular-pilose. *Leaves* petiolate; petiole 6–14 mm long; blade ovate to ovate-lanceolate, 2–5,5 cm long, 0,6–3 cm broad, dark brown and shortly glandular pubescent above, paler and canescent below, nerves distinct; apex acute to obtuse, base cuneate to obtuse; margin regularly serrate-dentate in the upper two thirds. *Inflorescence* paniculate or occasionally simple, lax, 10–30 cm long; rhachis glandular-tomentulose; bracts sometimes persisting as a purple coma, ovate, usually rather small, 5–10×3–5 mm, more often the apex of the inflorescence broken off, lower bracts early caducous; verticillasters (4–) 6-flowered, 1,5–4 cm apart. *Calyx* 5–6 mm long at anthesis, enlarging in fruit, glandular-tomentose; upper tooth ovate to subrotund, 1,5–2 mm long, decurrent; lower 4 teeth deltoid-subulate to bristle-like, up to 2 mm long. *Corolla* pale mauve to lilac, 17–20 mm long, finely pubescent; tube 13–16 mm long, narrowly cylindrical for about 8–10 mm then expanding to 3–4 mm at the mouth; upper lip a small appendage; lower lip concave, 4 mm long. *Stamens* exserted by 7–10 mm, exceeding the lower lip; upper pair attached about 3 mm from the base of the tube, filaments puberulous below; lower pair attached at the throat, filaments united for more than half their length. *Stigma* swollen, emarginate.

Restricted to north-eastern Transvaal from the Soutpansberg to near Duiwelskloof on rocky, wooded hillsides and at forest margins, at altitudes of 1 000 to 1 600 m.

TRANSVAAL.—2229 (Waterpoort): Hanglip (–DD), *Meeuse 10171;* Punch Bowl Hotel (–DD), *Codd 8331.* 2230 (Messina): Entabeni Forest Station (–CC), *Bruce & Kies 78; Codd 8394;* Sibasa (–CD), *Junod sub TRV 25470; Munro s.n.* 2329 (Pietersburg): near Louis Trichardt (–BB), *Breyer sub TRV 22727; Ihlenfeldt 2216.* 2330 (Tzaneen): Tshakoma (–AB), *Obermeyes sub TRV 31571;* Westfalia Estate (–CA), *Scheepers 387; Bor 1355;* Woodbush (–CC), *Bruce & Kies 78; Codd 9423.* 2430 (Pilgrim's Rest): The Downs (–AA), *Junod 4358.*

A strongly aromatic plant allied to the next species, *H. canescens* (Guerke) Ashby, but has more ovate leaves, longer petioles and longer corolla tube.

25. **Hemizygia canescens** (*Guerke*) *Ashby* in J. Bot. Lond. 73: 354 (1935); Compton, Fl. Swaz. 67 (1966); Ross, Fl. Natal 306 (1972). Lectotype: Transvaal, Wonderboompoort, *Rehmann* 4507 (Z, lecto.; K).

Orthosiphon canescens Guerke in Bull. Herb. Boiss. 6: 557 (1898); N.E. Br. in Fl. Cap. 5,1: 259 (1910). *O. affinis N.E.* Br., l.c. 257 (1910). Syntypes: Transvaal, Woodbush Mts., *Schlechter* 4737 (K; PRE); near Potgietersrus, *Bolus* 11146 (BOL).

