



Typification of names and nomenclatural notes on the South Andean and Patagonian species of *Polygala* Linnaeus (Polygalaceae)

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Abstract

As part of an ongoing revision of the genus *Polygala*, several names of the South Andean and Patagonian species in need of nomenclatural and taxonomic study were identified. 13 lectotypes have been designated for accepted names, synonyms and a dubious taxon.

Keywords: *Polygala*, lectotypes, nomenclature, Andes, Argentina, Chile, Bolivia, Patagonia

Introduction

Polygala Linnaeus (1753: 701), the most diverse genus of the Polygalaceae, includes ca 590 species in a worldwide distribution, except for the Arctic, Antarctica and New Zealand, with most species (ca 350) concentrated in the Old World (Pastore, pers. comm.).

They range in habit from annual or perennial herbs to scandent shrubs and are characterized by zygomorphic flowers, with a distinctly irregular calyx that is persistent in fruit (except for *Polygala* subgenus *Chodatia* Paiva), winged internal sepals, a trimerous corolla, with the two lateral and the abaxial petals carinated and crested, inclosing 8 stamens. The ovary is glabrous (occasionally ciliated) and the fruit a bilocular capsule, with seeds that are glabrous or with short hairs and usually with an apical caruncle (Eriksen & Persson 2007).

Most of the Andean and Patagonian species of *Polygala* were placed by Chodat in section *Polygala* subsection *Australes* Chodat (1893: 294, 1896: 334) that largely corresponds in the most recent treatment of Bernardi (2000) to *Polygala* section *Clinclinia* DC (1824: 327). Almost all species of *Polygala* section *Clinclinia* are distributed in an almost uninterrupted continuous strip along the Andes, reaching elevations of 4,800 m, from southwestern Bolivia and northern Chile to Tierra del Fuego in Argentina. The section is easily distinguished by straight or geniculated styles, capsules with a membranaceous margin, and biappendiculate seeds. It should be pointed out, however, that a few species growing in the same area, i.e. *P. argentinensis* Chodat (1893: 271), *P. boliviensis* A.W.Benn. (1879: 171), *P. darwiniana* A.W.Benn. (1879: 203), and *P. duarteana* A. St. -Hil. & Moq. (1828a: 51, 1828b: 369), do not belong to this section. The studies on taxa of this section are limited to an old revision of Argentinean species by Grondona (1948), the checklists for the Southern Cone (Freire & Pastore 2008) and Bolivia (Freire-Fierro 2015), and a partial revision of the subgenus *Polygala* section *Clinclinia* DC. (Bernardi 2000).

The main objective of our contribution was to lectotypify some of the names of the South Andean and Patagonian species of *Polygala*.

Materials and Methods

Relevant literature, including all pertinent protologues, was reviewed. Herbarium specimens from BKL, BM, BR, CM, CORD, E, F, G, GH, GOET, HAL, HBG, K, LL, LP, M, MO, NY, P, S, SGO, SI, and US (acronyms according to Thiers 2018) were studied. Digitalized specimens of virtual herbaria of interest available online from JSTOR Global Plants (<https://plants.jstor.org>) and the Berlin Negatives available online from The Field Museum website (http://emuweb.fieldmuseum.org/botany/search_berlin.php) were also examined. Taxonomic Literature II website (<http://www.sil.si.edu/DigitalCollections/tl-2/index.cfm>) was searched for species authors and collectors. The correct names are indicated in italic bold face, with synonyms in italic. The International Code of Nomenclature for algae, fungi, and plants (Turland *et al.*, 2017) was followed for lectotypifications.

Taxonomic treatment

1. *Acanthocladus tehuelchum* Spegazzini (1897: 496) \equiv *Polygala tehuelchum* (Speg.) Speg. (1899:174)

Lectotype (designated here):—ARGENTINA. Santa Cruz. *C. Spegazzinis.n.* (LPS-12572 in LP 005449!)

Accepted name:—*Polygala darwiniana* Bennett (1879: 203) (synonymization by Grondona 1948: 327)

Protologue citation:—“Vulgatus in glareosis secus Rio Santa Cruz et Rio Chico anno 1882 (C. S.) et prope San Julian, anno 1894 et Golfo San Jorge, anno 1896 (C. A.)”.

