

ASTERACEAE

SENECIO COMPTONII AND *S. ESTERHUYSENIAE*, TWO NEW SPECIES OF *SENECIO SENS. LAT.* (SENECIONEAE) FROM THE CAPE FLORISTIC REGION

Senecio L. *sens. lat.*, with $\pm 3\ 000$ binomials, thus making it one of the largest genera of flowering plants (Nordenstam 2007), is clearly not monophyletic as presently circumscribed. Recent circumscriptions of *Senecio* treat it as a cosmopolitan genus of $\pm 1\ 250$ spp., with concentrations of species in South America and southern Africa, where some 300 taxa are known (Herman *et al.* 2000; Welman 2003). Current opinion favours a narrower circumscription of the genus (Pelser *et al.* 2007) but final resolution and formalization of a new classification requires considerable further sampling to place all species in a new generic framework. Until then it is necessary to work with a broader circumscription of the genus.

Senecio is one of the ten largest genera in the Cape Floristic Region (CFR), with over 110 species recorded from the region (Goldblatt & Manning 2000), including four unnamed taxa. Two of these, *S. speciosissimus* J.C.Manning & Goldblatt and *S. umbricola* Cron & B.Nord., have since been described (Manning & Goldblatt 2005; Cron & Nordenstam 2009) and here we describe a further two species from the CFR: *S. esterhuyensiae*, which was included in *Cape plants* as *S. sp. 1*, and *S. comptonii*, misidentified there as *S. petiolaris* DC. (Goldblatt & Manning 2000). Collections at BOL, NBG, PRE and SAM, the main herbaria with good representation of collections of Cape species, were consulted for records of the two new species (herbarium acronyms after Holmgren *et al.* 1990).

***Senecio comptonii* J.C.Manning & Goldblatt, sp. nov.**

Herba perennis subglabra usque ad 0.5 m, rhizomate brevi horizontali, caulibus simplicibus erectis infra foliaceis. Folia basaliter congesta superne in bracteis foliaceis dispersas transientia, petiolata, in axillis dense pubescentia, lamina subglabra vel trichomatibus multicellularibus effusis dispersis vestita, glauca infra purpurea, oblanceolata vel ovata vel obovata usque orbiculare, (15–)20–40 \times 12–35 mm, apice obtusa, basi cuneata vel truncata, marginibus grosse et leniter callososerratis. Capitula discoidea homogama in caule pedunculato solitaria, involucre turbinato 10–12 mm diam. ecalyculato, phyllariis 8 ad 10 oblongis 10–12 \times 2–3 mm. Flosculi numerosi flavi 12–15 mm longi corollae lobis adaxialiter papillatis in dimidio distali, ovario \pm cylindrico 10-nervoso glabro praeter trichomata duplicia ad basem, pappo in omnibus flosculis praesente, setis numerosis flosculos

\pm aequantibus uniseriatis basi connatis barbellatis persistentibus.

TYPE.—Western Cape, 3219 (Wuppertal): Kromme River, 2500' [1 500 m], (–CB), 27 September 1934, *Compton 5125* (NBG, holo.).

