

## A NEW SPECIES AND A NEW COMBINATION IN THE AFROALPINE *SENECIO NANUS*–*S. SCHULTZII* COMPLEX (ASTERACEAE, SENECEONEAE)

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### SUMMARY

We describe the new species *Senecio balensis* and propose a new nomenclatural combination *Senecio schultzii* subsp. *chillaloense* within the afroalpine *Senecio nanus*–*S. schultzii* complex from Ethiopia. *Senecio schultzii* var. *lanatus* is assigned to this subspecies.

**Key words:** *Senecio*, Asteraceae, Senecioneae, Ethiopia, taxonomy.

### INTRODUCTION

The afroalpine species of *Senecio* L. (Asteraceae, Senecioneae) include a small group of perennial herbs endemic to Ethiopia, characterized by their small size (generally less than 30 cm tall), including *Senecio nanus* Sch.Bip. ex A. Rich., *S. schultzii* Hochst. ex A. Rich. and *S. unionis* Sch.Bip. ex A. Rich. The latter is very different from the others, in its often conspicuously pinnatifid leaves and small capitula (less than 2.5 cm wide at anthesis).

Although the typical individuals of *S. nanus* and *S. schultzii* are very different, these species are morphologically similar, and indeed it can sometimes be difficult to distinguish them.

In November 2001 we made a collection trip from Lalibela to the peak of Mt Guli Bamba in the Abune Yosef Mountains (Welo, Ethiopia), and collected material of those two species at the afroalpine level (altitude over 4000 m). When we compared this material with material from other afroalpine areas of Ethiopia, we found marked and consistent morphological differences between northern and southern populations of this species complex, located in the two Ethiopian afroalpine centres of biodiversity and endemism identified by Hedberg (1994). In view of our findings we describe the new species *Senecio balensis* and propose a new nomenclatural combination.

### MATERIAL AND METHODS

This study was based on morphological analysis of specimens from BM, ETH, K, P, and UPS (abbreviations accounting to Holmgren et al., 1990). The material was studied with the aid of a light microscope.

IDENTIFICATION KEY FOR THE *SENECIO NANUS*–*S. SCHULTZII* COMPLEX

- 1a. Plant 15–30(–60) cm high. Leaves usually hispid-pubescent, entirely green, 2–25 mm wide, generally with serrate-crenate margins. Phyllaries and achenes hairy. 3
- b. Plant 3–10 cm high. Leaves glabrous or glabrescent, purple or pink at the base, 1.2–7 mm wide, margins entire or very sparsely and indistinctly denticulate. Phyllaries and achenes glabrous . . . . . 2
- 2a. Capitula broadly cylindrical; bracts of the calyculus 4–6 mm long, situated at the base of the capitulum and not reaching the upper half of the involucre; involucre 9–11 mm wide; c. 13 (12–16) phyllaries per capitulum, 5–6(–7) mm long. Ray floret limb 5–7 mm long. Pappus 4–4.5 mm long . . . . . ***Senecio nanus***
- b. Capitula broadly obconic to campanulate; bracts of the calyculus (3–)6–12 mm long, sparsely scattered along distal portion of the peduncle, the longest reaching to the upper half of the involucre; involucre c. 21 (15–25) mm wide; 20–24 phyllaries per capitulum, (6–)10–12 mm long. Ray floret limb 6–12 mm long. Pappus 5–6 mm long . . . . . ***Senecio balensis***
- 3a. Leaves serrate, often slightly. Capitula generally obconic, ± congested, on erect peduncles; bracts of the calyculus and phyllaries with a greenish or slightly blackish apex, acute to acuminate. Ray floret limb 6–12 mm long, light yellow . . . . . ***S. schultzii* subsp. *schultzii***
- b. Leaves serrate-crenate, often conspicuously. Capitula campanulate to hemispheric, lax, on erect-patent peduncles; bracts of the calyculus and phyllaries with a conspicuous blackish apex, subacute to obtuse. Ray floret limb 12–16 mm long, dark yellow to orange . . . . . 4
- 4a. Leaves, stems and phyllaries sparsely to densely pubescent. . . . . ***S. schultzii* subsp. *chillaloense* var. *chillaloense***
- b. Leaves, stems and phyllaries thinly to densely white tomentose to woolly . . . . . ***S. schultzii* subsp. *chillaloense* var. *lanatus***

***Senecio balensis*** S. Ortiz & Vivero, *spec. nov.* — Fig. 1

A *Senecio nanus* Sch. Bip. ex A. Rich., simili, capitulis late obconicis, calyculi bracteis longioribus ((3–)6–12 mm longis, ita ut nonnumquam 1/2 involucri superetur ab eis), involucre latiore (15–25 mm lato), involucri bracteis numerosioribus (20–24) atque longioribus ((6–)10–12 mm longis), radiatis floribus longioribus (6–12 mm longis) pappisque item longioribus (5–6 mm longis) differt. — Typus: *Sue Edwards 71* (holo ETH; iso K), Ethiopia, Bale, south of Bale plateau, lava flow, steep valleys with very large boulders and flat areas on top with little soil, 3930 m alt., 6 Nov. 1971.

