

WORLD CHECKLIST OF *GERANIUM* L. (*GERANIACEAE*)

by

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Resumen

AEDO, C., F. MUÑOZ GARMENDIA & F. PANDO (1998). Checklist mundial de *Geranium* L. (*Geraniaceae*). *Anales Jard. Bot. Madrid* 56(2): 211-252 (en inglés).

Se presenta una "checklist" del género *Geranium* L. (*Geraniaceae*) en la que se aceptan 423 especies, repartidas en 3 subgéneros y 18 secciones. Seguimos la clasificación propuesta por Yeo, aunque reconocemos la sección *Brasiliensia* en el subg. *Erodioidea*, y las secciones *Neurophyllodes*, *Paramensia* y *Azorelloida* en el subg. *Geranium*. La sect. *Azorelloida* es propuesta como nombre nuevo para la sect. *Petraea* R. Knuth, nom. illeg. Asimismo se propone *G. collae* como nombre nuevo para *G. intermedium* Colla, nom. illeg. Se incluye una clave para la identificación de los subgéneros y secciones. Después de revisar la práctica totalidad de los nombres publicados en *Geranium* se da el nombre correcto, el lugar de publicación y el área de distribución de cada especie aceptada, así como las referencias bibliográficas más importantes para cada una de ellas. Para codificar las distribuciones geográficas, en los niveles de "región" y "país botánico", se han seguido las propuestas del International Working Group on Taxonomic Databases (TDWG).

Palabras clave: *Geranium*, *Geraniaceae*, corología, *checklist*, clasificación seccional, nomenclatura.

Abstract

AEDO, C., F. MUÑOZ GARMENDIA & F. PANDO (1998). World checklist of *Geranium* L. (*Geraniaceae*). *Anales Jard. Bot. Madrid* 56(2): 211-252.

A checklist of the genus *Geranium* L. (*Geraniaceae*) is presented. Four hundred and twenty three species are recognized in 3 subgenera and 18 sections. Our classification differs from Yeo's only in some aspects of subg. *Erodioidea* and *Geranium*. Section *Brasiliensia* is included in subg. *Erodioidea*, and sect. *Neurophyllodes*, *Paramensia* and *Azorelloida* in subg. *Geranium*. Section *Azorelloida* is proposed as an avowed substitute (nom. nov.) for sect. *Petraea* R. Knuth, nom. illeg. *G. collae* is proposed as avowed substitute (nom. nov.) for *G. intermedium* Colla, nom. illeg. An identification key to subgenera and sections is presented. A thorough revision of available names in the genus, and a review of their nomenclatural status were carried out. Correct name, place of publication and distribution are given for each species. Geographical distributions are given at region and botanical country levels following the International Working Group on Taxonomic Databases (TDWG) standard. When possible, selected references with relevant information are also included.

Key words: *Geranium*, *Geraniaceae*, geographical distribution, checklist, sectional classification, nomenclature.

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INTRODUCTION

After KNUTH (1912) published his monograph on *Geranium*, several regional accounts as well as some detailed studies on some sections were published. These papers vastly increased the number of known species. KNUTH (1912) recognized ca. 260 species, and over 423 are currently accepted. Information regarding the genus is nowadays scattered over numerous papers, which makes it difficult to grasp composition, circumscription, or any other particular of a given group within *Geranium*, or even of any species. The exception is CLIFTON's (1992) worldwide compilation; however, the shallow treatment of nomenclatural and distribution data limits its use.

The aim of this paper is to make accessible the most relevant information about *Geranium* produced in the last eighty years in a concise way. We mostly follow the infrageneric scheme proposed by YEO (1984), but introduce some changes.

This compilation is primarily based on literature, but also numerous herbarium specimens were reviewed in order to clarify the systematic position of some problematic taxa. Thus, the checklist is the result of collating, interpreting and harmonizing the alternative taxonomies found in the literature and our own work with *Geranium* (see acknowledgment) (NIETO FELINER & AEDO, 1995; AEDO, 1996).

INFRAGENERIC CLASSIFICATION

Delimitation of *Geranium*, as we understand it, was settled early, when *Erodium*, *Monsonia* and *Pelargonium* were segregated from Linnaeus's original circumscription, and since then never questioned (AITON, 1789; L'HÉRITIER, 1792). Conversely, infrageneric classification of *Geranium*, has never been very stable. DUMORTIER (1827) the first to propose an infrageneric division, split the genus into three sections. REICHE (1890) proposed the first classification for the entire genus, which he divided into 10 sections.

KNUTH (1903) recognized 12 sections and later, in his monograph (KNUTH, 1912), distinguished 30. Subsequently, KNUTH (1931) added two more.

KNUTH's (1912, 1931) scheme –32 sections for the genus– has been questioned by numerous authors (WARBURG, 1938a, 1938b; TOKARSKI, 1972), though without advancing an alternative until YEO's (1984) review. Yeo first subdivides the genus into three subgenera on the basis of fruit-discharge mechanism, as PICARD (1837) already proposed, without acceptance at the time.

YEO (1984) distinguishes three principal types of fruit discharge, each characterizing one of the three subgenera. In the "seed-ejection-type" (which characterizes subg. *Geranium*) a single seed is actively discharged by the explosive recurvature of the awn, which remains together with the mericarp attached to the columella. The second type of discharge or "carpel-projection-type" characterizes subg. *Robertium*. Here, the explosive recurvature of the awn also acts as the propelling force, but in this case the whole mericarp, containing the seed, is dispersed, whereas the awn remains with the columella. Subgenus *Erodioidea* is identified by the "Erodium-type" discharge. In this case the mericarp, including the coiled awn, is propelled over a short distance. We follow the scheme proposed by YEO (1984, 1990), except for a few changes that we discuss below (Table 1). We also provide an identification key to subgenera and sections, which includes the proposed new sections.

