

Lectotypification and correct author citation of *Ipheion uniflorum* (Amaryllidaceae), with a new synonym

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The type of the generic name *Ipheion* Rafinesque is *Milla uniflora* Graham but the same specific epithet had been used in *Triteleia* by Lindley a few years earlier for the same species with a different type. Confusion ensued concerning the correct author citation for the species under *Ipheion*. A taxonomic history of the name *Ipheion uniflorum* (Graham) Raf., a new synonym for this species, and a lectotype for *Milla uniflora* are presented herein.

Introduction

Ipheion uniflorum (Graham) Raf. (Amaryllidaceae, Allioideae) is a widely known, distinctive species, endemic to the Pampean Region in the province of Buenos Aires (Argentina), and Uruguay (Guaglianone 1972). The species has been cultivated as an ornamental since 1832 (Stearn 1943) with numerous reports of its commercialization in Europe, Africa and Australia (Turrill 1952, Guaglianone 1972, Castillo 1986, Hurrell 2009), but it is also a weed on almost all continents (see e.g., Hewson 1987, Hickman 1993).

Since its original description, the species has been placed in various genera with varying citations of its authorship.

Taxonomic history of the name *Ipheion uniflorum*

The first valid combination for *Ipheion uni-*

florum was made under the original description of the genus *Ipheion* by Rafinesque (1836). Rafinesque transferred *Milla uniflora* Graham to *Ipheion*, a name that had been based on material collected by J.J. Tweedie; may be, in ignorance of the species described by Lindley as *Triteleia uniflora* based on material from “Mendoza”, and collected in 1825 by Gillies (Stearn 1943).

Baker (1871) did not recognize *Ipheion* as a genus and treated *I. uniflorum* with another 23 species under *Milla*, mentioning *Triteleia uniflora* Lindl. as a synonym along with *Milla bonariensis* Gillies *ined.* Engler (1887) treated *Triteleia uniflora* as part of *Brodiaea* sect. *Triteleia*, also mentioning it as an ornamental. Green (1890) thought that *Triteleia uniflora* was similar to *Leucocoryne* (a Chilean genus) and made the combination *Leucocoryne uniflora* (Lindl.) Green. Herter (1943) transferred the species to *Beauverdia* as *B. uniflora* (Lindl.) Herter. On the other hand, Stearn (1943) resurrected *Ipheion*, and cited *I. uniflorum* (Graham) Raf. According

to Merrill (1948) many of Rafinesque's legitimately published new names had been overlooked and he argued that there were no reasons for ignoring *Ipheion*; therefore he accepted Stearn's decision. Traub and Moldenke (1955) placed 23 species with uni- and multi-flowered inflorescences in the genus *Ipheion*, as *I. uniflorum* (Lindl.) Raf. Later Traub (1963) considering *Tristagma* and *Ipheion* taxonomic synonyms, and based on the priority rule, transferred all the species to *Tristagma*, including *I. uniflorum* as a synonym of *Tristagma uniflora* (Lindl.) Traub. Guaglianone (1972) redefined the genus *Ipheion* and accepted *I. uniflorum* (Lindl.) Raf.

Although Rafinesque did not consider the species described by Lindley, since Traub and Moldenke (1955) several authors cited the authorship of the name similarly to Rafinesque. Lauener and Paul (1985) published a list of the material studied by Robert Graham and mentioned that the correct author combination for the species is *I. uniflorum* (Graham) Raf. Nevertheless, different combinations of authorships for the same name are still used in literature, for example *I. uniflorum* (Lindl.) Raf. (Crosa & Marchesi, 2002, Zonneveld et al. 2005, Fay et al. 2006, Zuloaga et al. 2008, Hurrell 2009) or *I. uniflorum* (Raf.) Traub (Souza et al. 2010, 2016); all these combinations are illegitimate later homonyms of *Ipheion uniflorum* (Graham) Raf., and should be discarded.