Perennial herb, 3–10 cm tall, caespitose, rhizomatous with thick rootstock, almost entirely glabrous. Leaves 30–110 by 1.2–2.5(–4) mm, basal, greenish, glabrous to glabrescent, slightly fleshy, linear, somewhat broader at the base where they are sub-amplexicaul and tinged with purple, margins entire or very sparsely and indistinctly denticulate, apex rounded. Capitula radiate, solitary, terminal, peduncle 3–10 mm long, arising from leaf rosette, with bracts similar to the leaves but shorter and with a more acute apex, especially those situated near the capitulum. Calyculus of linear-lanceolate bracts (3–)6–12 by 0.7–1.5 mm, sparsely distributed along the apical part of the peduncle and reaching the upper half of the involucre, glabrous or woolly at the base,

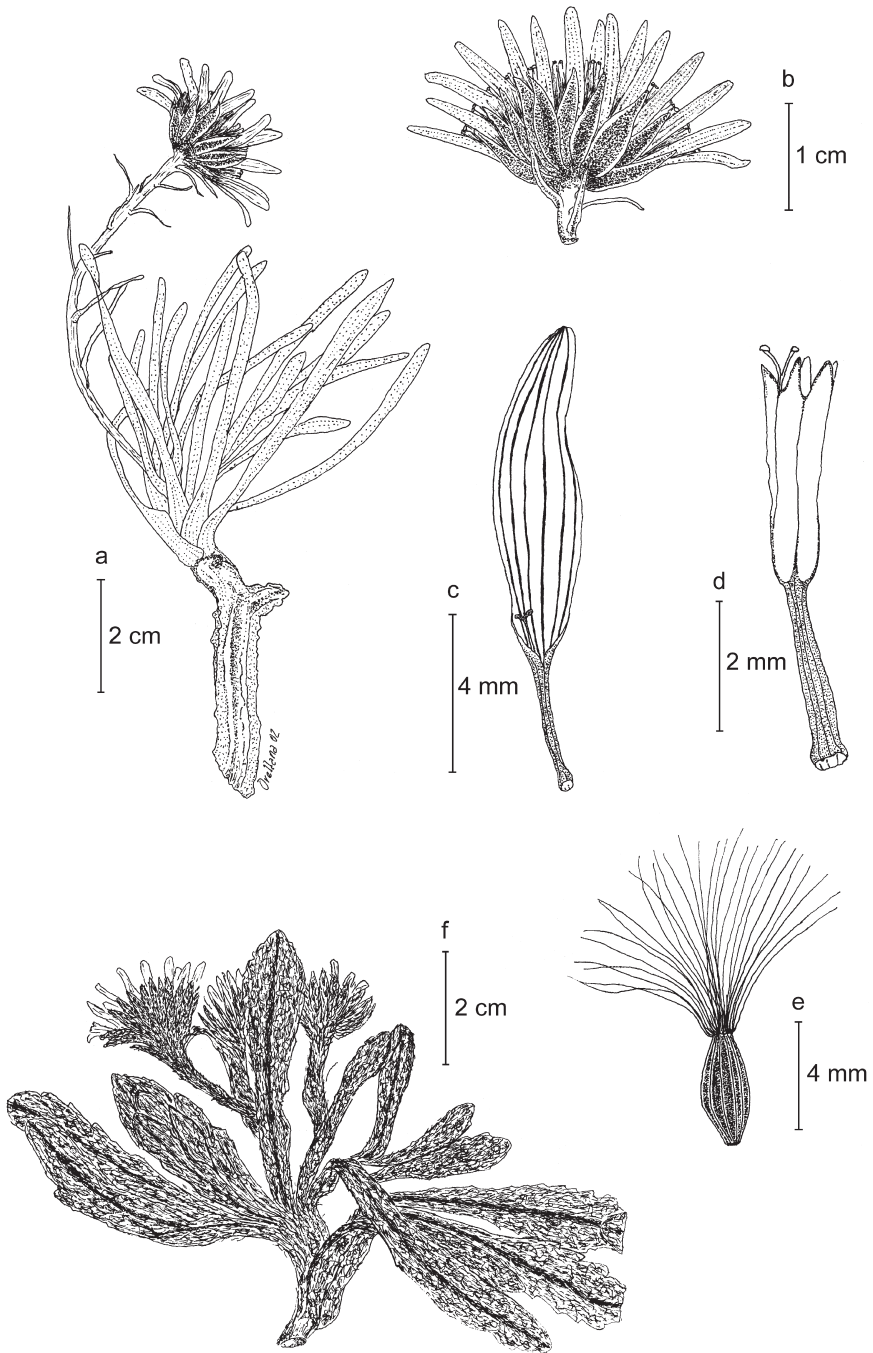


Fig. 1. a–e: *Senecio balensis* S. Ortiz & Vivero. a. Habit; b. capitulum; c. ray floret; d. disc floret; e. achene with pappus (Evans & Hiller 332 (ETH)). — f: *Senecio schultzii* subsp. *chillaloensis* var. *lanatus* Otieno & Mesfin. Habit (G. & S. Miehe 87). Drawn by Luis G. Orellana.