At first, YEO (1984) distinguished two sections in subg. *Erodioidea*: sect. *Erodioidea* and sect. *Subacaulia*, and later YEO (1990) added sect. *Aculeolata*; all three characterized by the presence of two-flowered cymules. This view, accepted in a recent revision of the subgenus (AEDO, 1996), is modified with the addition of sect. *Brasiliensis*, which has one-flowered cymules. We examined specimens belonging to two of the three species of this section (*G. arachnoideum* and *G. brasiliense*), and confirmed that both species have "Erodium-discharge-type" fruits, the defining feature of the subgenus *Erodioidea*. However, this type of discharge,

TABLE 1
CLASSIFICATION OF *GERANIUM* IN SUBGENERA
AND SECTIONS WITH THE NUMBER OF SPECIES
OF EACH GROUP

Subgenus	Section	Number of species	
I. <i>Erodioidea</i>	1. <i>Erodioidea</i>	3	
	2. <i>Aculeolata</i>	1	
	3. <i>Subacaulia</i>	15	
	4. <i>Brasilensia</i>	3	
II. <i>Geranium</i>	5. <i>Geranium</i>	339	
	6. <i>Dissecta</i>	4	
	7. <i>Tuberosa</i>	19	
	8. <i>Neurophyllodes</i>	6	
	9. <i>Paramensia</i>	2	
	10. <i>Azorellويدa</i>	1	
	III. <i>Robertium</i>	11. <i>Polyantha</i>	7
		12. <i>Trilopha</i>	5
13. <i>Divaricata</i>		2	
14. <i>Batrachioidea</i>		4	
15. <i>Ungiculata</i>		5	
16. <i>Lucida</i>		1	
17. <i>Ruberta</i>		4	
18. <i>Anemonifolia</i>		2	

widespread in the family, is likely plesiomorphic, and therefore does not support the monophyly of the subgenus (NIETO FELINER & AEDO, 1995). Likewise, geographical distribution of the four sections, scattered over the Old World and South America (fig. 1) suggests that the subgenus is indeed an amalgam of relict and probably basal groups in the genus.

Considering only type of fruit discharge, YEO (1984, 1990) divides subg. *Geranium* into three sections. Section *Geranium* is a widespread group, absent only in tropical lowlands, deserts and polar regions (fig. 2), whereas sections *Dissecta* and *Tuberosa* are focused on the Mediterranean area and Western Asia (fig. 3). *Geranium* sect. *Geranium* is a heterogeneous group that comprises over 339 species, which requires a profound revision. We propose here segregation from it of three small sections on the basis of leaf shape and veining: sect. *Paramensia*, sect. *Neurophyllodes* and sect. *Azorellويدa*.

Section *Paramensia* comprises two very peculiar species, endemic to Northern Andes (fig. 3). Both species are low shrubs with narrow, coriaceous, glabrous, parallel-veined leaves (linear in *G. exallum*; cuneate and shallowly 3-lobed at the apex in *G. jahnii*), have the petiole articulate with the blade, cymules with one flower and a very distinctive "seed-ejection-type".

Section *Neurophyllodes* includes 10 taxa, all endemic to Hawaii (fig. 3), and shares with the previous section a shrubby life-form (up to 2.5 m high), leaf veining and petiole articulation position. However, the leaves are much larger, usually elliptic to ovate (though obovate or cuneate in some species), the petiole is articulated with the stipules, and the cymules are two-flowered. This section is also firmly supported by data from chloroplast DNA (PAX & *al.*, 1997). The similarities between the two sections suggest a common origin (STANDLEY, 1915), a possibility that should be explored further, especially the implications of petiole articulation, which is obviously derived and less likely to be homoplastic than leaf veining.

Section *Azorellويدa* contains only one species, known from the Colombian Andes (fig. 3). It is also a low shrub with one-flowered cymules and leaves very similar to those of *G. jahnii*: coriaceous, glabrous, cuneate and 3-lobed at the apex, though the petiole is not articulate.

This is just a small contribution towards the clarification of the taxonomy of the subg. *Geranium*, where more sections need to be recognized. YEO (1984, 1985) already pointed out affinities among many species and identified several groups, mostly in Europe, Asia and N America. Obviously, any clarification of the subgenus should take into account the sections proposed by KNUTH (1912, 1931), some of which could fit into the YEO's (1984, 1990) scheme.

We follow the treatment proposed by YEO (1984, 1990) for subg. *Robertium*. According to his scheme, the subgenus comprises 8 sections and 30 species. Section *Polyantha* (7 species) is endemic to Eastern Himalayas and Southern China. Section *Anemonifolia*