Since both *Milla uniflora* Graham (based on Tweedie's material) and *Triteleia uniflora* Lindl. (based on Gillies' material) refer to the same species, and considering *Ipheion* as the correct genus for this species (Souza et al. 2010, Sassone et al. 2015), it is necessary to define the correct authorship combination for the epithet. Following priority rule (McNeill et al. 2012: Art. 11.4) the correct combination for the epithet "*uniflora*" is the earliest legitimate name of the taxon in the same rank. In this case it is *Triteleia uniflora* Lindl. (1829), with the correct name of the genus (*Ipheion*), but the resulting combination would be an illegitimate later homonym of *Ipheion uniflorum* (Graham) Raf. Established practice would require that we apply Art. 11.4 again using the next earliest legitimate species name, so the correct citation would be *Ipheion uniflorum* (Graham) Raf. based on *Milla uniflora* Graham.

Typification and synonyms of *Ipheion uniflorum*

Ipheion uniflorum (Graham) Raf., Fl. Tellur. 2: 12. 1836 [1837]. — *Milla uniflora* Graham, Edinburgh New Philos. J. 14: 174. 1833. — LECTOTYPE (designated here; Fig. 1): Argentina. "Plentyfull in dry Banks near Buenos Ayres" (E barcode E00279869!; isolecotypes: E barcode E00279868!, K barcode K642142!).

Triteleia uniflora Lindley, Bot. Reg. 15: t. 1293. 1829; l.c. 23: t. 1921. 1837. — *Brodiaea uniflora* (Lindl.) Engler, Engler & Prantl, Natur. Pflanzenfam. 2. 57. 1887. — *Leucocoryne uniflora* (Lindl.) Greene, Pittonia 2: 59. 1890. — *Beauverdia uniflora* (Lindl.) Herter, Boissiera 7: 507–512. 1943. — *Hookera uniflora* (Lindl.) Kuntze, Rev. Gen. Pl. 2: 712. 1891. — *Tristagma uniflorum* (Lindl.) Traub, Pl. Life 19: 61. 1963. — TYPE: Argentina. "Mendoza", 1825. Gillies s.n. (holotype CGE barcode 06868!; Fig. 2).

Tristagma peregrinans Ravenna, Plant Life (Stanford) 34: 131–133, f. 24. 1978. *syn. nov.* — TYPE: Uruguay. "*Indeclivius superioribus bifurcatio australi Cuchilla Negra 8 km ad occidentem vel septentrioni-occidentem Tranqueras*", August 1966 *Ravenna 541* (holotype Herb. Ravenna, not seen).

The designation of the lectotype using the material at the Royal Botanic Garden Edinburgh (E) follows the recommendation of Lauener and Paul (1985). The type material at E comprises a bundle of leaves and inflorescences with an old field label in Tweedie's handwriting: "Plentyfull in dry Banks near Buenos Ayres. Tw" (E barcode E00279869). There is also another bundle of leaves and inflorescences on the same sheet with the same data and the inscription: "*Milla uniflora* Graham" in G.A.W. Arnott's handwriting (E barcode 00279868).

The Kew sheet also bears two collections, the upper half (K barcode 99945) consisting of leaves and flowers with an old label: "*Milla Bonariensis*, n. Sp. Gillies [...] Buenos Ayres. J. Gillies" [*Milla bonariensis*. Gillies ms. ex Baker (1871) *nom. nud.*]. Some of this is not *Ipheion*. On the lower half of the sheet (K barcode 642142), there are leaves and flowers labeled: "Buenos Ayres. Tweed." in the same handwriting as in E barcode 00279868.