Herbaceous, subglabrous perennial up to 0.5 m, with short, horizontal rhizome, sometimes slightly swollen but not evidently tuberous, bearing \pm thickened, cylindrical roots 1–2 mm diam.; stems erect or shortly decumbent at base, 1.5–2.0 mm diam., simple, leafy below, pedunculate above, slightly ribbed, dying back after flowering. *Leaves* crowded basally, passing abruptly into scattered, leaf-like bracts above; foliage leaves suberect to ascending, brittle or subsucculent, subglabrous but with scattered, patent, multicellular, flagelliform hairs on margins of petioles near base and adaxially, especially along midrib, and with tufts of silky hairs in leaf axils, glaucous, purple beneath with raised midrib, petiolate; blade ovate, oblanceolate or obovate to orbicular, (15–)20–40 \times 12–35 mm, obtuse, base cuneate or truncate, margins thin-textured or slightly cartilaginous and often slightly revolute, coarsely and weakly callose-serrate with 5–10 teeth per side; petiole 15–45 mm long, weakly decurrent. *Capitula* discoid, homogamous, solitary on pedunculate stem; bracts lax, sessile, lanceolate, largest up to 20 \times 5 mm, becoming smaller acropetally, erect and stem-clasping at base, margins fimbriolate distally. *Involucre* turbinate, 10–12 mm diam., without bracteoles; phyllaries uniseriate, 8–10, oblong, 10–12 \times 2–3 mm, free to base, acute, ciliate-penicillate, inner edges with membranous, ciliate margins, with 3–7 dark red, resinous veins; receptacle \pm 3 mm diam. *Florets* numerous, yellow, 12–15 mm long; lower part of corolla cylindrical, \pm 5 mm long, expanding gradually and evenly into limb, limb obconic, \pm 5 mm long, 5-lobed; lobes triangular, \pm 1.0 \times 0.7 mm, papillate adaxially in distal half, with resinous submarginal and median veins. *Anthers* \pm 2.8 mm long including ovate apical appendage; base sagittate; filament collar balusterform. *Ovary* \pm cylindrical, 3.5–4.5 mm long, 10-ribbed, glabrous but base puberulous with short twin hairs; style terete with swollen base, branching \pm 1 mm beyond mouth of tube at base of anther appendages, exerted \pm 1 mm, branches \pm 2 mm long, margins stigmatic, apices truncate with crown of papillae and fringe of sweeping hairs. *Cypselas* unknown. *Pappus* present in

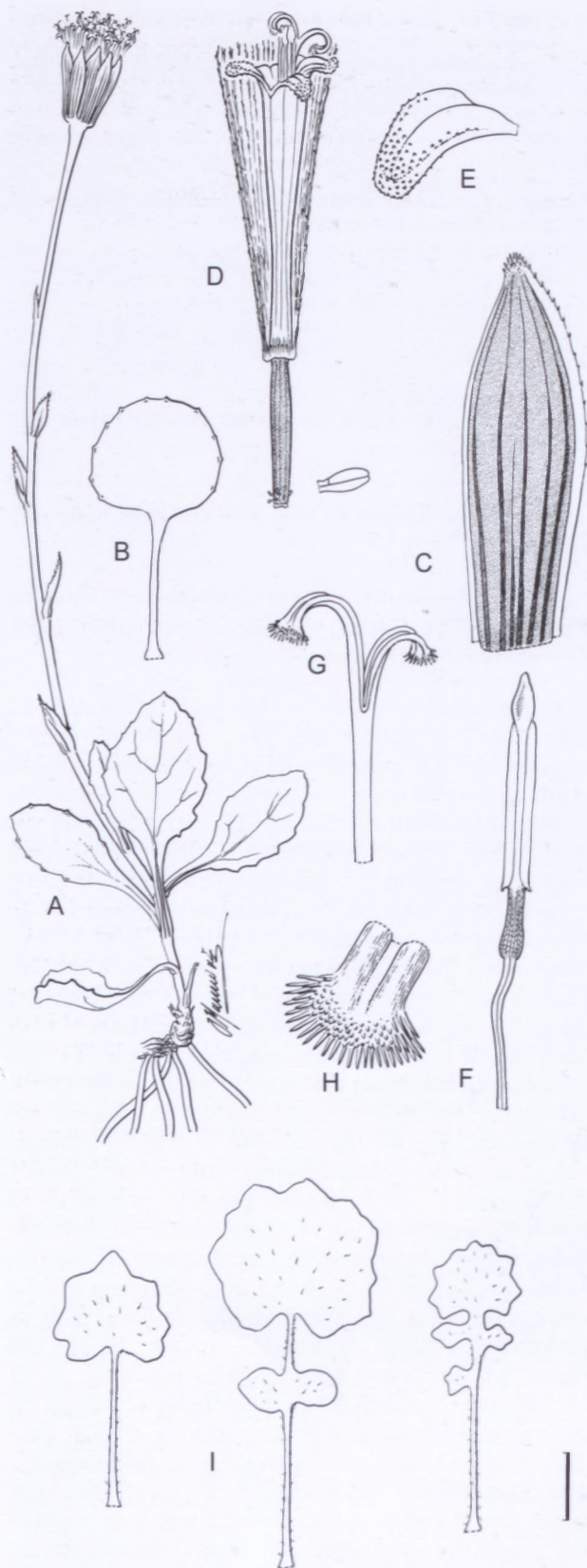


FIGURE 19.—*Senecio comptonii*. A, Compton 5125: whole plant. B–H, Compton 21141: B, leaf; C, phyllary; D, floret (pappus removed from front), including detail of twin hair (much magnified); E, detail of petal lobe; F, single stamen; G, style branches; H, detail of style branch apex. I, *Senecio incertus*: leaf variation. Scale bar: A, B, I, 10 mm; C, D, 2 mm; E–G, 1 mm; H, 0.5 mm. Artist: John Manning.