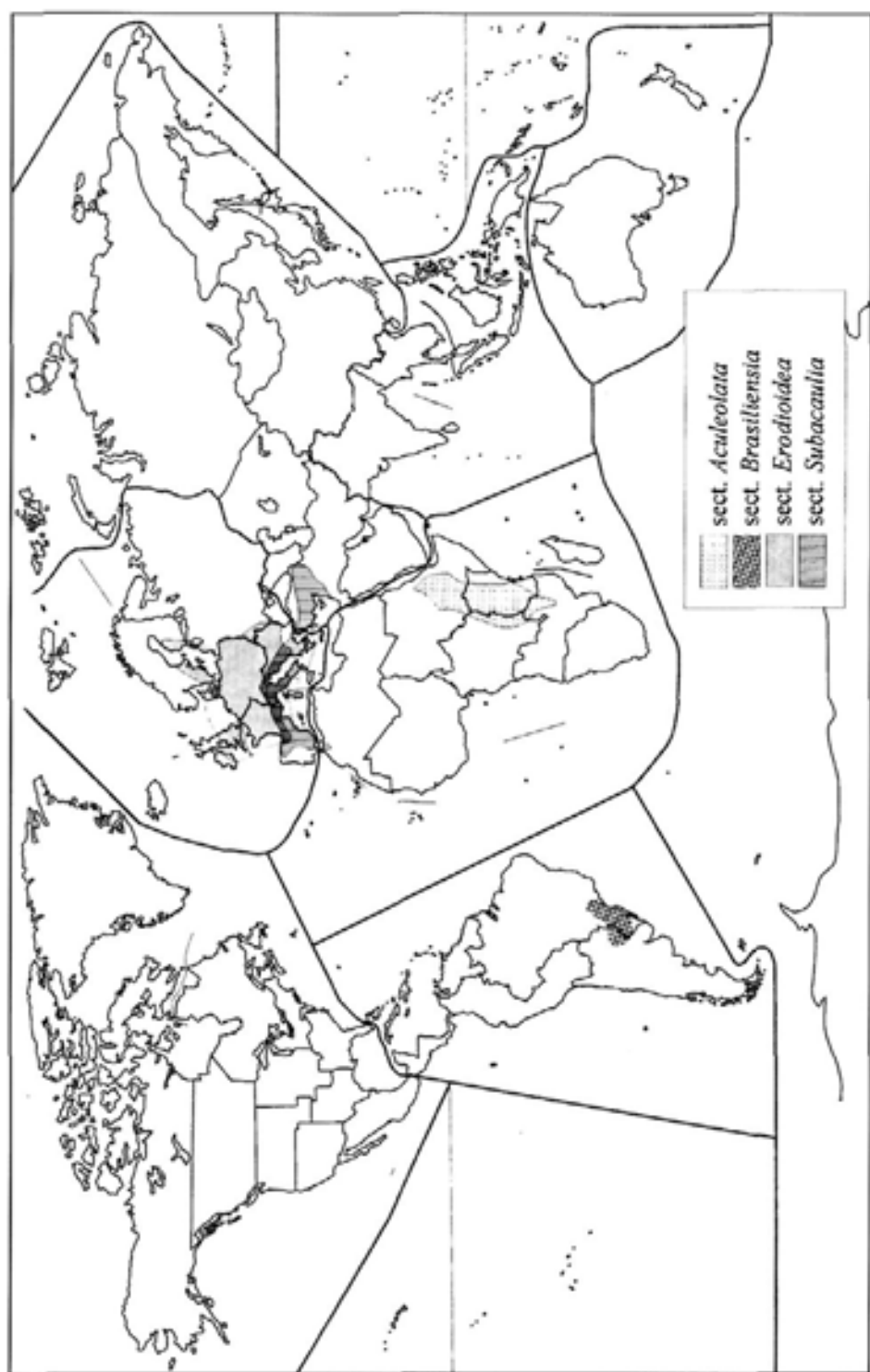


Fig. 1.—Distribution of *Geranium* subg. *Erodioides* (sect. *Aculeolata*, sect. *Brasilienisia*, sect. *Erodioides* and sect. *Subacaulia*).

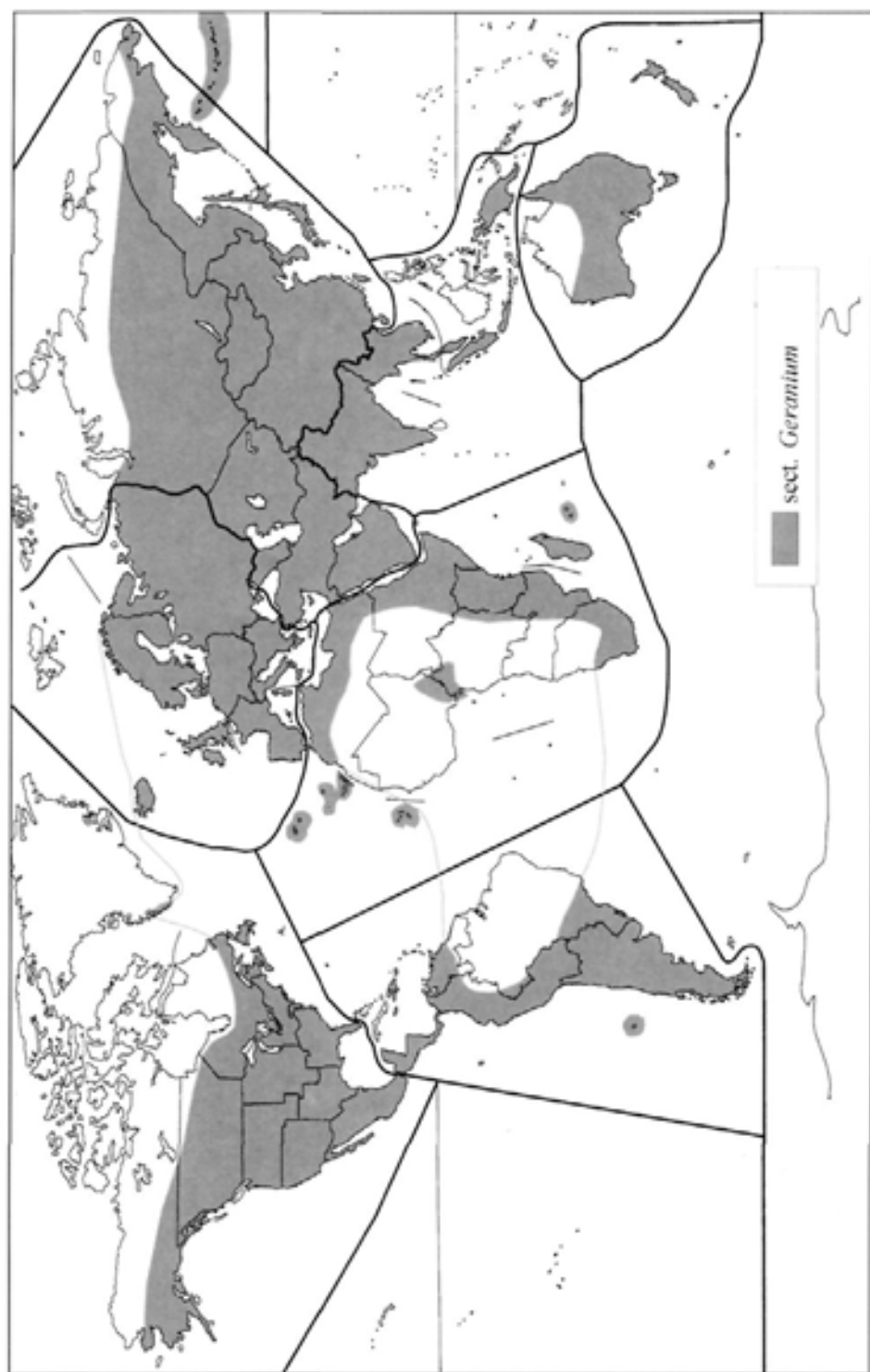


Fig. 2.—Distribution of *Geranium* subg. *Geranium* (sect. *Geranium*).

