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ORIGINAL ARTICLE

The infrageneric nomenclature of *Tulipa* (Liliaceae)

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Abstract Zonneveld (Pl Syst Evol 281:217–245, 2009) proposed an infrageneric classification of *Tulipa* (Liliaceae) based on the nuclear content determined by flow cytometry and available morphological data. The nomenclatural consequences of this are discussed here, involving the typification of generic and infrageneric names. Additional notes on some species are given. Four subgenera are distinguished, of which two are new; ten sections are proposed, four new; three new combinations are made, and seven lectotypes are designated. *Tulipa praecox* Ten. is a later homonym of *T. praecox* Cav. (Descripción de las plantas. 2: 448, 625, 1803); its correct name is *Tulipa agenensis* DC. *Tulipa lemmersii* Zonn., A. Peterse, J. de Groot is validated here by giving the type citation.

Keywords Iridaceae · *Tulipa* · Typification

Introduction

The genus *Tulipa* L. (Liliaceae) is of great economic, horticultural, esthetical, ecological, conservational, and taxonomic interest. It has attracted a great deal of attention from the Dutch Tulipomania of February 1637 until the export and tourism of today. It is undoubtedly the unofficial national flower of The Netherlands. Tulips occur naturally in temperate regions ranging from the southern Balkans to

Siberia and west China, North Africa (Algeria), the east Mediterranean, and the Near East (Iran, Israel, Jordan, Turkey, etc.). The centre of diversity of the genus is in the Pamir and Hindu Kush mountains, and the steppes of Kazakhstan (Botschantzeva 1962). Some species have established themselves elsewhere: *Tulipa sylvestris* L. on old estates in Britain, The Netherlands, the United States, and Sweden (Linnaeus 1745), and the so-called *Neotulipae*, e.g. *Tulipa marjoletii*, *Tulipa didieri*, or *Tulipa rubidusa* in western Europe. The latter and most of the cultivars are here regarded as part of the *Tulipa gesneriana* L. complex.

This insight into the infrageneric relationships based on nuclear DNA content by flow cytometry is provided by Zonneveld (2009). He demonstrated that there are at least 87 species in 4 subgenera with 10 sections. We present here a survey of the many infrageneric names, their nomenclatural status, types, and synonymy. As several were not published validly there in anticipation of the present paper, which was unfortunately delayed too long, they are now. A few additional notes on the nomenclature of some species are given.

Methods

The nomenclatural articles referred to below are those of the International Code of Botanical Nomenclature, the “Vienna Code” (ICBN: McNeill et al. 2006), unless preceded by ICNCP, the International Code of Nomenclature for Cultivated Plants (Brickell et al. 2004).

It can be noted that invalid names have no types. Representative taxa or specimens we here call “vouchers”. In the following “§” indicates names without a clear indication of rank.

The arrangement given is based on the latest complete classification (Zonneveld 2009). For easy reference the

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names are arranged alphabetically by subgenus and under these by sections, also alphabetically. Synonyms, if any, are given chronologically after the basionym.

Type of the genus

What is the type of *Tulipa*? Linnaeus (1753) described three species: *Tetracera breyniana* L., *T. gesneriana*, and *T. sylvestris*. Some authors have designated *T. gesneriana*, others *T. sylvestris*. General consensus favours the first, but the authoritative Index Nominum Genericorum (ING, <http://botany.si.edu/ing/>) cites the latter. Which one is actually acceptable is of nomenclatural importance as these species belong to two different, generally recognised subgenera of the genus. These appear to be genetically quite different, as the members of one do not hybridise with those of the other. To avoid confusion in discussions, it is necessary to know what is meant by the autonym *Tulipa* subgen. *Tulipa* (and sect. *Tulipa* and ser. *Tulipa*). First we will deal with *T. breyniana*.

Tulipa breyniana

This name was based on the description and plate of *Sisyrinchium, ex phoeniceo suaverubente flore, aethiopicum* (Breyne 1678; Rudbeck 1701). The plate was reproduced by, e.g., Goldblatt (1973) and Jarvis (2007). It is depicted with what seems to be a superior ovary, which as it turned out must have been an error by the artist.