Herb, probably perennial, woody and branched below, 30–60 cm tall; stems often branched, shortly greyish-tomentose, often crisped or, occasionally, sparse but not villous. *Leaves* subsessile or shortly petiolate; petiole up to 5 mm long; blade linear or linear-lanceolate to lanceolate or, rarely ovate-lanceolate, 2,5–5,5 cm long, 3–15 mm broad, concolorous, densely canescent on both surfaces to sparingly short crisped tomentulose and somewhat rugose, nerves prominent below; apex acute, base cuneate to attenuate; margin finely to fairly coarsely serrate-dentate in the upper half to two thirds. *Inflorescence* simple to freely branched, 7–25 cm long, lax; rhachis crisped-tomentulose to finely glandular-hispidulous; bracts early deciduous, small, ovate, ca. 2×1 mm; verticillasters 4–6-flowered, 1–3 cm apart. *Calyx* 5 mm long at anthesis, enlarging in fruit, glandular-tomentulose to hispidulous; upper lip ovate to subrotund, 2 mm long, decurrent; lower 4 teeth deltoid-subulate, becoming bristle-like, up to 2 mm long. *Corolla* white or pale mauve or purplish, 14–17 mm long, finely pubescent; tube 10–13 mm long, widening abruptly about 2,5 mm from the throat to 3–4 mm wide at the throat; upper lip a small appendage; lower lip concave, 3–4 mm long. *Stamens* exserted by 10 mm, well exceeding the lower lip; upper pair attached about 4 mm from the base of the tube, filaments puberulous below; lower pair attached at the throat, filaments united for most of their length. *Stigma* somewhat clavate.

Distributed in a broad band from the Mafeking District of the Cape Province, across south-western and central Transvaal to eastern Transvaal, avoiding the high mountains, extending to Swaziland and northern Zululand; among rocks in open arid to moist woodland and marginal grassland at altitudes of 300 to 1 700 m.

TRANSVAAL.—2329 (Pietersburg): Houtboschberg (–DD), *Schlechter 4737; 4797.* 2330 (Tzaneen): Hans Merensky Nature Reserve (–CC), *Gilliland 764;* 16 km S. of Tzaneen (–CC), *Bruce & Kies 77.* 2427 (Thabazimbi): between Hermanusdoorns and Elmeston (–BA), *Meeuse & Strey 10427.* 2428 (Nylstroom): Geelhoutkop (–AD), *Breyer sub TRV 17781;* Mosdene, near Naboomspruit (–DA), *Galpin M 286.* 2429 (Zebediela): Pyramid Estate near Potgietersrus (–AA), *Galpin 9067;* 9 km N.W. of Marble Hall (–CD), *Codd 10368.* 2526 (Zeerust): near Zeerust (–CA), *Jenkins sub TRV 11692.* 2527 (Rustenburg): near Rustenburg (–CA), *Collins 30; Jacobsen 836;* Silikaatsnek (–DB), *Acocks 12430.* 2528 (Pretoria): Hoorns Nek (–CA), *Verdoorn s.n.;* near Pretoria (–CA), *Leendertz sub TRV 8555; Mogg 16373; 16475;* Donkerhoek (–CB), *Repton 1311.* 2529 (Witbank): Loskopdam (–AD), *Codd 9840; Theron 1671;* Doornkop 273 (–CB), *Du Plessis 348;* Botsabelo (–CB), *Schlechter 4070.* 2530 (Lydenburg): 8 km E. of Sabie (–BB), *Eliovson sub J38580* (J); Witklip (–BD), *Kluge 434;* near Nelspruit (–BD), *Breyer sub TRV 17909; Buitendag 438* (NBG); Kaapsche Hoop (–DB), *Rogers 20823.* 2531 (Komatipoort): Plaston (–AC), *Holt 198.* 2726 (Potchefstroom): near Potchefstroom

(–CA), *Potts s.n.; Louw 699.* 2628 (Johannesburg): near Heidelberg (–AD), *Leendertz 1027; Repton 824; Story 1606;* Suikerbosrand (–CA), *Bredenkamp 762.*

SWAZILAND.—2631 (Komatipoort): Piggs Peak (–CC), *Compton 27626; 27657.* 2631 (Mbabane): Stegi, Blue Jay Ranch (–BD?), *Compton 31458.*