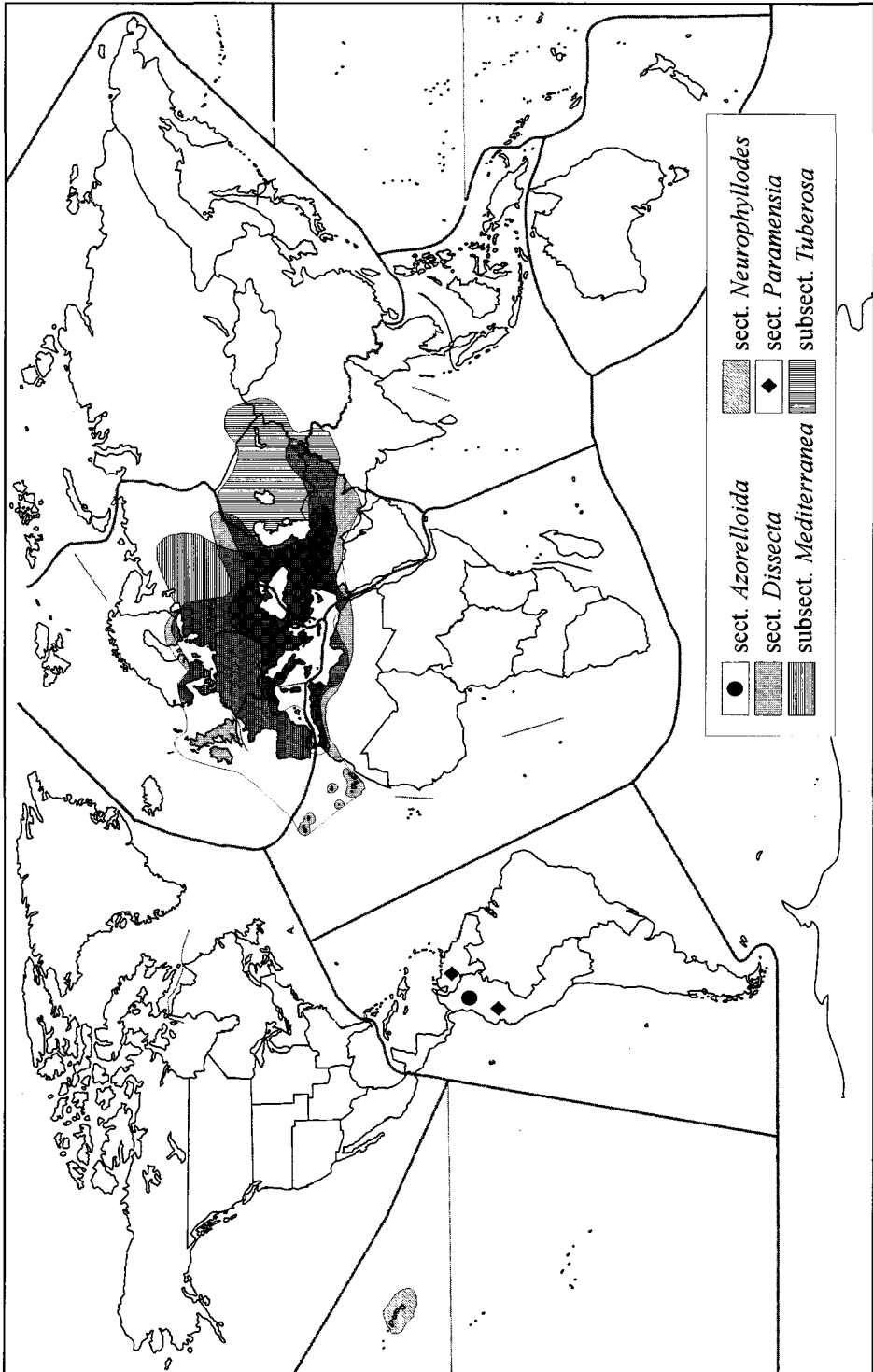


Fig. 3.—Distribution of *Geranium* subg. *Geranium* (sect. *Azorelloida*, sect. *Dissecta*, sect. *Neurophyllodes*, sect. *Paramensia*, subsection. *Tuberosa* and subsection. *Mediterranea*).