Lewis (1914) pointed out the further confusion created by Linnaeus (1762) in the second edition of the *Species plantarum* where he apparently added data from a specimen that he had misidentified with Breyne's plate. Unfortunately, no voucher was found in any Linnaean herbarium. This was perpetuated by later authors who placed the species in the Liliaceae or Melanthiaceae as *Kolbea* Schlechtendal (1826), non *Kolbia* Adanson (1763), as *Jania* Schult. & Schult. (1830), non Lamouroux (1812), or as *Baeometra* Salisbury 1812, invalid (Art. 42.1, last sentence) ex Endlicher (1836)], Colchicaceae. *Baeometra* was invalidly published in 1812, as Salisbury referred to the earlier descriptions of *Melanthium uniflorum* Jacq. and *T. breyniana* L., which is not acceptable for a generico-specifica description (Art. 42.1, last sentence). The combination *B. columellaris* Salisb. is therefore also invalid (Art. 43.1), as it was published under an invalid generic name. The question whether it was also superfluous does not arise, as matters of legitimacy apply only to valid names. The correct combination, *B. breyniana*, was not made by Baillon (1894: 588) as was suggested by Durand & Jackson (1906) and was so entered in the International Plant Name Index (IPNI, <http://www.ipni.org/>). It was first proposed by Voigt (1845) and later by Durand and

Schinz (1894). Currently, *Baeometra* contains only *B. uniflora* (Jacq.) G.J. Lewis.

Lewis identified the description and plate with the red-flowered form of *Homeria collina* (Thunb.) Vent. (based on *Moraea collina* Thunb., Iridaceae-Irideae) from the West Cape of South Africa, and she therefore proposed the combination *H. breyniana* (L.) G.J. Lewis with Breyne's plate as the type.

Goldblatt (1973), however, disagreed with this and considered the plate to represent "a poorly illustrated, already wilted plant, possibly a *Homeria*... the [superior] gynoeceum of a tulip is represented ... it seems most unsatisfactory to attempt specific determination ... [and] it is advisable to reject *Tulipa* (or *Homeria*) *breyniana* and to revert to *Homeria collina*". Apparently this proposal for rejection has not been acted on (see also Jarvis 2007). Arnold and De Wet's standard checklist for South African plant names (1993) apparently has followed Goldblatt's (1973) suggestion, and they did not provide identification for the Linnaean name. The African flowering plants database (<http://www.ville-ge.ch/cjb/bd/africa/resultat.php>) has no "*breyniana*". Presently (May 2011), *Homeria* has been reduced to *Moraea* Mill by Goldblatt (1998), so presumably *T. breyniana* belongs there, too. The combination *M. breyniana* has not been made. Obviously, it is not a suitable candidate for a lectotype of *Tulipa* L.

Tulipa s.str.

In a much overlooked publication Rafinesque (1837) placed *T. gesneriana* and *T. sylvestris* in two different genera, retaining the first in *Tulipa* and placing the latter in the new genus *Liriopogon* Raf. The only Linnean element thus still remaining in *Tulipa* is *T. gesneriana*, and this is to be regarded as the lectotype by exclusion (see Art.48.1, 52.2). *Liriopogon sylvestris* (L.) Raf. is here designated as the lectotype of *Liriopogon*. This typification was also endorsed by Hitchcock (1929), Dasgupta and Deb (1985), and van Raamsdonk & de Vries (1995).

Subgenera of *Tulipa*

Later authors also proposed a similar bipartition as Rafinesque (1837), but then within a single genus, *Tulipa*. Reboul (1847) distinguished sect. *Dulipanum* Spigel. ex Reboul (incl. e.g. *T. gesneriana* and *T. sylvestris*) and *Tulipanum* Spigel. ex Reboul (incl. e.g. *T. clusiana* DC. and *T. oculus-soli* St. Amans) based on the type of aestivation of the tepals and the presence of an indumentum on the inner side of the tunics. Koch (1849) proposed § *Lanigera* C. Koch (with *T. Julia* C. Koch) and § *T. Leiobulbos* C. Koch (with *T. biebersteiniana* Roem. & Schult and *T. thirkeana* C. Koch) also based on the presence of an

indumentum on the inside of the tunics. Most, however, refer to Boissier (1882), who distinguished § *Eriostemon* Boiss. (incl. *T. gesneriana*) and § *Leiostemon* Boiss. (incl. *T. biebersteiniana* and *T. sylvestris*), based on the basal indumentum of the filaments and the relative length of the inner and outer whorl of the tepals.