all florets, bristles uniseriate, numerous, 10–13 mm long, exceeding corolla tube and \pm as long as florets, connate basally, white, barbellate, persistent. *Flowering time*: late September to November. Figure 19.

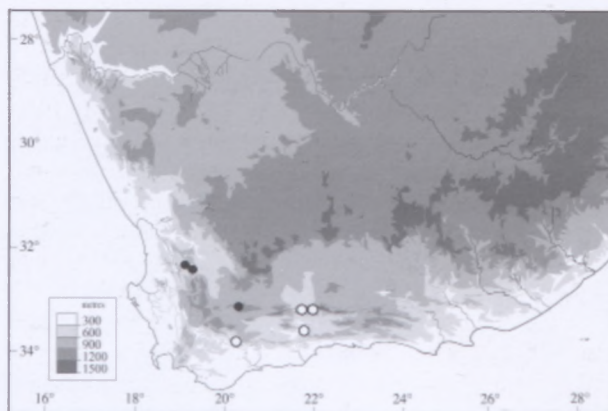


FIGURE 20.—Known distribution of *Senecio comptonii*, ●; and *S. esterhuyensiae*, ○.

Distribution and ecology: apparently restricted to the drier southwestern mountains on the inland fringes of the Cape Floristic Region, where it has been recorded from the eastern Cedarberg and the Witteberg (Figure 20).

Just three collections of *Senecio comptonii* are known. The two earlier ones were both made by R.H. Compton, Director of the National Botanical Gardens in South Africa 1919–1953, who determined them as an unnamed species of *Doria* (the genus to which discoid flowered members of *Othonna* were traditionally referred) and for whom we name the species.

Diagnosis and relationships: the perennial habit with short, rhizomatous rootstock and \pm thickened, cylindrical roots, the subsucculent, petiolate lower leaves, and the almost naked peduncles with discoid capitula suggest a close relationship with *Senecio incertus* DC. [previously known under the illegitimate homonym, *S. tuberosus* (DC.) Harv.] in *Senecio* sect. *Paucifolii* Harv. (1865) but the two species differ in several vegetative and floral respects.

Senecio incertus has more variably dissected leaves, either lyrate-pinnatisect or simple, and coarsely dentate with the margins more evidently revolute. Either the whole blade (when simple) or at least the uppermost lobe (when pinnatisect) is suborbicular-reniform and \pm cordate (Figure 19I), and the leaves, especially the lower surface, are more densely pubescent with distinctive, flagelliform hairs. The peduncles are simple or more often sparsely branched, with up to seven capitula, and the florets are white or brownish to greenish, with distinctive beaked, striate-hispidulous ovaries. The rootstock is a small, subglobose tuber from which the annual stems arise. *S. incertus* has been recorded from the Pakhuis Mountains southwards through the Cold Bokkeveld to the Riviersonderend Mountains and Swellendam, where it occurs in moist places among rocks on southerly slopes, thus favouring more mesic situations than *S. comptonii*. The capitula in *S. incertus* are strongly and pleasantly fragrant but this feature is unrecorded in *S. comptonii*. Both species have been recorded from the Cedarberg.

The molecular analysis of Pelsner *et al.* (2007) locates *Senecio oxyriifolius* DC. [initially treated in *Senecio*

sect. *Paucifolii* by Harvey (1865) but later transferred to sect. *Peltati* (Muschl.) C. Jeffrey (Jeffrey 1986)] in subtribe Senecioninae among a group of succulent, mainly African species comprising their Gynuroid clade, thus outside *Senecio s. str.* The genera *Gynura* Cass., *Kleinia* Mill. and *Solanecio* (Sch.Bip.) Walp. form a well-supported clade within this group but resolution is poor among the remaining members, which comprise primarily *Senecio* sections *Peltati*, *Kleinioidei* DC. and *Rowleyani* C. Jeffrey (Jeffrey 1986). The corolla lobes of *S. comptonii*, *S. incertus* and *S. oxyriifolius* are papillate abaxially and although the relationships of *S. comptonii* and *S. incertus* may well lie here, this requires confirmation.