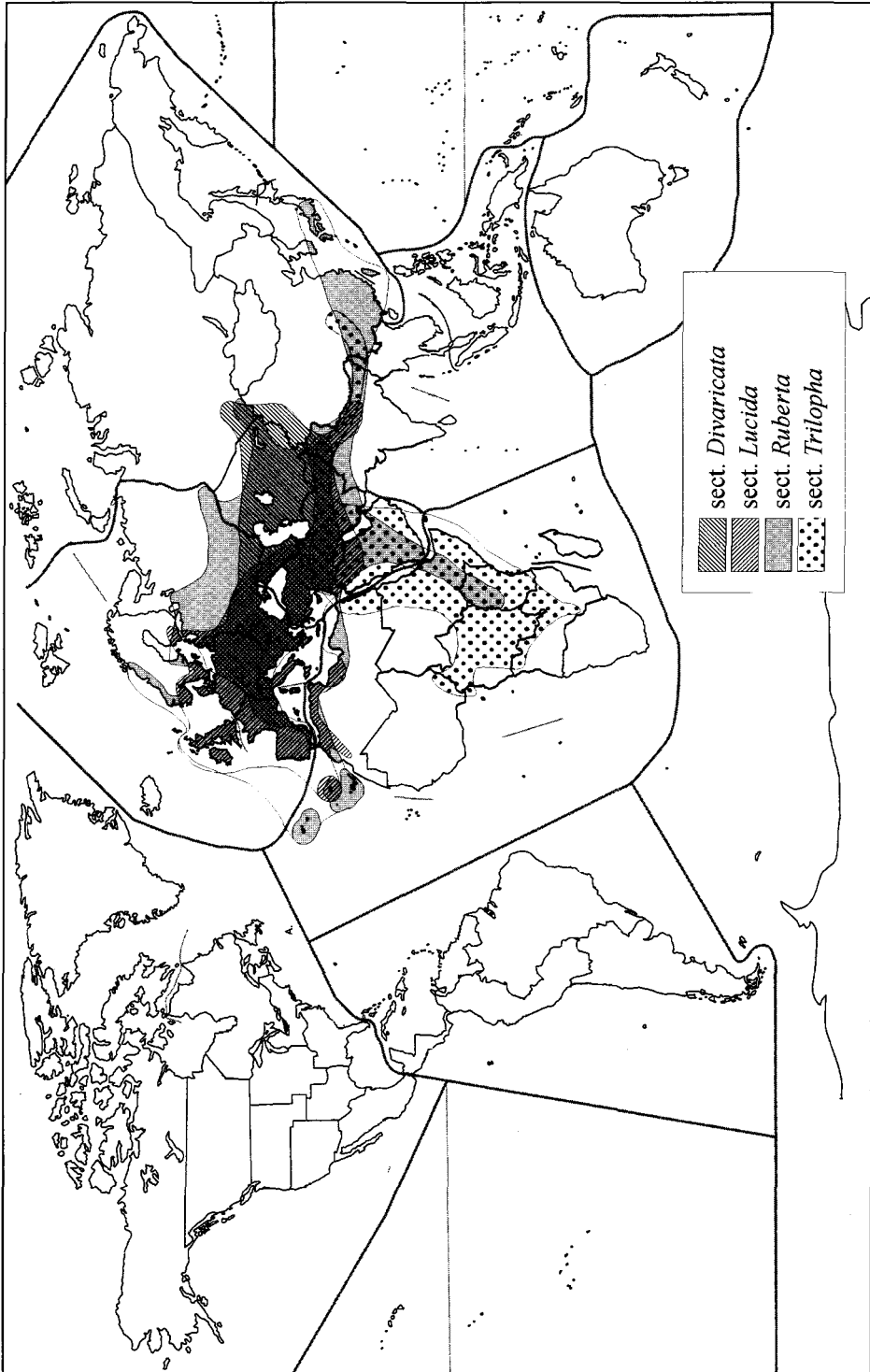


Fig. 4.—Distribution of *Geranium* subg. *Robertium* (sect. *Divaricata*, sect. *Lucida*, sect. *Ruberta* and sect. *Trilopha*).

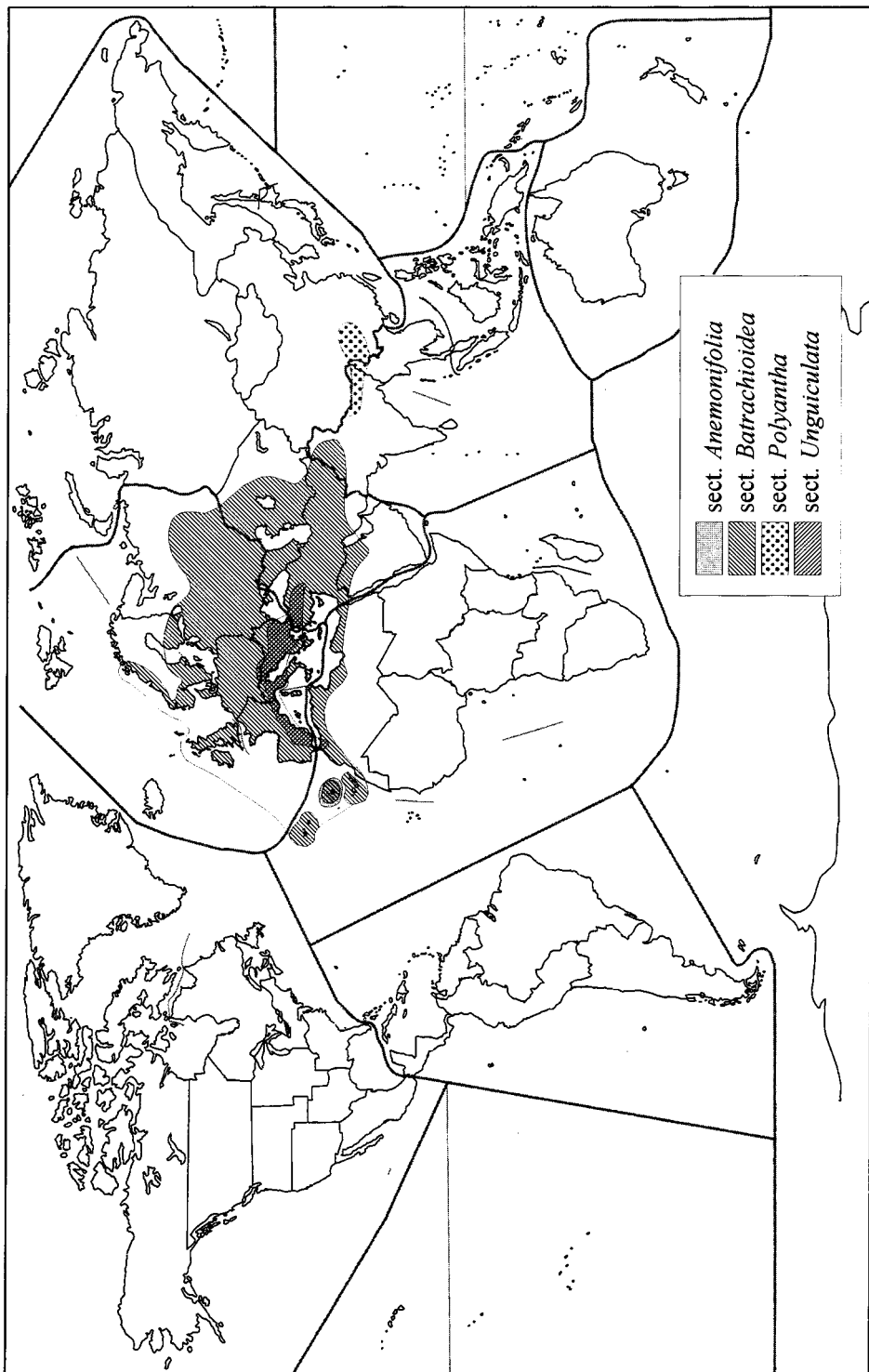


Fig. 5.—Distribution of *Geranium* subg. *Robertium* (sect. *Anemonifolia*, sect. *Batrachioidea*, sect. *Polyantha* and sect. *Unguiculata*).