These main groups were subsequently further divided by J.G. Baker (1874), Levier (1884), Vvedensky (1935, 1968), Hall (1940), van Raamsdonk & De Vries (1995), and Zonneveld (2009).

Baker (1931: 243) and Hall (1940: 60) used the name *Dasystemones*, a group of Tulips that is the most eastward of all. No species is mentioned, nor the source of this name, but a derivation from *T. dasystemon* (Regel) Regel seems likely. This now belongs to *Biflores* A.D. Hall ex Zonn. & Veldk. and occurs in Kazakstan, Kyrgyzstan, Tajikistan, Uzbekistan, and western China (western Xinjiang).

Classification

TULIPA SUBGEN. *CLUSIANAE* (BAKER) ZONN., COMB. NOV.

≡ *Tulipa* sect. *Clusianae* Baker, Gard. Chron. n.s. 19: 626, 691 (1883). ≡ *Tulipa* subsect. *Clusianae* A.D. Hall, Gen. Tulipa: 81. 1940, nom. inval., manifeste, sed sine ref. basion.—Lectotype: *Tulipa clusiana* DC. (Art. 22.6).

Liriactis Raf., Fl. Tell. 4: 97. (1837; “1836”).—Type: *Liriactis albiflora* Raf., nom. superfl. [based on *Tulipa stellata* Hook. ≡ *Tulipa clusiana* DC. forma *stellata* (Hook.) S. Dasgupta & Deb].

TULIPA SUBGEN. *ERIOSTEMONES* (BOISS.) VAN RAAMSD. in van Raamsd. & T. de Vries, Pl. Syst. Evol. 159: 42 (1995).

≡ *Tulipa* § *Eriostemon* Boiss., Fl. Or. 5: 191, 196. (1882). ≡ *Tulipa* sect. *Eriostemon* (Boiss.) Boiss. ex Levier, Bull. Soc. Sci. Nat. Neuchâtel 14: 280 (reprint: 85). (1884). ≡ *Tulipa* subgen. *Eriostemon* (Boiss.) van Raamsd. in van Raamsd. & T. de Vries, Pl. Syst. Evol. 159: 42. (1995).

—Lectotype (Mordak 1979: 235): *Tulipa sylvestris* L designated by Rafinesque (1837).

Notes: The name § *Eriostemon* Boiss. is legitimate but incorrect, as it contains *Tulipa sylvestris* [designated as (lecto)type at least by Van Raamsdonk, 1995], which, however, is also the type of the older § *Sylvestres* Baker (1874), see below), and therefore automatically is typified by that name (Art. 22.6). Subgenus *Eriostemon* (Boiss.) van Raamsd. (1995) seems to have no competition at the subgeneric level.

TULIPA SECT. *BIFLORES* A.D. HALL {gen.Tulipa:74 (1940). Nom inval (Art.36.1)}

EX ZONN. & VELDK., SECT. NOV.

Bulbi parvi. Caules floribus usque ad 5 breviter pedicellatis. Perianthium parvum, intus luteum vel album

basaliter macula lutea. Filamenta basi penicillata vel inflata.—Type: *Tulipa biflora* Pallas (1776); often cited as of Linnaeus 1781).

{gen.Tulipa:74 (1940). Nom inval (Art.36.1)}

Bulbs small. Stems with up to 5 shortly pedicelled flowers. Perianth small, inside yellow or white, with a basal yellow macula. Filaments at base hairy or inflated.

≡ *Tulipa* sect. *Biflores* A.D. Hall, Gen. Tulipa: 74. (1940), nom. inval., anglice.—Voucher: *Tulipa biflora* Pall. (Art.22.6).

Podonix Raf., Fl. Tell. 4: 28. (1838, “1836”).—Type: *Podonix albiflora* Raf. nom. superfl. (= *Tulipa biflora* Pall.).