Senecio sect. *Rowleyani* has been raised to generic level as the genus *Curio* P.V. Heath (Heath 1997) but relationships in the group are still too poorly resolved at present to justify this step.

Additional material seen

WESTERN CAPE.—3219 (Wuppertal): Cederberg, Gonnafontein, 900 m, (–CB), 7 October 2000, *Pond 268* (NBG). 3320 (Montagu): Witteberg, S slope, 4000' [2 500 m], (–BC), 7 November 1948, *Compton 21141* (NBG).

Senecio esterhuyseniae J.C. Manning & Goldblatt, sp. nov.

Suffrutex glaber usque ad 0.6 m, caulibus gracilibus virgatis ex caudice lignoso. Folia caulina sessilia suberecta semi-teretia ± triangularia in sectione transversali, (15–)30–40 × 1–2 mm, apiculata, coriacea. Capitula discoidea homogama, aliquot usque multa in paniculam laxe divaricatam ramis nudis filiformibus disposita, involuero turbinato 3–4 mm diam. calyculo extenso bracteolis subulatis congestis imbricatis usque ad 10 subtento, phyllariis 5 vel 6(7) oblongis 6.0–6.6 × 1–2 mm. Flosculi 7 ad 10(–12), cremei, ± 7 mm longi. Cypselae ellipsoideae ± 2.8 × 1.0 mm obscure ± 10-costatae omnino dense adpresso-pubescentes nigrae, pappo in omnibus flosculis praesente, setis numerosis uniseriatis albis barbellatis, persistentibus, 3.0–3.5 mm longis.

TYPE.—Western Cape, 3321 (Ladismith): S slopes of Swartberg below Towerkop, 3000–5000' [1 875–3 125 m], (–AC/D), 23 April 1951, *Esterhuysen 18538* (BOL. holo.; NBG, iso.).

Suffrutex up to 0.6 m, resprouting after fire, with slender, rod- or wand-like stems from woody rootstock, glabrous; stems erect or decumbent, slightly ribbed, 1–2 mm diam., green, simple below inflorescence branches, dying back to near base after flowering. *Leaves* cauline, sessile, suberect to ascending, subsecund on inclined stems, semi-terete, ± triangular in section, appearing canaliculate adaxially when dry, (15–)30–40 × 1–2 mm, lax or imbricate, apiculate, leathery, weakly decurrent, without evident veins, passing abruptly into inflorescence bracts. *Capitula* discoid, homogamous, several to many in laxly divaricate panicle with leafless, wiry branches, sometimes with smaller secondary inflorescences from axils of uppermost leaves forming ovoid or corymbose synflorescence, ultimate branchlets 5–15 mm long, erect or spreading but then sharply upcurved apically so that capitulae borne erect; bracts subulate, 1–3

mm long. *Involucre* turbinate, 3–4 mm diam., with up to 10 subulate bracteoles crowded immediately below capitula in extended, imbricating calyculus; phyllaries uniseriate, 5 or 6(7), oblong, 6.0–6.6 × 1–2 mm, free to base, acute, ciliate-penicillate, inner edges broadly membranous; margins ciliolate, green or suffused reddish apically, with three dark red, resinous veins; receptacle ± 2 mm diam. *Florets* 7–10(–12), cream-coloured, ± 7 mm long; corolla glabrous, lower part cylindrical, ± 2 mm long, expanding ± abruptly into limb, limb narrowly campanulate, ± 3.5 mm long, 5-lobed; lobes triangular, ± 1 × 0.7 mm, with resinous submarginal and median veins. *Anthers* 2.5 mm long including ovate apical appendage; base tailed; filament collar baluster-form. *Ovary* ellipsoid, 2.5 mm long, densely pubescent; style terete with swollen base, branching below mouth of tube, scarcely exerted, ± as long as anthers, branches ± 1 mm long, lateral margins stigmatic, apices truncate with crown of papillae. *Cypselas* ellipsoid, 2.8 × 1 mm, obscurely ± 10-ribbed but densely adpressed-pubescent throughout, black. *Pappus* present in all florets, bristles numerous, uniseriate, 3.0–3.5 mm long, ± reaching top of corolla tube, white, barbellate, persistent. *Flowering time*: throughout the year. Figure 21.