apex often ciliolate and often blackish, rarely with marginal glandular hairs. Involucre (8–)10–12(–15) by 15–25 mm, broadly obconic, with 20–24 phyllaries. Phyllaries (6–)10–12 by 0.8–2(–3) mm, linear-lanceolate, acute, green, glabrous, apex ciliolate and often blackish. Ray florets yellow, tube 3–4 by 0.5 mm, limb 6–12 by 1.5–3 mm, 4 or 5 striate, apex 2- or 3-fid. Disc florets yellow, tube c. 5 by 0.5–1 mm, apical lobes 0.5–1 mm. Cypselae 2–3 by 0.3–0.5 mm, ellipsoid to cylindrical, c. 10-ribbed, glabrous. Pappus of almost smooth to very slightly scabrid bristles, 5–6 mm long.

Note — *Senecio balensis* can be distinguished from *S. nanus* by calyculus, involucre, flower and pappus morphology. It occurs in afroalpine areas in central and southern Ethiopia, in the provinces of Gojam and Bale, while *S. nanus* occurs in the northern provinces of Gonder and Welo.

Additional specimens examined:

ETHIOPIA. **Bale**: Bale Mountains National Park, on the crest of Garba Goracha camp-site, 6° 51'–7° 10' N, 39° 41'–48' E, 4100 m alt., along a shallow lakelet, 2 Nov. 1973, *O. Hedberg 5639* (ETH); Wasama, Tullu, Hadj Ahmad, 6° 55' N, 39° 46' E, 3980 m alt., afroalpine *Festuca–Pentstemon* grasslands on shallow and seasonally waterlogged soils, 7 Jan. 1990, *G. & S. Miede 595* (ETH). **Gojam**: Choké Mts, upper Godeb valley, below Mt Birham, 12750 ft alt., wet rock platform, 28 Aug. 1957, *Evans & Hiller 332* (BM, ETH, K).

***Senecio schultzii*** Hochst. ex A. Rich. subsp. ***chillaloensis*** (Cufod. ex Hedberg)

S. Ortiz & Vivero, *comb. & stat nov.*

Basionym: *Senecio chillaloensis* Cufod. ex Hedberg (1971) 119. — Type: *O. Hedberg 4214* (holo UPS; iso AA, EA), Ethiopia, Arsi, Chillalo Awraja, Galama Mt, about 3 km E of Boraluco, 3750 m alt., 8 Sept. 1967.

This taxon can be distinguished from the type subspecies, *S. schultzii* subsp. *schultzii*, by several characters, as indicated in the key. Subsp. *schultzii* occurs in afroalpine territories of north and central Ethiopia, whereas subsp. *chillaloensis* occurs largely in central and southern territories. Hedberg (1971) describes these latter populations as a distinct species, which he attributes to Cufodontis. However, some populations in the southern part of the northern province of Gonder show intermediate characters between subsp. *chillaloensis* and subsp. *schultzii* (*Schimper 1531*, *Thomerson 579*). Intermediate morphology is also observed in certain populations in Bale province (*Mesfin Tadesse 7836*). We therefore consider the rank of subspecies to be more appropriate for the southern populations.

***Senecio schultzii*** Hochst. ex A. Rich. subsp. ***chillaloensis*** (Cufod. ex Hedberg)

S. Ortiz & Vivero var. ***lanatus*** Otieno & Mesfin

*Senecio schultzii* Hochst. ex A. Rich. subsp. *chillaloensis* (Cufod. ex Hedberg) S. Ortiz & Vivero var. *lanatus* Otieno & Mesfin in Tadesse (1999) 30. — Type: *Mooney 8332* (holo ETH; iso K), Ethiopia, Bale, Batu, 17 Dec. 1959.

This variety is characterized by its thinly to densely white tomentose to woolly leaves, stems and phyllaries, and is only known from afroalpine meadows in the Bale Mountains at altitudes between 3900 and 4375 m (Tadesse, 1999). This variety should be subordinated to subsp. *chillaloensis* since it has conspicuously serrate-crenate leaves, together with lax, campanulate capitula on erect-patent peduncles, and ray-florets longer than 12 mm.

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#### IDENTIFICATION LIST

- sch = *S. schultzii* Hochst. ex A. Rich. subsp. *schultzii* var. *schultzii*  
lan = *S. schultzii* Hochst. ex A. Rich. subsp. *schultzii* var. *lanatus* Otieno & Mesfin
- Evans & Hiller 556: sch.  
Friis, Gilbert & Vollesen 3424: sch.  
Hedberg 5534b: sch.  
Miehe, G. & S. 87: lan; 89: sch; 90: sch.  
Pavlov & Petelin 192: sch.  
Schimper 1524: sch; 1531: sch — Scott 138: sch.  
Thomerson 579: sch — Thulin 1666: sch.