NATAL.—2732 (Ubombo): Pongolo Poort (–AC), *Ward 4083.*

CAPE.—2525 (Mafeking): near Mosita (–DC?), *Brueckner s.n.; 538.*

A good deal of variation in leaf shape is included in *H. canescens* from linear (3–4 mm wide), in the dry western extremity of its range in the Mafeking District, to lanceolate and ovate-lanceolate (up to 15 mm wide) in more mesophytic areas. The species is diagnosed on the basis of the short canescent, often crisped tomentum of stems and leaves though, towards the north of the range, in the Waterberg, Potgietersrus and Tzaneen Districts, the pubescence is more scanty and somewhat rougher. This form was separated as *Orthosiphon affinis* N.E. Br., but Ashby reduced it to synonymy under *H. canescens.* Although the extremes can be separated with close scrutiny under magnification, there are numerous intermediates linking them.

Supperficially *H. canescens* closely resembles *H. petrensis* but the latter may be recognized by the presence of long villous hairs on the stems, although the pubescence of the leaves is often similar. The latter is a more western species, entering the northern and eastern Transvaal lowveld, and is also very variable (see p. 19). *H. canescens* appears to be a fairly clear-cut entity with a distribution distinct from *H. petrensis* and thus it seems justified to uphold both as species. However, two specimens from the Waterberg in S.W. Africa, *Boss* sub TRV 35003 and *De Winter* 2799, have pubescence resembling *H. canescens* and this areas should be investigated further.

26. **Hemizygia linearis** (*Benth.*) *Briq.* in Bull. Herb. Boiss. ser. 2,3: 997 (1903); Ashby in J. Bot. Lond. 73: 354 (1935). Type: Matabeleland, *Oates* s.n. (K, holo.).

Orthosiphon linearis Benth. in Hook. Ic. Pl. t. 1274 (1878); Rolfe in Oates, Matabeleland ed. 2: 407 (1889); Bak. in Fl. Trop. Afr. 5: 374 (1900).

Herb, probably perennial, 30–50 cm tall, somewhat woody and branching below; stems subglabrous to sparingly villous, quadrangular and ribbed along the angles. *Leaves* sessile or subsessile; blade linear, 2–3 cm long, 2–4 (–5) mm broad, puberulous to sparingly hispid, often folded along the midrib or with margins inrolled; apex acute, base attenuate; margin finely and distantly toothed. *Inflorescence* 12–20 cm long, simple or branched near the base, lax; rhachis sparingly hispidulous; bracts early caducous, very small, ovate, 2×1 mm, verticillasters 4–6-flowered, 1,5–4 cm apart. *Calyx* 5 mm long at anthesis, hispidulous; upper tooth broadly ovate, rounded, 2 mm long, purple, decurrent; lower 4 teeth deltoid-subulate, up to 1,5 mm long, becoming bristle-like. *Corolla* mauve, often with violet stripes, 12–13 mm long, finely pubescent; tube 9–10 mm long widening abruptly about 3 mm from the throat to 3 mm wide at the throat; upper lip 1,5 mm long; lower lip concave, 3 mm long. *Stamens* exserted by 6–8 mm, exceeding the lower lip; upper pair attached about 3 mm from the base of the tube, filaments puberulous below; lower pair attached at the throat, filaments united nearly to the apex. *Stigma* somewhat clavate.

Found in open places in dry woodland in South West Africa and northern Cape Province; also in Rhodesia and Angola.

S.W.A.—1821 (Andara): Andara Mission Station (–AB), *De Winter & Marais 4789.* 2217 (Windhoek): Auas Mts. (–CA), *Strey 2571;* farm Lichtenstein (–CC), *Merxmüller & Giess 1247;* farm Rietfontein (–CD), *Strey 2564.*

CAPE.—2723 (Kuruman): Takoon (–BB), *Burtt Davy 13961.*

Diagnostic features are the linear, subglabrous leaves and the subglabrous to sparingly villous stems which have a somewhat varnished appearance. *H. petrensis* is closely related to it and, as may be expected, some specimens are difficult to allocate with certainty, but *H. petrensis* usually has a strong development of villous hairs on the stems and, to a lesser extent, on the leaves (see also below). Some specimens of *H. canescens* have linear leaves but the dense, short pubescence on stems and leaves can be used to exclude such specimens from *H. linearis.*

27. **Hemizygia petrensis** (Hiern) Ashby in J. Bot. Lond. 73: 353 (1935); Launert & Schreiber in Prodr. Fl. S.W. Afr. 123: 13 (1969). Type: Angola, *Welwitsch* 5494 (BM, holo.).