(2 species) also show a limited distribution, being endemic to Madeira Island. Section *Trilopha* (5 species) is restricted to mountains of Tropical Africa, Western Asia and Eastern Himalayas. Distribution of the remaining five sections (*Lucida*, *Ruberta*, *Divaricata*, *Batrachioidea* and *Unguiculata*) is focused on the Mediterranean area and Western Asia, though sect. *Ruberta* extends in the east to Japan, and in the south to mountains of Tropical Africa (figs. 4, 5). This subgenus, morphologically well-defined, is also firmly supported by data from chloroplast DNA (PRICE & PALMER, 1993).

ARRANGEMENT OF THE CHECKLIST

Subgenera and sections are arranged according to the scheme by YEO (1984, 1990). New sections are listed at the end of their respective subgenera. Within sections, species are in alphabetic order. For each accepted species, place of publication, selected references, and geographic distribution are provided.

We have examined the original publication for all accepted names and basionyms and checked the nomenclatural status of each one. We have verified all synonyms in the current literature (ca. 2600 names) as well, but they are not listed here for the sake of brevity. The checklist has been generated from a database with a computer program developed by us, NOMENFMI, which sorts, formats and ensures nomenclatural consistency of the listed names. The list of references (1300) used for the compilation of the checklist would be too large to be included here in full, and only selected references for each species—where descriptions, identification keys, illustrations, nomenclature or distributional data on each one can be found—is provided. These references are listed after the species name by an identifying number in square brackets. For some species no references, other than that for the protologue, are given. This is due either to their recent publication or to their remote distribution, as is the case with most species from South America.

Geographic distribution is recorded following the standard by HOLLIS & BRUMMITT (1992). We use level 2 (regions, grouped by continents) and level 3 (botanical countries) (see Appendix 1, 2). In a few cases, a more detailed distribution is provided using level 4 (basic recording units), or listing the specific localities between round brackets. Introduction in an area is indicated by enclosing its code in square brackets; extinction by appending the symbol † at the end of the code; when presence is questionable in an area, a question mark follows its code.

Finally, we believe that others in the systematic community will find the checklist useful. We hope that it will assist those currently conducting research on *Geranium* and encourage others to undertake badly needed revisions of certain infrageneric groups.

KEY TO THE SUBGENERA AND SECTIONS OF *GERANIUM*

1. Fruit discharge “*Erodium*-type” (**I. *Geranium*** subg. ***Erodioidea***) 2
 - Fruit discharge type “seed-ejection” or “carpel-projection” 5
2. Inflorescence armed with prickles 2. **G. sect. *Aculeolata***
 - Inflorescence without prickles 3
3. Cymules one-flowered ... 4. **G. sect. *Brasiliensia***
 - Cymules two-flowered 4
4. Stems tall (20-80 cm), always erect; petals patent or reflexed, obtuse or mucronate at apex; inflorescence with both glandular hairs (> 0.2 mm long) and ± sessile glands; nectaries pilose; petals with a very short claw 1. **G. sect. *Erodioidea***
 - Stems short [up to 35(50) cm], usually decumbent; petals erect-patent, emarginate or obtuse at apex; inflorescence with only ± sessile glands (< 40 mm long); nectaries glabrous; petals without claw 3. **G. sect. *Subacaulia***
5. Fruit discharge type “seed-ejection” (**II. *Geranium*** subg. ***Geranium***) 6
 - Fruit discharge type “carpel-projection” (**III. *Geranium*** subg. ***Robertium***) 11
6. Mericarp with exappendiculate margin, never with prong or horny setiferous tubercle; awn twisted 7. **G. sect. *Tuberosa***

- Mericarp with the margin at the base drawn out into a prong or a horny setiferous tubercle; awn curved in one plane 7
 - 7. Mericarp with the margin at the base drawn out into a prong lacking setae ... 6. **G. sect. Dissecta**
 - Mericarp with the margin at the base drawn out into a horny setiferous tubercle 8
 - 8. Leaves palmately veined 5. **G. sect. Geranium**
 - Leaves with parallel veins, at least basally ... 9
 - 9. Petiole not articulate 10. **G. sect. Azorelloida**
 - Petiole distinctly articulate either with the blade or with the stipules 10
 - 10. Petiole articulate with the stipules; cymules several-flowered ... 8. **G. sect. Neurophyllodes**
 - Petiole articulate with the blade; cymules one-flowered 9. **G. sect. Paramensia**
 - 11. Leaves divided to the base 12
 - Leaves shallowly divided 13
 - 12. Glandular hairs of the inflorescence purple; more than half the length of the stamens exerted from throat of flower 18. **G. sect. Anemonifolia**
 - Glandular hairs of the inflorescence with colourless stalks and red glands; less than half the length of the stamens exerted from the throat of flower 17. **G. sect. Ruberta**
 - 13. Fruit discharge mechanism inoperative 13. **G. sect. Divaricata**
 - Fruit discharge mechanism operative 14
 - 14. Pollen blue 14. **G. sect. Batrachoidea**
 - Pollen yellow, sometimes white 15
 - 15. Calyx longitudinally carinate 16. **G. sect. Lucida**
 - Calyx not carinate 16
 - 16. Mericarp apex obtuse; stamens exerted 15. **G. sect. Ungiculata**
 - Mericarp apex acute; stamens not exerted ... 17
 - 17. Perennial 11. **G. sect. Polyantha**
 - Annual 12. **G. sect. Trilopha**
- GERANIUM L.**, Sp. Pl. 1: 676 (1753), Gen. Pl. ed. 5: 306 (1754)
- I. Geranium subgen. Erodioides** (Picard) Yeo in Bot. J. Linn. Soc. 89: 10 (1984)
- 1. Geranium sect. Erodioides** Picard in Mém. Soc. Agric. Boulogne-sur-Mer 1: 114 (1837) [1, 3, 5]
- 1. G. aristatum** Freyn & Sint. in Bull. Herb. Boissier 5: 587 (1897) [1, 3, 7, 37, 45, 47] Regions.—Southeastern Europe. Botanical countries.—ALB GRC YUG.
- 2. G. phaeum L.**, Sp. Pl.: 681 (1753) [1, 3, 7, 10, 29, 30, 37, 45, 47] Regions.—[Northern Europe], Middle Europe, Southwestern Europe, Southeastern Europe & East Europe. Botanical countries.—ALB AUT [BGM] BLR BUL CZE [DEN] [FIN] FRA GER [GRB] HUN [IRE] ITA [NET] POL ROM SPA [SWE] SWI UKR YUG.
- 3. G. reflexum L.**, Mant. Pl. Altera: 257 (1771) [1, 3, 7, 10, 37, 45] Regions.—[Middle Europe] & Southeastern Europe. Botanical countries.—ALB BUL [GER] GRC ITA YUG.
- 2. Geranium sect. Aculeolata** Yeo in Voster (ed.), Proc. Intern. Geran. Symp.: 22 (1994) [1, 3]
- 4. G. aculeolatum** Oliv., Fl. Trop. Afr. 1: 291 (1868) [1, 3, 7, 28, 38, 39, 43, 49] Regions.—West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa & South Tropical Africa. Botanical countries.—BUR ETH KEN MLW MOZ RWA SUD TAN UGA ZAI.
- 3. Geranium sect. Subacaulia** (Boiss.) Reiche in Engl. & Prantl, Nat. Pflanzenfam. 3(4): 8 (1890) [1, 3, 5, 7]
- 5. G. argenteum L.**, Cent. Pl. II: 25 (1756) [1, 3, 7, 10, 37, 45, 47] Regions.—Southwestern Europe & Southeastern Europe. Botanical countries.—FRA ITA YUG.
- 6. G. austroapenninum** Aedo in Anales Jard. Bot. Madrid 52(1): 105 (1994) [1, 3] Regions.—Southeastern Europe. Botanical countries.—ITA.
- 7. G. cazorlense** Heywood in Bull. Brit. Mus. (Nat. Hist.), Bot. 1: 112 (1954) [1, 3, 37, 47] Regions.—Southwestern Europe. Botanical countries.—SPA.
- 8. G. cinereum** Cav., Diss. 4: 204, tab. 89 fig. 1 (1787) [1, 3, 7, 10, 37, 45, 47] Regions.—Southwestern Europe. Botanical countries.—FRA SPA.