Notes:—When describing *Polygala tehuelchum*, Spegazzini (1899:174) cites three specimens: one collected by Spegazzini himself at Santa Cruz in 1882 (LP 005449 and LP 005453) and two collected by Carlos Ameghino at Golfo San Jorge in 1896 and Puerto San Julián in 1894. The LP 005452 specimen bears two contradictory labels on the same sheet: one inscribed “*Hab. San Jorge C. Ameghino 1896*” and the other as “*San Julián. C. Ameghino 1894*”. The LP 005449 specimen was selected as a lectotype of this name as it agrees with the original diagnosis, is a complete specimen, and its assignation to Carlos Spegazzini in the year 1882 was verified.

Distribution:—The species is found growing in the Magallanes and the Chilean Antarctica region, in the Ultima Esperanza province and in the Patagonian plateau of Argentina, from Neuquén and Río Negro to Santa Cruz.

2. *Polygala argentinensis* Chodat (1893: 271)

Lectotype (designated here):—ARGENTINA. Catamarca: Alto de la Toma Granadilla, *F. Schickendantz 265* (CORD 00003040!).

Protologue citation:—“Habitat in Argentinae prov. Catamarca, Schickendantz 265, Alto de la Toma Granadilla 265, Lomas más arriba de Yacutula 80 (v. in Hb. Hieronymi).”

Notes:—In the protologue of the species Chodat (1893) mentioned two syntypes collected by Schickendantz in Catamarca, Alto de la Toma Granadilla (N° 265), and in Lomas más arriba de Yacutula (N° 80). Housed at B, they were destroyed during World War II (R. Vogt, pers. comm.; F Photo F 0BN013000!). The CORD 00003040 specimen, an isosytype of *Schickendantz 265*, is here designated as a lectotype of *P. argentinensis*. This specimen agrees with the protologue description, has the original label in Schickendantz’s hand, and was identified by Chodat.

Distribution:—The species, endemic to northwestern Argentina, is found growing in the provinces of Catamarca, Jujuy, La Rioja, Salta, and Tucumán.

3. *Polygala boliviensis* Bennett (1879: 171)

Lectotype (designated here):—BOLIVIA. La Paz: Prov. Larecaja, viciniis Sorata, Moyabaya 2650 m., *G. Mandon 838* (BM 000947307!; islectotypes BM 001014847!, BR 0000005418701!, F 0067459F!, F 0067458F!, G 00440350!, G 00440554!, GH 00025993!, K 000006002!, NY 00435709!, NY 00435710!, NY 00435711!, NY 00435712!, NY 00435713!, NY 00841998!, P 00733387!, P 00733388!, P 00733389!, S 08-18489!, US 00108908!, W 0068499!).

Protologue citation:—“In graminosis Prov. Larecaja, Andinum Boliviensium, Mandon, 838”

Notes:—In describing the species, Bennet wrote: “*The herbaria at my disposal, besides those at Kew and the British Museum, have been those belonging to the Berlin, Vienna, Munich, and Brussels Collections, and that of M. Warming. Dr. J. Miller of Geneva has also kindly identified for me some of the species described in De Candolle’s ‘Prodromus.’*” (Bennett 1879: 138). He did not, however, mention the housing location of the holotype collection. A total of 21 sheets of Gilbert Mandon’s collection 838 were examined at BM, BR, F, G, GH, K, NY, P, S, US, and W. The BM 000947307 specimen is here designated as a lectotype of the species, as it bears the label “*Polygala boliviensis*

n. sp. Determined by A. W. Bennet”, is a complete specimen, and fully agrees with the protologue description. The original annotations on the K 000006002 specimen in Bennet’s hand (“*P. gracilis sed diversa, ? sp. Nov. Polygala boliviensis A.W. Benn. in Jour. Bot. 1879 p. 171.*”) indicate that the identification as *P. boliviensis* was made after the 1879 publication of his study, leaving unclear whether the Kew specimen had been used in the description of the species.

Distribution:—The species is found growing in dry valleys of the Andes, from Venezuela and Colombia to northwestern Argentina, in its provinces of Jujuy, Salta, and Tucumán.

4. *Polygala chloroneura* Grisebach (1874:75)

Lectotype (designated here):—ARGENTINA. Tucumán: Auf Alpenweiden bei d. Ciénega, 25-31/3/1872, *P.G. Lorentz 117*, (GOET 008777!; isolectotypes CORD 00005935!, K 000590963!)

Accepted name:—*Polygala subandina* Philippi (1864: 17) (synonymization by Bernardi 2000: 96)

Protologue citation:—“Tucuman, in pascuis alpinis pr. Cienega”.

Notes:—We designate the GOET 008777 specimen as a lectotype of this name as it corresponds to the protologue description, it bears a label that reads: “*Prov. Tucumán. Auf Alpenweiden bei d. Ciénega*”, and is a complete specimen.