Orthosiphon petrensis Hiern, Cat. Afr. Pl. Welw. 1: 859 (1900); Bak. in Fl. Trop. Afr. 5: 524 (1900). *O. dinteri* Briq. in Bull. Herb. Boiss. ser. 2,3: 995 (1903). Type: 10 km E. of Orumbe, *Dinter* 1320. *O. varians* N.E. Br. in Fl. Cap. 5,1: 256 (1910); Ashby, l.c. 357 (1935). Type: Transvaal, Komatipoort, *Schlechter* 11746 (BOL!, holo.). *O. holubii* N.E. Br., l.c. 258 (1910). Type: Molopo River, *Holub* s.n. (K, holo.). *O. engleri* Perkins in Bot. Jahrb. 54: 344 (1917). Type: S.W. Africa, Okahandja, *Engler* 6475. *O. mossianus* Good in J. Bot. Lond. 63: 175 (1925). Type: Transvaal, Messina, *Moss & Rogers* 193 (BM, holo.; PRE).

Hemizygia mossiana (Good) Ashby, l.c. 356 (1935).

Strongly aromatic herb, annual or perennial, 20–60 cm tall, branching near the base and woody below, with a woody taproot; stems villous to densely villous with long, spreading greyish-white hairs, quadrangular and often strongly ribbed along the angles. *Leaves* subsessile or shortly petiolate; blade variable from linear-lanceolate to oblong-lanceolate or ovate-lanceolate 2–5 cm long, 5–15 mm broad, sparingly to densely pilose or canescent, often with long and short hairs intermingled; apex acute, base cuneate to attenuate; margin obscurely to distinctly and somewhat distantly toothed. *Inflorescence* 8–20 cm long, lax, simple or with a pair of branches near the base; rhachis glandular-villous; bracts caducous, small, ovate to broadly ovate, 3 mm×2 mm, pubescent; verticillasters 4–6-flowered, 1–3 cm apart. *Calyx* 4–5 mm long at anthesis, enlarging in fruit, glandular-hispid to villous; upper lip broadly ovate or subrotund, purple, 2 mm long, decurrent; lower 4 teeth deltoid-subulate, 1,5 mm long. *Corolla* pinkish to lilac or voilet, finely pubescent, 13–15 mm long; tube 9–12 mm long, widening abruptly about 3 mm from the apex to 2,5–3 mm wide at the throat; upper lip a small appendage; lower lip concave, 3–4 mm long. *Stamens* exserted by 8 mm, exceeding the lower lip; upper pair attached 2–3 mm from the base of the tube, filaments puberulous below; lower pair attached at the throat, filaments united for more than two thirds their length. *Stigma* somewhat clavate.

Recorded from northern South West Africa and northern and eastern Transvaal, among rocks, in open places and watercourses in semi-arid woodland at altitudes of 200–700 m in the Transvaal and up to 2 000 m in the Windhoek area of South West Africa. Also in Angola and Rhodesia.

S.W.A.—1917 (Tsumeb): Otavifontein (–CB), *Dinter 5305;* Guchab (–DB), *Schoenfelder 945.* 2017 (Waterberg): Waterberg Plateau (–AC), *Boss sub TRV 35003; De Winter 2799.* 2217 (Windhoek): farm Regenstein (–CA), *Giess 11675.*

