

On the identity of the Andean species *Senecio bonplandianus* ($\equiv$ *Cacalia cinerarioides*)

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Abstract

ON THE IDENTITY OF THE ANDEAN SPECIES *SENECIO BONPLANDIANUS* ($\equiv$ *CACALIA CINERARIOIDES*).— *Senecio bonplandianus* has been misinterpreted or overlooked for a long time probably due to the uncertainty of the provenance of the type material indicated in the protologue. Herein, this name is taxonomically clarified and treated as the priority name for the entity hitherto known as *S. minesinus*, which is placed in synonymy. New insights are also provided about the putative origin of the type material.

Key words: Andes; Asteraceae; Bonpland & Humboldt; Ecuador; Peru; South America.

Resumen

SOBRE LA IDENTIDAD DE LA ESPECIE ANDINA *SENECIO BONPLANDIANUS* ($\equiv$ *CACALIA CINERARIOIDES*).— La especie *Senecio bonplandianus* ha sido malinterpretada o desatendida durante mucho tiempo probablemente debido a la incertidumbre acerca de la procedencia del material tipo indicado en el protólogo. Se clarifica aquí su taxonomía y se trata como el nombre prioritario para la entidad conocida hasta la fecha como *S. minesinus*, nombre que se trata como sinónimo. Se proporcionan también nuevos datos para ayudar a comprender el posible origen del material tipo.

Palabras clave: Andes; Asteraceae; Bonpland y Humboldt; Ecuador; Perú; Sudamérica.

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The species *Cacalia cinerarioides* Kunth (Compositae, Senecioneae) was described based on material collected by Bonpland and Humboldt during their voyage across the northern Andes that took place in 1801–1802 (Sandwith, 1926). Regarding the provenance of the original material, the protologue reads “Crescit in Regno Quitensi?”, which indicates the uncertainty of its origin. This probably contributed to the fact that this name was misinterpreted or overlooked for a long time.

Candolle (1838) transferred the species to the genus *Senecio* L., under the replacement name *S. bonplandianus* DC. because of the existence of the earlier *S. cinerarioides* Kunth, which was published in 1818. Weddell (1856) pointed out its resemblance to *S. sabulosus* DC. [= *S. lingulatus* (Schltdl.) Cuatrec.; see Calvo & Freire, 2016] from Ecuador and southern Colombia, although he indicated that *S. bonplandianus* is a leafier plant with involucre having a greater number of bracts, and these more lanate. Furthermore, these species are easily distinguished by the style branch apex (penicillate in *S. lingulatus* vs. truncate with a crown of sweeping trichomes in *S. bonplandianus*).

In more recent times, Nordenstam (1999) placed *Senecio bonplandianus* in synonymy of *Aetheolaena senecioides* (Kunth) B. Nord. [= *Senecio senecioides* (Kunth) Kuntze], and this criterion has been adopted by JSTOR Global Plants website [<https://plants.jstor.org>]. This latter species, however, is a scandent-flexuous shrub a few meters long with middle cauline leaves petiolate (becoming semiamplexicaul up the stem) bearing large dentate auricles at the base, and florets with penicillate style branches; it is endemic to Ecuador (Calvo, 2016) and morphologically distant to *S. bonplandianus*.

After a detailed study of the type material at P (the acronyms of the herbaria are according Index Herbariorum, <http://sweetgum.nybg.org/science/ih/>) (P00320215; Fig. 1), I can ascertain that *Senecio bonplandianus* is an erect, leafy shrub; leaves are sessile, linear-oblong, with subentire or shallowly and distantly dentate margins, slightly revolute, lanate on both faces (usually floccose on adaxial surface); the synflorescence is terminal, corymbiform, composed of 5–10 capitula, somewhat crowded; capitula are discoid, slightly nodding, with ca. 21 involucral bracts, dorsally lanate, and supplementary bracts $\frac{1}{2}$ to $\frac{3}{4}$ as long as the involucral bracts (barely visible due to the indumentum); florets are

very numerous (ca. 100–120) with anthers auriculate at base; achenes are glabrous, 7–8-ribbed. All such characters perfectly match those of *S. minesinus* Cuatrec., a species distributed through central and northern Peru. According to the collections examined, this species seems to be frequent around Hualgayoc [e.g. *Aedo* 16540 (Fig. 2), *Mostacedo & al.* 1500, *Smith & Vásquez* 3505, *Soukup & Carmona* H980, *Weberbauer* 3988; see “Additional specimens examined” for information of each collection], a village on the road to Cajamarca (city). This locality was visited by Bonpland and Humboldt (August 1802; see Sandwith, 1926), and it might be the origin of the type material of *S. bonplandianus*. Indeed, several other species were described from this locality on the basis of Bonpland and Humboldt’s specimens (e.g. *Calceolaria sibthorpioides* Kunth, *Gardoquia argentea* Kunth, *Gnaphalium incanum* Kunth, *Senecio recurvatus* Kunth).