The type material of *Triteleia uniflora* Lindl. is preserved at Cambridge (CGE). The sheet contains two specimens (Fig. 2). Beside and below the one on the left there is a "Type" label and a label in Lindley's handwriting: "Mendoza. Gillies 1825". Below the specimen on the right is a label with data referring to the published

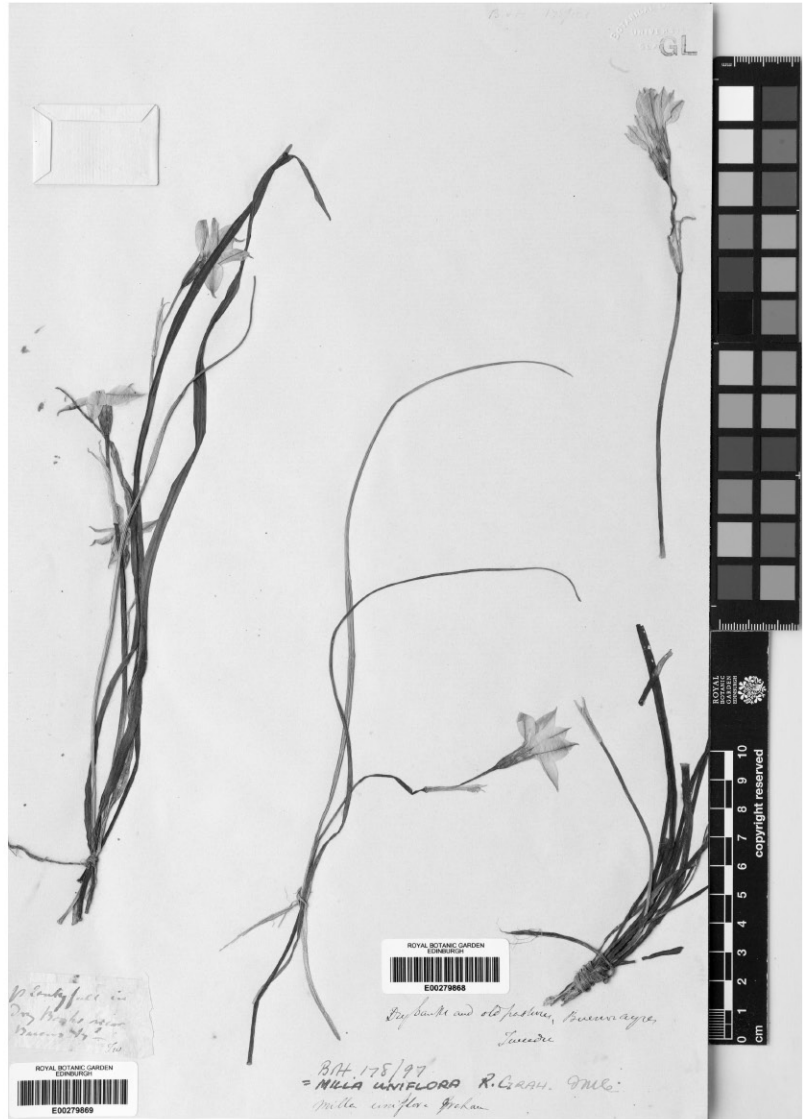


Fig. 1. Lectotype (E barcode 002798689) and isolectotype (E barcode 00279868) of *Milla uniflora* Graham.

drawing of which a copy is attached to the sheet. There can be no doubt that this species is *Ipheion uniflorum* (Graham) Raf. Lindley's (1829) erroneous assumption that the provenance was Mendoza province in Argentina was probably because Gillies's collections were mostly made there. *Ipheion uniflorum* is endemic to the Pampean Region of Argentina and Uruguay.

As many other specimens cited by Ravenna (Arroyo-Leuenberger & Sassone 2016), the holotype of *Tristagma peregrinans* is not available for loan. However, based on the protologue and original illustration, we consider that name a taxo-

nomic synonym of *Ipheion uniflorum*. Ravenna's specimen was collected at Cuchilla Negra (Uruguay), representing the northernmost locality for *I. uniflorum*. Ravenna (1978) placed this species in *Tristagma*; in a later paper he considered *Ipheion* as a section of *Tristagma* (Ravenna 2001).