TRANSVAAL.—2229 (Waterpoort): farm Greefswald (AB), *Codd & Dyer 3832; Bruce 54; Pienaar 306; 340;* Zoutpan (–CD), *Schweickerdt & Verdoorn 613.* 2230 (Messina): near Messina (–AC), *Moss & Rogers 193; Rogers 20811; 22494; Wild 7631.* 2231 (Pafuri): Makuleke's Location (–AC), *Obermeyer 656;* Baiandbai (–CC?), *Lang sub TRV 32214; 32228.* 2329 (Pietersburg): near Sand River (–BA), *Meeuse 10211.* 2330 (Tzaneen): Hans Merensky Nature Reserve (–CC), *Zambatis H2.* 2331 (Phalaborwa): Kruger National Park, Letaba Bridge (–DC), *Van der Schijff 545; 547;* The Gorge (–DD), *Van der Schijff 2331.* 2430 (Pilgrim's Rest): Harmony Block, farm Calais (–AB?), *Breyer sub TRV 25216;* 16 km N. of Abel Erasmus Pass (–BC), *Mauve 4331.* 2431 (Acornhoek): Kruger National Park, between Skukuza and Tshokwane (–DD), *Codd & De Winter 5073; Schlieben 9392.* 2531 (Komatipoort): near Komatipoort (–BD), *Schlechter 11746* (BOL); *Hilliard & Burtt 3632;* junction of Sigaas and Crocodile Rivers (–CB), *Van der Schijff 3951.*

The three species *H. canescens, H. linearis* and *H. petrensis* form a closely related group with almost identical floral characters and small, inconspicuous bracts. *H. canescens* may be dinstinguished on the basis of the dense, short and often crisped pubescence on stems and leaves and is distributed mainly on the high plateau formed by the northern Cape, south-western and central Transvaal, extending to eastern Transvaal, Swaziland and Natal. In *H. linearis*, which is the oldest name, the leaves are linear to filiform (occasionally some leaves up to 5 mm broad) and leaves and stems are subglabrous or with scattered long hairs. Its distribution is more tropical, from Rhodesia to northern South West Africa and northern Cape. It overlaps with *H. petrensis* but the combination of narrow leaves (less than 5 mm wide) and subglabrous, somewhat varnished stems, serves to identify *H. linearis.*

H. petrensis, with villous stems and with leaves rarely narrower than 5 mm, varies a good deal in leaf shape from narrowly lanceolate to ovate-lanceolate, while the pubescence of the leaves may be villous to shortly canescent, or a mixture of the two. Occasional intermediates are found, for example the two specimens from the Waterberg Plateau in S.W. Africa might be better placed in *H. canescens*, and further investigation in this area is desirable. Occasionally the stems and leaves are sparingly villous, approaching the condition of *H. linearis. Orthosiphon mossianus* was based on such a plant. Ashby, l.c., distinguished it from *H. petrensis* on the presence of petioles, but this varies as much as the degree of pubescence and leaf shape, so that *O. mossianus* and *O. varians* (ovate-lanceolate leaves) are best regarded as forms of *H. petrensis. O. holubii* is in no way distinct from typical *H. petrensis.*

The types of *O. dinteri* and *O. engleri* have not been seen. Launert & Schreiber, l.c., include them in *H. petrensis* and, judging from the descriptions, this appears to be the correct decision.

On this basis, *H. petrensis* is distributed from Angola and Rhodesia southwards to Windhoek in S.W. Africa and to the northern and eastern Transvaal lowveld, reaching as far south as Komatipoort. Superficially it resembles *H. bracteosa* which has a somewhat similar distribution in our area, but the latter species has a conspicuous coma of white to rose-purple bracts, the flowers are usually whitish, not mauve to violet as in *H. petrensis*, and the corolla is usually shorter.

28. **Hemizygia bracteosa** (*Benth.*) *Briq.* in Annu. Conserv. Jard. Bot. Genève 2: 248 (1898); Ashby in J. Bot. Lond. 73: 352 (1935); Launert & Schreiber in Prodr. Fl. S.W. Afr. 123: 12 (1969). Type: from Senegal.

Ocimum bracteosum Benth., Lab. 14 (1832); in Hook. Icon. Pl. t. 455 (1842); in DC., Prodr. 12: 41 (1848).