5. *Polygala cordobensis* Bennett (1895: 109)

Lectotype (designated here):—ARGENTINA: Córdoba. [Dpto: Sobremonte]. Ad viam inter Cerro Pértico et Cerro Molleyaco (Cuesta de la Yerba Buena). *F. Kurtz 6737* (K 000590960!; isolectotypes CORD 00003047!, CORD 00003048!, CORD 00003049!)

Accepted name:—*Polygala subandina* Philippi (1864: 17) (synonymization by Bernardi 2000: 96)

Protologue citation:—“Kurtz, N° 6737. Roadside between Cerro Pertigo and Cerro Molleyaco, Córdoba”.

Notes:—Bennett (1895: 109) published this name using Federico Kurtz’s collection from Córdoba. Three of the sheets of that collection are deposited at CORD and one at K. We designate the K 000590960 specimen as a lectotype of *P. cordobensis* as it matches the protologue.

6. *Polygala grisea* Bennett (1895: 109)

Lectotype (designated here):—ARGENTINA: Mendoza. Crucesita, 10 leguas al sur de Mendoza , en la primer cadena de la Cordillera. 18-XI-1885, *F. Kurtz 3645* (K 000590961!; isolectotype CORD 00003050!)

Accepted name:—*Polygala subandina* Philippi (1864: 17) (synonymization by Bernardi 2000: 96)

Protologue citation:—“Kurtz, N° 3645; 10 leguas al Sur de Mendoza en la catena de la Cordillera”

Notes:—We designate the K 000590961 specimen as a lectotype of *P. grisea*, as it fully matches the protologue description and is a complete specimen; the CORD 00003050 specimen is designated as an isolectotype.

7. *Polygala mendocina* Philippi (1870: 162)

Lectotype (designated here):—ARGENTINA. [Mendoza]. Inter Mendoza et Santa Rosa. *F. Philippi 148* (SGO 000002977!; isolectotypes P 00733504!, GOET 009611!)

Accepted name:—*Polygala subandina* Philippi (1864: 17) (synonymization by Bernardi 2000: 96)

Protologue citation:—“Vecindad de Mendoza”.

Notes:—Describing the species, Rodolfo Amando Phillippi (1870: 162) mentioned that it was collected in the vicinity of Mendoza. We here designate the SGO 000002977 specimen, collected by Phillipi’s son, Federico Phillipi, between 1868 and 1869, and inscribed “*Inter Mendoza et Santa Rosa*”, as a lectotype as it matches the protologue description.

8. *Polygala persistens* Bennett (1879: 170)

Lectotype (designated here):—CHILE. Sandy places in the E side of the Andes. *T. Bridges 1132* (K 000590902!; isolectotypes G [Herb Barbey-Boissier], E 00327074!)

Protologue citation:—“Chile; Bridges, 1132”.

Notes:—Bennett (1879: 170) specified the type material of *P. persistens* in the protologue but did not supply the specific collection location of the holotype, mentioning only “*Chile*”. We here designate the K 000590902 specimen as a lectotype, since it is a complete specimen that agrees with the protologue description and bears an annotation in Bennett’s hand of the name of the species.

Distribution:—The species is endemic to the province of Mendoza in Argentina and the Maule region of Chile.

9. *Polygala sabuletorum* Skottsberg (1916: 255)

Lectotype (designated here):—ARGENTINA. Santa Cruz. Lago Buenos Aires. *C. Skottsberg 644* (S-R-10257!)

Protologue citation:—“Andines Patagonien: sandige Steppe im Fenix-Tal, Treibsandfelder zw. Rio Fenix und Lago Buenos Aires (Bl. 2, 10.-11. 12. 08); sandige Flussbarranca des Rio de los Antiguos, s. vom Lago Buenos Aires (Bl. 2, 13. 12. 08)”.

Notes:—Carl Skottsberg collected this specimen during the Swedish Magellanic expedition of 1907-09 (Skottsberg, 1911), a scientific expedition whose main purpose was to study the geography, geology, and flora of Patagonia. Describing the species, Skottsberg (1916: 255) cited two syntypes, of which the S-R-10257 specimen is designated here as the lectotype as it fully matches the protologue description and was collected by Skottsberg himself on 11 December 1908 in “*Patagonia andina, sanddyner vid Lago Buenos Aires*”. The syntype from Río de los Antiguos has not been located.

Distribution:—Found growing in canyons of the Chubut and Santa Cruz provinces of Argentina.