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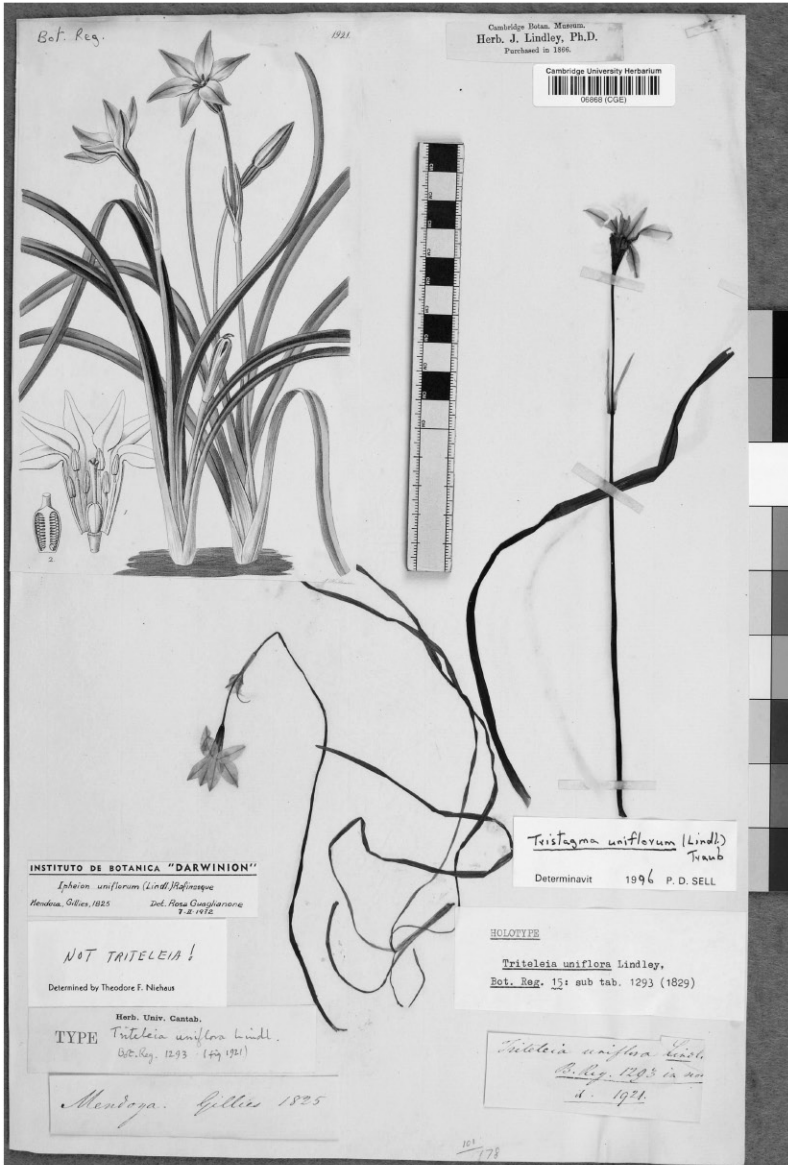


Fig. 2. Holotype of *Triteleia uniflora* Lindl. (CGE barcode 06868).

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References

- Arroyo-Leuenberger S. & Sassone A. 2016: An annotated checklist of the genus *Tristagma* (Amaryllidaceae, Alliioideae). — *Phytotaxa* 277: 21–35.
- Baker J.G. 1871: A revision of the genera and species of herbaceous capsular gamophyllous Liliaceae. — *J. Linn. Soc. Bot.* 11: 382.
- Castillo J.A. 1986: Notes on the cultivation of South American bulbous plants. — *Herbertia*, 42: 58–70.
- Crosa O. & Marchesi E. 2002: Presencia de *Ipheion tweed-ianum* (Baker) Traub (Alliaceae) en Uruguay. — *Agrociencia* 6(1): 92–97.