Distribution and ecology: restricted to the mountains fringing the western Little Karoo (Figure 20) and evidently uncommon, *Senecio esterhuyseniae* has been collected most often on the southern slopes of the Klein Swartberg near Ladismith and from the summit of the Rooiberg south of Calitzdorp but has also been recorded along the lower northern slopes of the Langeberg east of Montagu. Collector's notes on several sheets remark on the relative scarcity of the species, reporting just one or a few plants at each locality. The species appears to favour cooler, usually south-facing rocky sandstone slopes, sometimes in seasonally moist situations, and has mostly been collected in flower after fire, usually between March and September, but this may merely reflect increased collecting activity in response to such conditions. Fruiting capitula that we have examined set at most 2–4 cypselas, possibly a function of the relatively large size of the cypselas compared to the receptacle.

Diagnosis and relationships: *Senecio esterhuyseniae* is readily recognized as a re-sprouting suffrutex with needle-like leaves and slender, wand-like stems terminating in open, wiry panicles of discoid, white-flowered capitula. The capitula are turbinate, 6.0–6.5 × 3–4 mm, with only 5 or 6(7) relatively broadly oblong phyllaries, and are subtended by an extended series of imbricating bracteoles running down the branchlets for some distance below the capitula.

The relationships of *Senecio esterhuyseniae* are not clear. In its extended calyculus and discoid capitula with few phyllaries, the species bears a passing resemblance to two southwestern Cape members of Harvey's (1865) sect. *Leptolobi*, *S. bipinnatus* Less. and *S. foeniculoides* Harv., but both these species have bipinnatisect leaves and dense corymbs of yellow capitula with distinctive glabrous cypselas, quite unlike the ellipsoid, densely pubescent cypselas of *S. esterhuyseniae*. Final resolution of its position within the tribe will benefit from molecular study.