Tulipa § *Albae* Levier, Bull. Soc. Sci. Nat. Neuchâtel 14: 280. (1884) (reprint: 85). Lectotype: *Tulipa biflora* L., **designated here**.

Tulipa sect. *Lophophyllon* Vved. in Kom., Fl. USSR 4: 352. (1935). (Engl. trans.: 270. 1968), nom. inval. russice (anglice).—Voucher: *Tulipa regelii* Krassn.

Note: Because sect. *Lophophyllon* was invalidly published, it has no priority over sect. *Biflores*. We have adopted Hall’s name as it seemed the one best known.

§ *Albae* is rankless, so there is no obligation to use it at the sectional level.

Tulipa sect. *Saxatiles* (Baker) Baker, Gard. Chron. n.s. 19: 626 (1883); *ibid.* 20: 168 (1883).

≡ *Tulipa* § *Saxatiles* Baker, J. Linn. Soc. Bot. 14: 277. (1874, “1875”).—Type: *Tulipa saxatilis* Sieber ex Spreng. (Art. 22.6).

Tulipa § *Roseae* Levier, Bull. Soc. Sci. Nat. Neuchâtel 14: 285. (1884) (reprint: 90).—Lectotype: *Tulipa saxatilis* Sieber ex Spreng., **designated here**.

Tulipa sect. *Sylvestres* (Baker) Baker, Gard. Chron. 20: 233. (1883).

≡ *Tulipa* § *Sylvestres* Baker, J. Linn. Soc. Bot. 14: 277. (1874; “*Sylvestres*”, 1875).—Type: *Tulipa sylvestris* L. (Art. 22.6). See remarks under *Tulipa* § *Eriostemon*.

Liriopogon Raf., Fl. Tell. 2: 25. (1837).—Lectotype: *Liriopogon sylvestre* (L.) Raf. (≡ *Tulipa sylvestris* L.), **designated here**.

Tulipa § *Leiobulbos* C. Koch, Linnaea 22: 225. (1849).—Lectotype: *Tulipa biebersteiniana* Schult. & Schult. f., **designated here**. See note.

Tulipa § *Luteae* Levier, Bull. Soc. Sci. Nat. Neuchâtel 14: 290. (1884) (reprint: 95).—Type: *Tulipa orphanidea* Boiss. ex Heldr.

Tulipa § *Rubrae* Levier, Bull. Soc. Sci. Nat. Neuchâtel 14: 288. (1884) (reprint: 93).—Lectotype: *Tulipa bithynica* Griseb., **designated here**.

Tulipa sect. *Australes* A.D. Hall, Gen. Tulipa: 51. (1940), nom. inval., anglice.—Voucher: *Tulipa australis* Link (Art. 22.6). If validated this name becomes superfluous when it includes *Tulipa sylvestris* L., the lectotype of *Tulipa* sect. *Eriostemon* Levier (1884).

Note. Koch (1849) described two unranked infrageneric taxa: § *Lanigera* C. Koch and § *Leiobulbos* C. Koch. Dasgupta and Deb (1985) on p. 160 correctly stated “without indicating the status”, but on p. 161 in the synonymy of sect. *Tulipa* regarded the first as a sectional name, and the second on p. 171 in the synonymy of sect. *Sylvestres* as unranked, both with an uncertain status. This latter statement is not clear to us. *Lanigera* has *T. julia* C. Koch as its only species, and therefore it is its type and its taxonomic position is clear. *Leiobulbos* contained *T. biebersteiniana* Schult. & Schult. f and *T. thirkeana* C. Koch, a synonym of the first. If this ranking as section is accepted, *Leiobulbos* would be the correct name here, which obscure name would replace the more familiar *Sylvestres*. It therefore seemed prudent to regard it as unranked.

Tulipa* subgen. *Orithyia (D. Don) Baker, J. Linn. Soc. Bot. 14: 277. (1874, “1875”).