- Engler H.G.A. 1887: Alliioideae–Allieae. — In: Engler H.G.A. & Prantl K.A.E. (eds.), *Die Natürlichen Pflanzenfamilien* 2(5): 54–58. W. Engelmann, Leipzig.
- Fay M.F., Rudal P.J. & Chase M.W. 2006: Molecular studies of subfamily Gilliesioideae (Alliaceae). — *Aliso* 22: 367–371.
- Green L.E. 1890: Analogies and affinities III. — *Pittonia* 2: 51–57.
- Guaglianone E.R. 1972: Sinopsis de las especies de *Ipheion* Raf. y *Nothoscordum* Kunth (Liliáceas) de Entre Ríos y regiones vecinas. — *Darwiniana* 17: 159–242.
- Herter W.G. 1943: *Beauverdia* genus novum Liliacearum. — *Boissiera* 7: 505–512.
- Hewson H.J. 1987: *Ipheion*. — In: George A.S. (ed.), *Flora of Australia* 45: 358–360. Australian Gov. Publ. Serv., Canberra.
- Hickman J.C. 1993: *The Jepson manual. Higher plants of California*. — Univ. of California Press, Berkeley.
- Hurrell J.A. 2009: Alliaceae. — In: Hurrell J.A. (ed.), *Flora Rioplatense* 3(4): 35–80. LOLA, Buenos Aires.
- Lauener L.A. & Paul H. 1985: The type specimens of Robert Graham. — *Notes Royal Bot. Garden Edinburgh* 42: 567–593.
- Lindley R. 1829: *Triteleia uniflora*. — *Bot. Reg.* 15: 1293.
- Merrill E.D. 1948: Nomenclatural notes on Rafinesque's published papers 1804–1840. — *J. Arnold Arb.* 29: 202–214.
- McNeill J., Barrie F.R., Buck W.R., Demoulin V., Greuter W., Hawksworth D.L., Herendeen P.S., Knapp S., Marhold K., Prado J., Prud'homme van Reine W.F., Smith G.F., Wiersema J.H. & Turland N.J. 2012: *International Code of Nomenclature for algae, fungi, and plants* (Melbourne Code) adopted by the Eighteenth International Botanical Congress Melbourne, Australia, July 2011. — *Regnum Vegetabile* 154: 1–240.
- Rafinesque C.S. 1836: *Flora Telluriana* 2: 12. — H. Probasco, Philadelphia.
- Ravenna P.F. 1978: Studies in the Allieae II. — *Pl. Life* (Stanford) 34: 130–135.
- Ravenna P.F. 2001: New or critical *Tristagma* species (Alliaceae). — *Onira* 6: 24–33.
- Sassone A.B., Arroyo-Leuenberger S. & Giussani L.M. 2014: Nueva circunscripción de la tribu Leucocoryneae (Amaryllidaceae, Alliioideae). — *Darwiniana Nueva Serie* 2: 197–206.
- Souza R.L.G., Crosa O. & Guerra M. 2010: Karyological circumscription of *Ipheion* Raf. (Gilliesioideae, Alliaceae). — *Plant. Syst. Evol.* 28: 119–127.
- Souza G., Crosa O., Speranza P. & Guerra M. 2016: Phylogenetic relations in tribe Leucocoryneae (Amaryllidaceae, Alliioideae) and the validation of *Zoelnerallium* based on DNA sequences and cytomolecular data. — *Bot. J. Linn. Soc.* 182: 811–824.
- Stearn W.T. 1943: The welsh onion and the ever-ready onion. — *Gardeners Chron* 143: 60–61.
- Traub H.P. & Moldenke H.N. 1955: The genus *Ipheion*: Diagnosis, key to species and synonymy. — *Pl. Life* (Stanford) 11: 125–130.
- Traub H.P. 1963: *Tristagma* Poep. — *Pl. Life* (Stanford) 19: 60–61.
- Turril W. B. 1952: *Ipheion uniflorum*. — *Bot. Mag.* 162: 185.
- Zonneveld B.J.M., Leitch I.J. & Bennett M.D. 2005: First nuclear DNA amounts in more than 300 angiosperms. — *Ann. Bot. (Oxford)* 96: 229–244.
- Zuloaga F.O., Morrone O. & Belgrano M. 2008: *Alliaceae*. — In: Zuloaga F.O., Morrone O. & Belgrano M. (eds.), *Catálogo de las Plantas Vasculares del Cono Sur* (Argentina, Sur de Brasil, Chile, Paraguay y Uruguay). — *Monogr. Syst. Bot. Missouri Bot. Garden*: 175–194.