10. *Polygala salasiana* Gay (1845: 237)

Lectotype (designated here):—CHILE. [VI Región]. Provincia de Colchagua. Talcalegue (Cajón del Azufre) *C. Gay 200* (P 00733548!; isolectotypes G [Herb. De Candolle], G [Herb. Delessert], P 00733549!, P 00733550!, GH 00027004!, SGO 000002986!, K 000590883!)

Protologue citation:—“Esta especie se cria en las grietas de los peñascos de las cordilleras de Talcalegue, y especialmente en el Cajon del Azufre en una altura de 8240 piés”.

Notes:—Gay wrote in his travel notes (Barros Arana 1876: 49) that on March 20th 1831, before reaching the foot of the Tinguiririca Volcano, he collected two species of *Polygala*. One of these collections is the P 00733548 specimen, bearing a label that reads: “*Provincia Colchagua, Polygala andicola. In fissuris andinis. Talcalegue (Cajón del Azufre). T. basaltique. Rarissima. (Chili.)*”. Its collection number is 200 and it consists of two sheets. We designated the sheet P 00733548 as a lectotype as it is the most complete specimen, has a label matching the diagnosis, and agrees with the protologue description. Three duplicates of this collection were also examined: a specimen at GH, without a collection number, stamped “*Donné par le Museum d’Histoire Naturelle de Paris*”, and annotated “*cordillera de Talcalegue Cajon del Azufre 8240 feet*”; K 000590883 specimen, donated by the National Museum of Natural History, Paris, on a sheet that includes some other material of *P. salasiana*; a specimen at SGO bearing a label that reads: “*Prov Colchagua. Polygala. In fissuris ... andinum. Talcalegue Febr 1831*” and written in the same hand as that of 200, later crossed out and replaced by the number 1064 written in a different hand.

Distribution:—This is the most austral species of *Polygala*, found growing in the Andes of Chile and Argentina, from Mendoza to Tierra del Fuego.

11. *Polygala solieri* Gay (1845: 238)

Lectotype (designated here):—CHILE. [III Región]. Provincia de Copiapó. *C. Gay s.n.* (P 00733554!)

Protologue citation:—“Se cria en los cerros de la provincia de Copiapó”.

Notes:—The P 00733554 specimen collected by Gay at Copiapó is here designated as a lectotype, as it is a complete robust specimen fully corresponding to the original description and is inscribed “*Polygala solierii Copiapo*” in Gay’s hand and labelled “*Herb. MUS. PARIS. HERBIER du CHILI AUSTRAL envoyé par M. GAY (3me. envoi.)*”. This specimen was likely collected on a trip to northern Chile during the extremely dry period in 1831 (Barros Arana, 1876: 67).

Distribution:—Endemic to the Atacama Region of Chile.

12. *Polygala subandina* Philippi (1864: 17)

Lectotype (designated here):—CHILE: Provincia de Santiago. Cajón del Arrayan. *Oct 1859, R. A. Philippi s.n.* (SGO 000002987!; isolectotypes SGO 000002988!, G 00440415!, G 00440414!)

Protologue citation:—“Ad radicem Andium prov. Santiago inveni”.

Notes:—There are four specimens of *Polygala subandina* collected by Philippi that we considered for typification. Of these, we designate SGO 000002987 as lectotype, since it fully matches the protologue and is the most complete one.

Distribution:—This is a widely distributed species: in the provinces of Jujuy, Salta, Tucumán, Catamarca, Santiago del Estero, Córdoba, San Luis, Mendoza, La Pampa, Neuquén, Río Negro, and western Buenos Aires of Argentina; in Chile it is found growing from Santiago to Valdivia; in Bolivia in the departments of Tarija and Chuquisaca.

13. *Polygala parvula* Philippi (1892: 496) Dubious taxon.

Lectotype (designated here):—CHILE: Valdivia, San Juan, Palo Coposo, Jan. 1882, *R. Philippi s.n.* (SGO 000002980!)

Protologue citation:—“In collibus aridis provinciae Valdivia habitat, rara, nec non in Araucania”.

Notes:—We selected the SGO 000002980 specimen as a lectotype of *P. parvula*, as it is a complete specimen, agreeing with the protologue and labelled “*Polygala parvula* Ph. San Juan, Palo Coposo Jan. 1882” in Philippi’s hand. The locality Palo Coposo belongs to Philippi’s property, San Juan at the old province of Valdivia, Chile which is the type locality. The specimen with the herbarium reference number SGO 000002979, is a syntype of the name.

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