Baker, Gard. Chron. n.s. 19: 626. (1883); *ibid.* 20: 266. (1883); Engl. in Engl. and Prantl, Nat. Pfl.-Fam. II, 5: 62 (1889), isonym. ≡ *Orithyia* D. Don in Sweet, Brit. Fl. Gard. ed. 1., 7 ≡ ed. 2, 3: t. 336. (1836). ≡ *Tulipa* sect. *Orithyia* (D. Don) Baill., Hist. Pl. 12: 463. (1894); Vved., Fl. USSR 4: 362. (1935) (Engl. transl.: 279. 1968), isonym.—Type: *Tulipa uniflora* (L.) Besser ex Baker [*Orithyia uniflora* (L.) D. Don], designated by Baker (1883a).

Tulipa* L. subgen. *Tulipa

Tulipa L. sect. *Tulipa*—Lectotype: *Tulipa gesneriana* L., designated by implication by Rafinesque (1837). All other infrageneric combinations based on this lectotype published after that date are invalid, as autonyms are required (Art. 22.2):

≡ *Tulipa* sect. *Dulipanum* Spigel. ex Reboul, Giorn. Bot. Ital. 2: 60. (1847). ≡ *Dulipanum* Spigel., Isag. Rem Herb.: 52, 54. (1606), nom. pre-Linn. inval. ≡ *Tulipa* subgen. *Eutulipa* Baker, J. Linn. Soc. Bot. 14: 276. (1874, “1875”) (also Art. 21.3). ≡ *Tulipa* § *Leiostemones* Boiss., Fl. Or. 5: 191. (1882). ≡ *Tulipa* sect. *Leiostemones* Boiss. ex Levier, Bull. Soc. Sci. Nat. Neuchâtel 14: 243. (1884) (reprint: 48). ≡ *Tulipa* § *Gesnerianae* Baker, J. Linn. Soc. Bot. 14: 276. (1874, “1875”). ≡ *Tulipa* sect. *Gesnerianae* Baker, Gard. Chron. n.s. 19: 626, 691, 788. (1883); *ibid.* 20: 11, 71. (1883). ≡ *Tulipa* subsect. *Gesnerianae* A.D. Hall, Gen. Tulipa: 93. 1940.

***TULIPA* SECT. *LANATAE* (VAN RAAMSD.) ZONN. COMB. NOV.**

≡ *Tulipa* ser. *Lanatae* van Raamsd. in van Raamsd. & T. de Vries, Pl. Syst. Evol. 195: 40 (1995).—Type: *Tulipa lanata* Regel (Art. 22.6).

***TULIPA* SECT. *KOLPAKOWSKIANAE* VAN RAAMSD. EX ZONN. & VELDK., SECT. NOV.**

Plantae statura moderata, bulbis parvis tunicis intra sparsissime ad copiose pilosis, foliis angustis numerosis, caulibus floribus solitariis vel pluribus e caule propria ad

solis planum enascentibus, tepalis intra luteis exta rubro-diffusis vel pallide rubris sine macula.—Type: *Tulipa kolpakowskiana* Regel. (= *Tulipa altaica* Pall. ex Spreng.).

Plants of a moderate size, bulbs small, tunics inside very sparsely to densely hairy, leaves narrow, numerous, flowers solitary to many, each with its own stem seemingly originating from the surface of the soil, tepals inside yellow, outside suffused red or pale red without a macula.

≡ *Tulipa* subsect. *Kolpakowskianae* A.D. Hall, Gen. Tulipa: 135. (1940), nom. inval., anglice. ≡ *Tulipa* sect. *Kolpakowskianae* van Raamsd., in van Raamsd. & T. de Vries, Pl. Syst. Evol. 195: 38. (1995), nom. inval., anglice.

Note: The latter authors lectotypified it with *Tulipa kolpakowskiana*, but because of Art. 22.6 that action was unnecessary (and also because their names were invalid, as there was only a description in English).

***TULIPA* SECT. *MULTIFLORAE* (VAN RAAMSD.) ZONN., COMB. NOV.**

≡ *Tulipa* ser. *Multiflorae* van Raamsd. in van Raamsd. & T. de Vries, Pl. Syst. Evol. 159: 41. (1995).—Type: *Tulipa praestans* Hoog.

Tulipa ser. *Glabrae* van Raamsd. in van Raamsd. & T. de Vries, Pl. Syst. Evol. 159: 41. (1995).—Type: *Tulipa subpraestans* Vved.

