

**(0001–0003) Proposals to reject the names *Tutuca*, *T. chilensis*, and *T. fistulosa* (*Poaceae*)**

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(0001) *Tutuca* Molina, Sag. Stor. Nat. Chili, ed. 2: 135, 288. 1810 [*Gram.*], nom. utique rej. prop.

Typus: non designatus.

(0002) *Tutuca chilensis* Molina, Sag. Stor. Nat. Chili, ed. 2: 135. 1810 [*Angiosp.: Gram.*], nom. utique rej. prop.

Typus: non designatus.

(0003) *Tutuca fistulosa* Molina, Sag. Stor. Nat. Chili, ed. 2: 288. 1810 [*Angiosp.: Gram.*], nom. utique rej. prop.

Typus: non designatus.

As articulated in Hershkovitz (in [www.ecoevorxiv.org/wgaf3](http://www.ecoevorxiv.org/wgaf3): 48–50. 2020), the taxonomic identity of *Tutuca* Molina (Sag. Stor. Nat. Chili, ed. 2: 135, 288. 1810) and its single but evidently twice-named species (first in a “Vegetabili del Chili” section and differently in a floristic synthesis in the same work; see below) has remained unresolved for more than two centuries. Hershkovitz (l.c. 2020) concluded that the generic name pertains to *Chusquea* Kunth (in *J. Phys. Chim. Hist. Nat. Arts* 95: 151. Aug 1822 (& *Syn. Pl.* 1: 254. 9 Dec 1822) (*Poaceae-Bambusoideae*), and that both of the species names pertain to *Chusquea culeou* É. Desv. (in *Gay, Fl. Chil.* 6: 450. 1853). Rodolfo Philippi (in *Bot. Zeitung (Berlin)* 22, Beil. 1: 8. 1864) first surmised this identity but later (in *Anales Univ. Chile.* 1867) rejected it.

Another suggested identity was *Calandrinia pilosiuscula* DC. (*Montiaceae*) (Philippi, l.c. 1867 [as *C. compressa* Schrad. ex DC.]; Hershkovitz in *Phytoneuron* 2019-27: 49. 2019 [as *C. compressa*]). This was based on the identity of “*Tutuca*

Feuillée” (J. Obs. 3: 65, t. 41. 1725), not, of course, validly published being pre-1753 (Art.13.1(a) of the ICN; Turland & al. in Regnum Veg. 159. 2018). Feuillée’s description and illustration unequivocally pertain to an annual calandrinia, possibly *C. pilosiuscula* (Hershkovitz, l.c. 2020). Molina (l.c.: 288) erroneously attributed the name *T. fistulosa* (with typographical error “V.” for “T.”) to Feuillée and most, but not all, of his two treatments (l.c.: 135 & 288) clearly derive from Feuillée’s (l.c.) corresponding description. But there are significant discrepancies as noted by Philippi (l.c. 1867) and Hershkovitz (l.c. 2020) (see below). Hooker & Arnott (Bot. Beechey Voy.: 24. 1830; in Bot. Misc. 3: 335. 1833) listed “*Tutuca* Feuill.” in the synonymy of *Calandrinia pilosiuscula* DC. This was copied by Federico Philippi (Cat. Pl. Vasc. Chil.: 86. 1881; in Anales Univ. Chile, I, Mem. Ci. Lit. 59: 129. 1881) and Reiche (Fl. Chile 2: 347. 1898; in Anales Univ. Chile, I, Mem. Ci. Lit. 100: 351. 1898).

*Tutuca* also has been classified in *Ericaceae* (Dalla Torre & Harms, Gen. Siphon. 9: 910. 1907; Willis, Dict. Fl. Pl.: 666. 1919), to which the genus is referred also in current taxonomic databases (GBIF Secretariat, GBIF Backbone Taxonomy, Checklist dataset. 2017, <https://doi.org/10.15468/39omei>; International Plant Names Index. 2012. [www.ipni.org](http://www.ipni.org); Plants of the World Online. <http://www.plantsoftheworldonline.org>; World Flora Online. <http://www.worldfloraonline.org> [all accessed May 2020]). This placement evidently stems from Molina’s annotation “post *Kalmiam*” to “*Tutuca gen nov.*” (Molina, l.c.: 288) in his “Flora selecta Regni Chilensis juxta Systema Linneanum” (Molina, l.c.: 277–301). However, Molina placed *Tutuca* in the *Decandria Monogynia* of Linnaeus (Sp. Pl.: 373–397. 1753), in which *Kalmia* is included, and so no modern taxonomic significance can be afforded to this annotation.