Orthosiphon schinzianus Briq. in Bot. Jahrb. 19: 173 (1894). Type: Amboland, *Schinz* 45 (Z, holo.; K). *O. bracteosus* (Benth.) Bak. in Fl. Trop Afr. 5: 375 (1900); N.E. Br. in Fl. Cap. 5,1: 248 (1910). *O. rhodesianus* S. Moore in J. Bot. Lond. 43: 50 (1905). Type: Rhodesia, Wankie, *Eyles* 132 (BM, holo.).

Hemizygia junodii Briq. in Annu. Conserv. Jard. Bot. Genève 2: 249 (1898). Syntypes: Mozambique, Delagoa Bay, *Junod* 61; 235. —var. *quintasii* Briq., l.c. 249 (1898). Type Mozambique, Delagoa Bay, *Quintas* s.n. *H. hoepfneri* Briq. in Bull. Herb. Boiss. ser. 2,3: 994 (1903). Type: S.W. Africa, Hereroland, *Höpfner* 85. *H. serrata* Briq., l.c. 996 (1903). Syntypes: S.W. Africa, Amboland, *Rautanen* s.n.; *Wulfhorst* 1.

Bouetia ocimoides A. Chev. in Mem. Soc. Bot. Fr. 2: No. 8d, 200 (1917). Type: from West Africa.

Herb, probably annual, 25–75 cm tall, sometimes woody and branching below, forming a soft aromatic bush; stems sparingly to densely pilose with long weak multicellular hairs. *Leaves* sessile; blade narrowly lanceolate to oblong-lanceolate 4–9 cm long, 8–24 mm broad, hispidulous and darker above, sparingly to densely canescent below; apex acute, base attenuate; margin somewhat distantly serrate-dentate. *Inflorescence* paniculate or simple, lax, 12–30 cm long; rhachis glandular-hispidulous; bracts large forming a persistent apical coma, white to rose-purple, 5–10×4–8 mm; verticillasters 4–6-flowered, 1–2,5 cm apart. *Calyx* 5 mm long at anthesis, glandular-villous, enlarging in fruit; upper lip broadly ovate to subrotund, purple, 2 mm long, decurrent; lower 4 teeth deltoid subulate, up to 2 mm long, becoming bristle-like. *Corolla* white or tinged with mauve (rarely violet), 10–11 mm long, puberulous on the lips otherwise glabrous; tube 7–8 mm long widening gradually to 2,5–3 mm at the throat; upper lip a minute appendage; lower lip concave, 3 mm long, often deflexed. *Stamens* exserted by 5–6 mm, the lower pair longer than the upper pair, exceeding the lower lip of the corolla; upper pair attached below the middle of the tube, filaments finely puberulous for half or more of their length; lower pair attached at the throat, filaments united to near the apex. *Stigma* somewhat clavate, entire.

Widespread from Senegal and Tanzania southwards to northern South West Africa, northern Botswana, Mozambique and the eastern Transvaal Lowveld. Found among rocks, in watercourses and in open sandy places in relatively dry tropical woodland.