***TULIPA* SECT. *SPIRANTHERA* VVED. {in Kom., FL.USSR 4: 351(1935), nom inval.(Art 36.1) EX ZONN. & VELDK., SECT. NOV.**

Tunicae papyraceae intus sparse ad basin et ad apicem pubescentes, tepala praecipue alba lutave, filamenta glabra, antherae gradatim e apice ad basin dehiscentes denique contortae, stigmata subsessilia. Typus: *Tulipa kaufmanniana* Regel.

{in Kom., FL.USSR 4: 351(1935), nom invalid.(Aert 36.1)

Tunics papyraceous, inside sparsely hairy at the base and at the tip. Tepals mainly white or yellow, but also red. Filaments glabrous. Anthers often opening gradually from apex to base, ultimately contorted. Stigmas subsessile.

≡ *Tulipa* L. sect. *Spiranthera* Vved. in Kom., Fl. USSR 4: 351. 1935 (transl.: 269. 1968), nom. inval, russice (anglice). ≡ *Tulipa* ser. *Spiranthera* van Raamsd. in van Raamsd. & T. de Vries, Pl. Syst. Evol. 195: 41. 1995, nom inval., anglice. Typus: *Tulipa kaufmanniana* Regel.

Tulipa* sect. *Tulipa

Tulipa § *Scabriscapae* Baker, J. Linn. Soc. Bot. 14: 277. (1874, “1875”).—Lectotype: *T. suaveolens* Roth, **designated here.**

Tulipa § *Ambiguae* Levier, Bull. Soc. Sci. Nat. Neuchâtel 14: 266. (1884) (reprint: 71).—Lectotype: *Tulipa schrenkii* Regel, **designated here.**

Tulipa ser. *Luteo-apiculatae* van Raamsd. in van Raamsd. & T. de Vries, Pl. Syst. Evol. 159: 41. (1995).—Type: *Tulipa sosnovskyi* Achv & Mirzoeva.

Tulipa subsect. *Eichleres* A.D. Hall, Gen. Tulipa: 123. (1940), nom. inval., anglice. ≡ *Tulipa* sect. *Eichleres* van Raamsd. in van Raamsd. & T. de Vries, Pl. Syst. Evol. 195: 39. (1995), nom. inval., anglice. *Tulipa* ser. *Eichleres* van Raamsd. in van Raamsd. & T. de Vries, Pl. Syst. Evol. 195: 40. (1995), nom. inval., anglice, sine basion.—Voucher: *Tulipa eichleri* Regel.

Note: van Raamsdonk & De Vries lectotypified ser. *Eichleres* with *Tulipa eichleri*, but because of Art. 22.6 that action has no effect. Marais (1980: 259) had *T. eichleri* (1874) as a synonym of *T. undulatifolia* Boiss. (1844), while Mabberley (1982) suggested that *Tulipa persica* (Lindl.) Sweet (1830) might be the correct name. We have not studied this.

Tulipa* sect. *Tulipanum Reboul, Giorn. Bot. Ital. 2: 60. (1847).

≡ *Tulipanum* Spigel., Isag. Rem Herb.: 52, 54. (1606), nom. pre-Linn. inval. ≡ *Tulipa* § *Eriobulbae* Baker, J. Linn. Soc. Bot. 14: 276. (1874; “*Eriobulbi*, 1875”). ≡ *Tulipa* sect. *Eriobulbae* (Baker) Baker, Gard. Chron. n.s. 19: 626, 668. (1883), nom. superfl. ≡ *Tulipa* subsect. *Oculus-solis* A.D. Hall, Gen. Tulipa: 104. (1940). ≡ *Tulipa* ser. *Tulipanum* (Spigel. ex Reboul) van Raamsd. & T. de Vries, Pl. Syst. Evol. 195: 39. (1995). See note.—Lectotype: *Tulipa oculus-solis* St.-Amans, nom. inval. (= *Tulipa agenensis* DC.), designated by Baker (1883b).

Tulipa § *Lanigera* C. Koch, Linnaea 22: 225. (1849).—Type: *Tulipa julia* C. Koch. See note under subgen. *Eriostemones* sect. *Sylvestres*.