Gunckel (in Not. Mens. Mus. Nac. Hist. Nat. 42: 3–11. 1972; republished/reformatted in Chloris Chil. 10(1). July 2007) referred *Tutuca* to “*Senecio fistulosa* (Molina) Poeppig ex Lessing” (*Asteraceae*). This is bizarre, because this combination does not exist, Lessing (in Linnaea 6: 246. 1831) made no reference to *Tutuca* or Molina, and nothing in Molina’s (l.c.) protologue or, for that matter, Feuillée’s (l.c.) description (much less illustration) of “*Tutuca* Feuillée” remotely suggests *Asteraceae*. Gunckel may have surmised this identity on the basis of the epithet ‘*fistulosa*’ shared with another Chilean species, but the explanation is inconsequential to the present proposal.

*Calandrinia* Kunth (in Humboldt & al., Nov. Gen. Sp. 6, ed. fol.: 62. 1823) had appeared to be the best supported affiliation, since Molina cited Feuillée's work and adopted his taxon name and much of its description. This led Hershkovitz (l.c. 2019) to list formally *Tutuca* as a synonym of *Calandrinia*. This was an error, in part because *Tutuca* is the older name. Regardless, an early draft of Hershkovitz (l.c. 2020) was poised to propose to typify Molina's *Tutuca* species names with Feuillée's (l.c.: t. 41) illustration of an annual calandrinia. But re-examination of the question (motivated by comments from J. McNeill, written comm., 24 May 2020) led Hershkovitz (l.c. 2020) to conclude that Molina had seen Feuillée's (l.c.) text but not his illustration. This, in turn, shed new light on the discrepancies between the descriptions of Feuillée and Molina. Logically, anything in Molina's description but absent in Feuillée's must have been based on Molina's own observations. The principal discrepancy, as emphasized by Philippi (l.c. 1867), was that Molina described *Tutuca* not as a small annual herb, but as an evidently woody plant with hollow stems used locally to make musical wind instruments. The only candidate plant in southern Chile is *Chusquea culeou* and, not coincidentally, the instrument is known in the indigenous language as "tutuca" or "trutruca" (Finot & al. in Grillo & Venora, Dynam. Processes Biodivers. Case Stud. Evol. Spatial Distrib.: 85. 2011; Perez de Arce in Rev. Music. Chilena 40: 74. 1986). Why Feuillée chose this name for an annual calandrinia is not clear.

However, the partial correspondence between the Molina's description with *Chusquea culeou* does not explain Molina's attribution of the name *Tutuca* to Feuillée, or his co-opting of Feuillée's description, which pertains to *Calandrinia* and not *Chusquea*. This Hershkovitz (l.c. 2020) explained in terms of the phenology of *Chusquea culeou*, which flowers about every 62 years (Guerreiro & Vega. in Ann. Missouri Bot. Gard. 104: 235. 2019). Hershkovitz calculated that Molina would not have been able to study the reproductive morphology of *Chusquea culeou*. Having seen neither this nor Feuillée's illustration, he would have had no reason to doubt that *Tutuca* Molina and "*Tutuca* Feuillée," from the same region, were not the same plant. Hence, he co-opted Feuillée's description of the reproductive morphology – of an annual calandrinia – to describe a sterile bamboo. Molina would have seen the leaves of *Tutuca* Molina, and he described these as alternate, linear, and amplexicaul. Fortuitously but

unfortunately, this corresponds reasonably well to the stem leaves of annual calandrinias, as described by Feuillée (l.c.).

I consider definitive and unequivocal the taxonomic identity of *Tutuca* Molina as *Chusquea culeou*. However, this creates nomenclatural inconvenience, because, neotypified, *Tutuca* would have nomenclatural priority over *Chusquea* and, likewise, either *T. chilensis* or *T. fistulosa* over *Chusquea culeou*. Priority of *Tutuca* would have applied as well in the case of the newer name *Calandrinia*.

*Chusquea* is the largest genus of bamboos, and the name has been applied relatively uncontroversially for two centuries (Finot & al., l.c.). Likewise, the name *Chusquea culeou* has been applied stably to this common and well-known Patagonian bamboo (Guerreiro & Vega, l.c.). Molina's names do not appear to have been applied ever by anyone other than Molina. Moreover, with the exception of Philippi (l.c. 1864) and Hershkovitz (l.c. 2020), no other references to these names associated them with *Chusquea*. Molina's three validly published names retain historical significance, but I cannot imagine a more clear-cut case for their formal and outright nomenclatural rejection.

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