Thus far, *Senecio bonplandianus* has not been mentioned for the Peruvian flora (Dillon & Hensold, 1993; Vision & Dillon, 1996), most probably because of the presumed Ecuadorian provenance of the type material indicated in the protologue. However, the species belongs to a complex assembly of taxa centered in Peru, the taxonomy of which requires to be thoroughly revised. Some of those species are: *S. cajamarquillensis* Cabrera, *S. crassilodix* Cuatrec., *S. featherstonei* Cuatrec., *S. huaguilicus* Cabrera & Zardini, *S. octophyllus* Sch. Bip. ex Rusby, *S. pavonii* (Wedd.) Cuatrec., *S. sulnicus* Cabrera (all with discoid capitula), *S. hohenackeri* Sch. Bip., *S. sublutescens* Cuatrec., *S. saxipunae* Cuatrec., and *S. scrobicarioides* DC. (with radiate capitula, the latter two displaying short ray florets). Among the aforementioned discoid species, *S. bonplandianus* is very similar to *S. sulnicus*, a species with leaves broadly elliptic, 8–12 mm wide (vs. linear-oblong, 5–6 mm wide in *S. bonplandianus*). In fact, the isotype of *S. minesinus* (here synonymized with *S. bonplandianus*) at F herbarium (F0076949!) contains three fragments, the one on the right hand showing certain leaf variability and capitula very similar to those of *S. sulnicus*. This latter species was described from Sulín (next to Chiquián, SE Ancash), a locality about 35 km apart from the locotype of *S. minesinus*, which strengthens the hypothesis that it might also fall within the variability of *S. bonplandianus*; additional studies should be



Figure 1. Holotype of *Cacalia cinerarioides* Kunth (P00320215) [© Collection du MNHN-Paris].



Figure 2. Specimen of *Senecio bonplandianus* DC. collected nearby Hualgayoc, Cajamarca (Aedo 16540, MA-794899) [© MA; collection scanned by the Conservatoire et Jardin botaniques de Genève].

addressed to elucidate this issue. Another similar species is *S. featherstonei*, from which *S. bonplandianus* mainly differs in being a more robust plant with longer leaves and larger capitula. It also bears resemblance to *S. humboldtianus* DC. from central-northern Ecuador, a species currently accepted as *Monticalia angustifolia* (Kunth) B. Nord. [= *Cacalia angustifolia* Kunth, = *Culcitium rosmarinifolium* Benth.]. They have a similar habit, plant indumentum, capitulum type, not-penicillate style branches, and anthers auriculate at base, but the Ecuadorian species differs in having more linear leaves with strongly revolute margins. Candolle (1838) assumed this morphological similarity when placing both species consecutively in his *Prodromus*. The current treatment of these species in two different genera is a matter to be clarified, but remains beyond the scope of this note.

Furthermore and according to the herbarium determinations, *Senecio bonplandianus* has been misidentified with *S. scrobicarioides* (e.g. Boeke 1090, Smith & al. 10798), but this is a plant with radiate capitula that was collected by the Bohemian botanist Haenke most probably in Peru, though in an undetermined place. Apart from the type material, I did not study any specimen with the same characters.

It is also noteworthy that the specimen *Weberbauer* 3988 mentioned above was identified “in sched.” as *Senecio bonplandianus* by Cabrera (dated 1959), which agrees with the taxonomic survey presented here. Likewise, there is another specimen kept at B identified as such in Schultz Bipontinus’ hand, i.e. B-W 15072-01 0 [fragment at P (P00705050!)]. This specimen also has a blue label handwritten by Willdenow with the name “*Cacalia lavandulifolia*”, which appears to be a *nomen nudum*. No insight exists about the origin of this material, neither a link relating it with Bonpland and Humboldt.