9. *G. dolomiticum* Rothm. in Bol. Soc. Esp. Hist. Nat. 34: 151 (1934) [1, 3, 37, 47]
Regions.—Southwestern Europe.
Botanical countries.—SPA.
10. *G. lazicum* (Woronow) Aedo in Anales Jard. Bot. Madrid 52(1): 105 (1994) [1, 3, 29, 36]
Regions.—Western Asia.
Botanical countries.—TUR.
11. *G. makmelicum* Aedo in Anales Jard. Bot. Madrid 52(1): 105 (1994) [1, 3, 45]
Regions.—Western Asia.
Botanical countries.—LBS.
12. *G. nanum* Coss. ex Batt. in Batt. & Trab., Fl. Algérie (Dicot.) 1: 119 (1888) [1, 3, 7, 47]
Regions.—Northern Africa.
Botanical countries.—MOR.
13. *G. palmatipartitum* (Hauuskn. ex R. Knuth) Aedo in Anales Jard. Bot. Madrid 52(1): 105 (1994) [1, 3, 36, 45]
Regions.—Western Asia.
Botanical countries.—TUR.
14. *G. petri-davisii* Aedo in Anales Jard. Bot. Madrid 52(1): 105 (1994) [1, 3, 36]
Regions.—Western Asia.
Botanical countries.—TUR.
15. *G. ponticum* (P.H. Davis & J. Roberts) Aedo in Anales Jard. Bot. Madrid 52(1): 106 (1994) [1, 3, 36]
Regions.—Western Asia.
Botanical countries.—TUR.
16. *G. subacutum* (Boiss.) Aedo in Anales Jard. Bot. Madrid 52(1): 106 (1994) [1, 3, 36]
Regions.—Western Asia.
Botanical countries.—TUR.
17. *G. subargenteum* Lange in Willk. & Lange, Prodr. Fl. Hispan. 3: 525 (1878) [1, 3, 7, 37, 47]
Regions.—Southwestern Europe.
Botanical countries.—SPA.
18. *G. subcaulescens* L'Hér. ex DC., Prodr. 1: 640 (1824) [1, 3, 37, 45, 47]
Regions.—Southeastern Europe.
Botanical countries.—ALB GRC YUG.
19. *G. thessalum* Franzén in Nordic J. Bot. 2(6): 549, 550 fig. 1 A-E (1983) [1, 3, 47]
Regions.—Southeastern Europe.
Botanical countries.—GRC YUG.
4. *Geranium* sect. *Brasiliensia* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 46, 149 (1912)
20. *G. arachnoideum* A. St.-Hil., Fl. Bras. Merid. 1: 82, tab. 20 (1825) [7]
Regions.—Brazil & Southern South America.
Botanical countries.—AGE BZS.
21. *G. brasiliense* Progel in Mart., Fl. Bras. 12(2): 522 (1877) [7]
Regions.—Brazil.
Botanical countries.—BZL.
22. *G. glanduligerum* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 150 (1912)
Regions.—Brazil.
Botanical countries.—BZS.
- II. *Geranium* subgen. *Geranium* L.
5. *Geranium* sect. *Geranium* L. [5]
23. *G. aequatoriale* Halfdan-Nielsen in Nordic J. Bot. 16: 267, 268 fig. 1 (1996)
Regions.—Western South America.
Botanical countries.—CLM ECU.
24. *G. affine* Ledeb., Fl. Altaic. 3: 229 (1831) [7, 29, 30]
Regions.—Siberia, Soviet Middle Asia, China & Mongolia.
Botanical countries.—ALT CHX KAZ MON.
25. *G. albicans* A. St.-Hil., Fl. Bras. Merid. 1: 83 (1825) [7, 17, 44]
Regions.—Brazil & Southern South America.
Botanical countries.—AGE AGW BZS PAR URU.
26. *G. albidum* Rydb. ex Hansk & Small in Underw. & Britton (eds.), N. Amer. Fl. 25(1): 19 (1907) [7, 11]
Regions.—North and Central Mexico.
Botanical countries.—MXE-CU MXE-DU.
27. *G. albiflorum* Ledeb., Fl. Altaic. 3: 230 (1831) [7, 10, 29, 30, 37, 45]
Regions.—East Europe, Siberia, Soviet Far East, Soviet Middle Asia, China & Mongolia.
Botanical countries.—ALT AMU BRY CHX CTA IRK KAZ KGZ KRA MON RUN WSB YAK.