Tulipa ser. *Aureofasciatae* van Raamsd. in van Raamsd. & T. de Vries, Pl. Syst. Evol. 195: 39. (1995).—Type: *Tulipa praecox* Ten., non Cav. (= *T. agenensis* DC), see note.

Notes: Apparently series *Tulipanum* was coined in the mistaken idea that an autonym without an author’s name would be required. Autonoms can only be required when the type of the genus is included (Art. 22.1).

According to Marais (1980: 257) *T. oculus-solis* Saint-Amans and de Boudon (1804), the exact date of publication (unknown) would be a nomen nudum. It isn’t, but it was invalidly published for another reason. Saint-Amans proposed the name (p. 78) in a nearly 4-page discussion, with references to previous descriptions, and a description by himself. However, in the end he concluded that the plant would represent one of the numerous varieties of the “tulipe gesnériène”, that is *T. gesneriana* L.; thus he did not accept the specific combination (Art. 34.1.a).

Tulipa agenensis DC. in Redouté is of Feb 1804, and therefore is most likely earlier than *T. oculus-solis* Saint-Amans and de Boudon (1804). de Candolle (1805) accepted *T. oculus-solis* and thus validated it. However, he cited the older *Tulipa agenensis* in its synonymy, so *T. oculus-solis* is an illegitimate name.

Kerguélen (1999) gives as place of publication St.-Amans, Fl. Agenaise: 145. 1821, but does not cite the 1804 publication and regards it as a synonym of *T. agenensis*. Here reference is also made to *T. acutiflora* Poirlet (1808), a superfluous name.

The checklist for *Tulipa* species by Govaerts (2008) accepted *T. agenensis* and has *T. oculus-solis* St.-Amans as a synonym and, incorrectly, as a nomen nudum.

Tulipa praecox Tenore (1811) is a later homonym of *T. praecox* Cavanilles (1803) and is said to be widespread in southern Europe (e.g. Gray-Wilson and Matthews 1980, Govaerts 2008). As it is considered not to be different from *T. agenensis*, the correct name is *T. agenensis* DC (1804).

TULIPA SECT. VINISTRATAE (VAN RAAMSD.) ZONN., STAT & COMB. NOV.

≡ *Tulipa* ser. *Vinistriatae* van Raamsd., Pl. Syst. Evol. 195: 40. 1995.—Type: *Tulipa greigii* Regel.

Tulipa ser. *Undulatae* van Raamsd., Pl. Syst. Evol. 195: 40. 1995.—Type: *Tulipa alberti* Regel (1 –i– is correct (Rec.60.C.2) (Acta Hort. Petrop. 5: 264. 1877; Gartenfl. 26: 257, t. 912. Jul 1877).

A NEW INFRASPECIFIC COMBINATION

TULIPA ORPHANIDEA BOISS. EX HELDR. SUBSP. **DOERFLERI** (GAND.) ZONN., COMB. ET STAT. NOV. ≡ *Tulipa doerfleri* Gand., Fl. Cretica 102. (1916). already published in Pl. Syst. Evol. 281: 244. 2009, fide IPNI.

Note. The Flora cretica is a lithographed manuscript and is a valid publication (Art. 30.2; the work is not listed in Appendix V of the ICBN on the Opera utique oppressa for Gandoger).

Validation of *Tulipa lemmersii* Zonn., A. Peterse, J. de Groot

Tulipa lemmersii Zonn., A.. Peterse, J. de Groot. Plant Systematics and Evolution (2009) 281: 244.

Type: Mashad Pass, Chimkent, Kazakhstan (2007) cult. A.. Peterse. s.n. L 0822655 (Holotype L.)

Excluded name

TULIPA L. SECT. STELLASTER (HEIST. EX FABR.) BAILL., HIST. PL. 12: 463. (1894).

≡ *Stellaster* Heist. [Syst. Pl. General.: 19. (1748). nom. pre-Linn., inval.] ex Fabr., Enum., ed. 2: 23. (1763). nom. superfl. pro *Scilla* L. ≡ *Stellaris* Fabr., Enum.Pl.: 13. (1759). *Idem.*—Lectotype: *Scilla bifolia* L., designated by Hitchcock (1929).

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