On the identity of the Andean species *Senecio bonplandianus* (≡ *Cacalia cinerarioides*)

JOEL CALVO

Conservatoire et Jardin botaniques de Genève, ch. de l’Impératrice 1, C.P. 71, CH-1292 Chambésy, Switzerland

**ORCID iD.** J. CALVO: https://orcid.org/0000-0003-2340-7666

E-mail: joel.calvo@ville-ge.ch

Editor: N. Ibáñez

Received 2 February 2022; accepted 4 March 2022; published on line 13 May 2022

**Abstract**

On the identity of the Andean species *Senecio bonplandianus* (≡ *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* (≡ *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.

**Cómo citar este artículo / Citation**


**Copyright**

© 2022 CSIC. This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International (CC BY 4.0) License.
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. lingularus* (Schltldl.) Cuatrec.; see Calvo & Freire, 2016] from Ecuador and southern Colombia, although he indicated that *S. bonplandianus* is a leafier plant with involucres having a greater number of bracts, and these more lanate. Furthermore, these species are easily distinguished by the style branch apex (pennicillate in *S. lingularus* vs. truncate with a crown of sweeping trichomes in *S. bonplandianus*).

In more recent times, Nordenstam (1999) placed *Senecio bonplandianus* in synonymy of *Aetheolea na senecioides* (Kunth) B. Nord. [= *Senecio senecioides* (Kunth) Kunz], 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 sweeping trichomes in *S. bonplandianus*.

After a detailed study of the type material at P (the synonyms 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 involuclar bracts, dorsally lanate, and supplementary bracts ½ to ¾ as long as the involuclar 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 inca num* 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. huagulicus* Cabrera & Zardini, *S. octophyllus* Sch. Bip. ex Rusby, *S. pavonii* (Wedd.) Cuatrec., *S. sulinicus* Cabrera (all with discoid capitula), *S. hohenackeri* Sch. Bip., *S. subtutescens* 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. sulinicus*, 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. sulinicus*. 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
On the identity of *Senecio bonplandianus*

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

*Collectanea Botanica* vol. 41 (enero-diciembre 2022), e004, ISSN-L: 0010-0730, https://doi.org/10.3989/collectbot.2022.v41.004
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, = *Cuccittium rosmarinifolium* Benth.). They have a similar habit, plant indumentum, capitulum type, not-pecilicate style branches, and anthers auriculate at base, but the Ecuadorian species differs in having more linear leaves with strongly revolute margins. Can-dolle (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 mis-identified with *S. scrobicaroidei* (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 Weaber-bauer 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 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.


**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 Huallancas 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.


Collectanea Botanica vol. 41 (enero-diciembre 2022), e004, ISSN-L: 0010-0730, https://doi.org/10.3989/collectbot.2022.v41.004

ACKNOWLEDGEMENTS

I am grateful to the curators and staff of the herbaria mentioned in the text, especially to P herbarium (MNHN-Paris) for facilitating my visit to the collection in 2021, and to MA herbarium (Real Jardín Botánico de Madrid) for the loan of Senecio specimens from the Andes. Thanks are extended to the reviewers for their insightful comments. The image of the holotype of Cacalia cinerarioides Kunth is courtesy of MNHN-Paris.

REFERENCES