S.W.A.—Grid uncertain: Koakoveld, *Merxmüller & Giess 1968;* Grootfontein, near Gross Huis, *Schoenfelder S 572; S 803;* Okavango, Mpungu, *Soini s.n.;* Omaheke, *Dinter 2317* (SAM). 1713 (Swartbooisdrif): 53 km N. of Ohopoho (–DA), *Giess & Leippert 7573.* 1714 (Ruacana Falls): near Ruacana (–AC), *De Winter & Giess 7097.* 1719 (Runtu): 48 km E. of Runtu (–CD), *De Winter 4053.* 1720 (Sambio): near junction of Amuramba Omatako and Okavango (–CD), *De Winter & Wiss 4141.* 1724 (Katima Mulilo): near Katima Mulilo (–AC), *Killick & Leistner 3078;* 24 km S.E. of Katima Mulilo (–CB), *Killick & Leistner 3295.* 1816 (Namutoni): 64 km S.E. of Ondangua (–AB), *De Winter & Giess 6951.* 1817 (Tsintsabis): between Tsintsabis and Kuringkuru (–DB?), *Schoenfelder S 530.* 1819 (Karakuwise); Cigarette (–DC?), *Maguire 2377.* 1821 (Andara): near Andara (–AB), *Merxmüller & Giess 1968;* near Bagoni (–BA), *De Winter & Wiss 4390.* 1917 (Tsumeb): near Tsumeb (–BA), *Dinter 1713* (SAM); *3010* (SAM); *7499;* near Otavi (–CB), *Dinter 5700; Hardy 2135.* 1918 (Grootfontein): 24 km N. of Nurugas (–BB), *Basson 19;* farm Oliewenhof (–CB), *Giess, Volk & Bleissner* 6521. 1919 (Kanovlei): 40 km S. of Kanovlei (–AD). *Giess 9819.* 1920 (Tsumkwe): (–DA), *Giess, Watt & Snyman 11072;* Aha Mts. (–DB), *Story 6388;* Guatscha Pan (–DC), *Story 6231.* 2017 (Waterberg): Waterberg Plateau (–AC), *Boss sub TRV 35002.* 2119 (Epukiro): Epukiro Reserve, 16 km E. of Abdreh (–AB?), *Giess 9779.* 2215 (Trekkopje): Gaub (–CB), *Dinter 2411* (SAM); *2433* (SAM).

BOTSWANA.—Grid uncertain: Ngamiland, *Curson 286; 557; 560; Buerger 1085;* Ngami, *Van Son sub TRV 28921;* Matsaudi, *Lambrecht 81. 1725* (Livingstone): Kasane (–CC), *Biegel & Russell 3686.* 1923 (Maun): Maun (–CD), *Lambrecht 57.* 2023 (Kwebe Hills): Kwebe Hills (–CA), *Mason & Boshoff 275.* 2125 (Lothlekane): Orapa (–AD), *Allen 98.*

TRANSVAAL.—2231 (Pafuri): 8 km N.W. of Punda Milia (–CA), *Bruce 171;* Wambia area (–CB), *Van der Schijff 2957; Schlieben 9311;* Dzundweni Hill (–CC), *Codd 4260.* 2431 (Acornhoek): Acornhoek (–CA), *Roberts sub TRV 26204;* 8 km from Newington to Bushbuck Ridge (–CD), *Buitendag 912;* Kruger National Park, Sand River (–DC), *Van der Schijff 2192.* 2531 (Komatipoort): near Shabin Kop (–AA), *Acocks 16668;* 14 km N. of Pretorius Kop (–AA), *Codd 5198;* Pretorius Kop Camp (–AB), *Van der Schijff 273;* Faai River (–AB), *Ihlenfeldt 2361.*

In habit, ecology and distribution within our area, *H. bracteosa* resembles the former species, *H. petrensis*, but may be distinguished by the conspicuous coma of large, whitish to rose-purple bracts, the usually whitish corolla which is usually shorter than the mauve to violet corolla of *H. petrensis*. The leaves are canescent as in *H. canescens* but the stems are weakly pilose, while the conspicuous bracts distinguish it from the latter species. *H. bracteosa* is remarkably uniform considering its wide distribution from Senegal and Tanzania to Southern Africa.

UITTREKSEL

'n Oorsig oor die Suid-Afrikaanse species van Hemizygia *word gegee en* 28 *species word herken, insluitende die volgende nuwe name;* H. **macrophylla** (*Guerke*) *Codd* (=Syncolostemon macrophyllus *Guerke*), H. pretoriae *Guerke var.* **heterotricha** *Codd*, H. **cinerea** *Codd*, H. **incana** *Codd*, H. **modesta** *Codd*, H. **parvifolia** *Codd*, H. **punctata** *Codd en* H. **ramosa** *Codd*

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