Senecio bonplandianus is therefore treated here as the priority name for the taxonomic entity thus far known under the later name *S. minesinus*, and their synonymy is accordingly proposed.

Senecio bonplandianus DC., Prodr. 6: 421. 1838, replacement name ≡ *Cacalia cinerarioides* Kunth, Nov. Gen. Sp. (folio ed.) 4: 125. 1818, non *S. cinerarioides* Kunth, Nov. Gen. Sp. (folio ed.) 4: 144. 1818.

Ind. loc.: “Crescit in Regno Quitensi?”.

Holotype: [Peru], [1802], *A. J. A. Bonpland* & *F. W. H. A. Humboldt* s.n. (P00320215!).

= *Senecio minesinus* Cuatrec., Fieldiana, Bot. 27(2): 69. 1951, **syn. nov.**

Ind. loc.: “Peru: San Carlos Mines, Est. 6 miles west of Huallanca 9000 ft. *Macbride* & *Featherstone* 2470 (US)”.

Holotype: Peru, Ancash, San Carlos Mines, Est. 6 miles west of Huallanca [Contaycocha before Huanzala, 9° 52' 06" S, 76° 59' 16" W; according to Ministerio de Fomento (1907)], 2745 m [it should be ca. 3900 m], 30.IX.1922, *J. F. Macbride* & *W. Featherstone* 2470 (US00123434 image!; isotype: F0076949 image!).

Distribution and habitat: Peru (Amazonas, Ancash, Cajamarca, Huánuco, La Libertad [expected], Lambayeque, Lima [expected], Pasco). It grows in wet grassy slopes and rocky outcrops at elevations of 3150–4600 m.

Additional specimens examined: Peru, Amazonas: Chachapoyas, 29–30 km above Leimebamba at km 401 on the road to Balsas, 16.X.1964, *P. C. Hutchison* & *J. K. Wright* 7000 (US); Chachapoyas, summit of Cerros de Calla-Calla, between Leimebamba-Balsas road pass and the camino de herradura (2 hours walk south), 8.VII.1962, *J. J. Wurdack* 1213 (US); Chachapoyas, slopes and summit of Cerros de Calla-Calla, near kms 403–407 of Balsas-Leimebamba road, 18.VIII.1962, *J. J. Wurdack* 1694 (US). Ancash: Cordillera Blanca, Parque Nacional Huascarán, regione Huaraz, 13/14.X.1976, *L. Bernardi*, *A. Charpin* & *F. Jacquemoud* 16572 (G, US); Cordillera Negra, regione Huaraz, ditio-ne Callán, 16.X.1976, *L. Bernardi*, *A. Charpin* & *F. Jacquemoud* 16643 (G, US); Huaraz, Huascarán National Park, quebrada Llaca, NW side of valley, 9° 27' S, 77° 27' W, 24.V.1985, *D. N. Smith*, *R. Valencia* & *A. Gonzales* 10798 (US). Cajamarca: pr. cerro Yanahuanga, 6° 51' S, 78° 36' W, 17.VI.2009, *C. Aedo* 16540 (MA, USM n.v.); km 37–40, Cajamarca-Chota road, 7° 02' S, 78° 35' W, 13.II.1988, *A. Gentry*, *C. Díaz* & *C. Blaney* 61579 (US); Hualgayoc, jalca de Hualgayoc, 12.XI.1986, *J. Mostacero et al.* 1500 (US); Contumazá, jalca del Pozo Kuan, 27.VI.1983, *A. Sagástegui*, *E. Alvitez* & *J. Mostacero* 10777 (US); Hualgayoc Prov., Cajamarca-Bambamarca road, pass above Hualgayoc, 6° 47' S, 78° 36' W, 17.II.1983, *D. N. Smith* & *R. Vásquez* 3505 (US); Hualgayoc, 29.VI.1968, *J. Soukup* & *Carmona* H980 (US); Hualgayoc, pass

Coimolache, s.d., *A. Weberbauer* 3988 (G). Huánuco: 15 miles NE of Huánuco, 12/22.VI.1922, *J. F. Macbride & W. Featherstone* 2169 (US; paratype of *Senecio minesinus*). Lambayeque: Ferreñafe, Incahuasi, laguna Tembladera, 11.IX.1985, *A. Sagástegui et al.* 12804 (US). Pasco: Huallay near mining camp, 4.III.1977, *J. D. Boeke* 1090 (US).

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