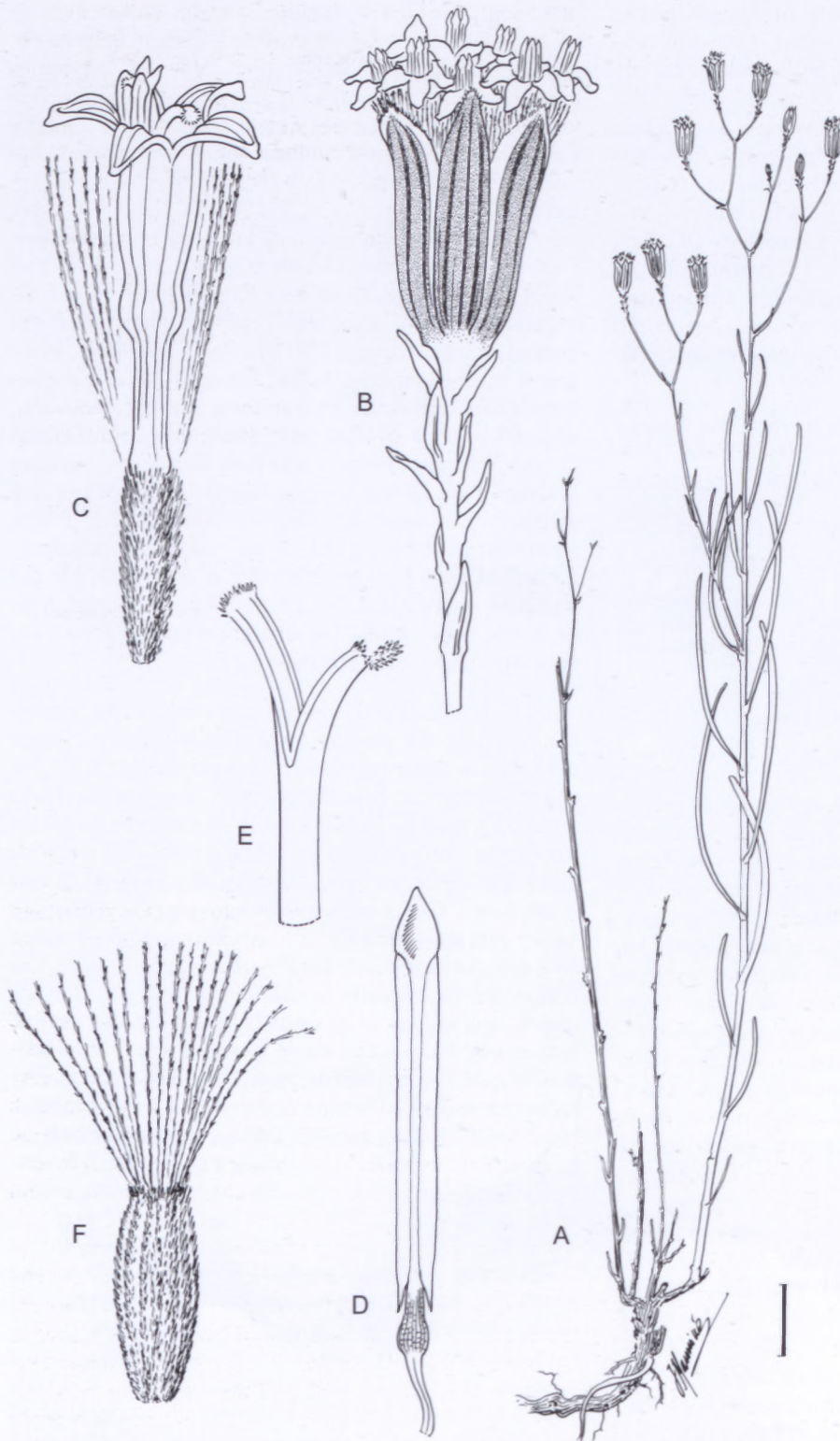


FIGURE 21.—*Senecio esterhuyseniae*. A, Esterhuysen 17513: whole plant. B–F, Helme 5440: B, capitulum; C, floret (pappus removed from front); D, single stamen; E, style branches; F, cypselum. Scale bar: A, 20 mm; B, 2 mm; C, F, 1 mm; D, E, 0.4 mm. Artist: John Manning.

Although first collected in 1937 and 1941 by Cape Town botanist Margaret Levyns, most of our knowledge of the species is due to the activities of Elsie Esterhuysen, who collected it on several occasions. Miss Esterhuysen was well aware that her collections represented a novelty, often making detailed field notes on her labels, and it is unfortunate that she did not live to see it named. It is only fitting that she is remembered in the epithet.

Other material seen

WESTERN CAPE.—3320 (Montagu): slopes at foot of Langeberg near Leeurivierberg, (–CD), 4 September 1955, *Esterhuysen* 24584

(BOL); N slopes of Langeberg between Leeurivierberg and Misty Point, 3000–4000' [1 875–2 500 m], (–CD), 1 September 1978, *Esterhuysen* 35003 (BOL); lower rocky slopes of Langeberg at Burgersvlei south of Misty Point, (–CD), 31 August 1968, *Esterhuysen* 31984 (BOL); N side of Langeberg above Rietrivier north of Leeurivierberg, (–CD), 26 April 2008, *Helme* 5440 (NBG). 3321 (Ladismith): Ladismith, on koppie, growing in another shrub, 2100' [1 312 m], (–AD), 8 July 1941, *Levyns* 7439 (BOL); Swartberg near Ladismith, (–AD), 30 May 1954, *Esterhuysen* 22927 (BOL); slopes below Towerkop, S side, \pm 5000' [3 125 m], (–AD), 30 March 1964, *Esterhuysen* 30673 (BOL, PRE); Seven Weeks Poort Berg, stony S slopes, \pm 4000' [2 500 m], (–AD), 13 April 1979, *Esterhuysen* 35202 (BOL); Rooiberg [Rooiberg], on top, (–CB), 6 July 1937, *Levyns* 6084 (BOL); S slopes of Rooiberg [Rooiberg], (–CB), 24 May 1950, *Esterhuysen* 17153 (BOL, NBG, PRE); Rooiberg, west of Bailey's Peak, \pm 4100' [2 562 m], (–CB), 17 April 1977, *Taylor* 9598 (NBG, PRE).

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