28. *G. album* R. Knuth in Bot. Jahrb. Syst. 37: 557 (1906) [7, 62]
Regions.—Western South America.
Botanical countries.—BOL.
29. *G. alpicola* Loes. in Bull. Herb. Boissier ser. 2, 3: 92 (1903) [7, 11]
Regions.—North and Central Mexico & Mesoamerica.
Botanical countries.—GUA MXG-VC MXS-OA.
30. *G. amatolicum* Hilliard & B.L. Burt in Notes Roy. Bot. Gard. Edinburgh 42(2): 211, 174 fig. 2 E (1985) [55]
Regions.—Southern Africa.
Botanical countries.—CPP.
31. *G. amoenum* R. Knuth in Repert. Spec. Nov. Regni Veg. 40: 217 (1936) [62]
Regions.—Western South America.
Botanical countries.—BOL.
32. *G. andicola* Loes. in Bull. Herb. Boissier ser. 2, 3: 93 (1903) [7, 11]
Regions.—Mesoamerica.
Botanical countries.—GUA SMX-CI.
33. *G. andringitrense* H. Perrier in Bull. Soc. Linn. Normandie ser. 7, 7: 188 (1925)
Regions.—Western Indian Ocean.
Botanical countries.—MDG.
34. *G. angelense* Halfdan-Nielsen in Nordic J. Bot. 16: 269, 270 fig. 2 (1996)
Regions.—Western South America.
Botanical countries.—CLM ECU.
35. *G. angustipetalum* Hilliard & B.L. Burt in Notes Roy. Bot. Gard. Edinburgh 42(2): 185, 173 fig. 1 J (1985) [55]
Regions.—Southern Africa.
Botanical countries.—NAT.
36. *G. antisanæ* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 215 (1912)
Regions.—Western South America.
Botanical countries.—ECU.
37. *G. antrorsum* Carolin in Proc. Linn. Soc. New South Wales ser. 2, 89: 357, pl. 6 fig. 14, pl. 7 fig. 10 (1965) [42]
Regions.—Australia.
Botanical countries.—NSW VIC.
38. *G. apricum* Phil. in Linnaea 28: 676 (1856) [7, 61]
Regions.—Southern South America.
Botanical countries.—CLN CLS.
39. *G. arabicum* Forssk., Fl. Aegypt.-Arab.: 124 (1775) [7, 28, 38, 39, 40, 43, 55]
Regions.—Northern Africa, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa?, Western Indian Ocean & Arabian Peninsula.
Botanical countries.—BUR CMN COM CPP? EGY ETH GGI-BI KEN MDG MLW NGA RWA SAU SUD TAN UGA YEM ZAI ZAM ZIM.
- a. *G. arabicum* Forssk. subsp. *arabicum*
Regions.—Northern Africa, West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Southern Africa?, Western Indian Ocean & Arabian Peninsula.
Botanical countries.—BUR CMN CPP? EGY ETH GGI-BI KEN MDG MLW NGA RWA SAU SUD TAN UGA YEM ZAI ZAM ZIM.
- b. *G. arabicum* subsp. *latistipulatum* (Hochst. ex A. Rich.) Kokwaro in Kew Bull. 23: 530 (1969)
Regions.—Northeast Tropical Africa, East Tropical Africa & Western Indian Ocean.
Botanical countries.—COM ETH KEN TAN.
40. *G. ardjunense* Zoll. & Moritzi in Natuur-Geneesk. Arch. Ned.—Indië 2: 585 (1845) [7, 41]
Regions.—Malesia.
Botanical countries.—JAW.
41. *G. argentinum* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 77 (1912)
Regions.—Southern South America.
Botanical countries.—AGW CLN.
42. *G. asiaticum* Serg. in Sist. Zаметки Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kiybyševa 1934(1): 1 (1934) [29, 30]
Regions.—Siberia.
Botanical countries.—ALT KRA TVA? WSB.
The name *G. asiaticum* must be adopted instead of *G. bifolium* Patr. ex DC., Prodr. 1: 642 (1824), nom. illeg., non Burm. f. (1759).

43. *G. atlanticum* Boiss., Diagn. Pl. Orient. ser. 1, 1: 59 (1843) [7, 47]
Regions.—Northern Africa.
Botanical countries.—ALG MOR TUN.
44. *G. ayacuchense* R. Knuth in Repert. Spec. Nov. Regni Veg. 18: 291 (1922) [12, 13]
Regions.—Western South America.
Botanical countries.—PER.
45. *G. ayavacense* Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 231 (1822) [7, 12, 13, 18]
Regions.—Northern South America & Western South America.
Botanical countries.—ECU PER VEN.
46. *G. balgooyi* Veldkamp in Blumea 24(2): 469 (1978)
Regions.—Malesia.
Botanical countries.—NWG.
47. *G. bangii* Hieron. in Bot. Jahrb. Syst. 21: 314 (1895) [7, 13, 62]
Regions.—Western South America.
Botanical countries.—BOL PER.
48. *G. baschkyzylsaicum* Nabiev in Bot. Mater. Gerb. Inst. Bot. Akad. Nauk Uzbeksk. SSR 20: 33 (1982) [30]
Regions.—Soviet Middle Asia.
Botanical countries.—UZB.
49. *G. baurianum* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 156 (1912) [40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP NAT.
50. *G. bellum* Rose in Contr. U.S. Natl. Herb. 10(3): 108 (1906) [7, 11, 57]
Regions.—North and Central Mexico.
Botanical countries.—MXE-GU MXE-HI MXE-QU.
51. *G. berterianum* Colla in Mem. Reale Accad. Sci. Torino 37: 45 (1834) [7, 16, 17, 61]
Regions.—Southern South America.
Botanical countries.—AGE CLN.
52. *G. bicknellii* Britton in Bull. Torrey Bot. Club 24: 92 (1897) [7, 15, 27, 45]
Regions.—Subartic America, Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, Southeastern USA & [Northern South America].
Botanical countries.—ABT ASK BRC CAL CNT COL FLA IDA ILL INI IOW MAI MAN MAS MIC MIN MNT MSO NBR NDA NFL NSC NWH NWJ NWT-MK NWY OHI ONT ORE PEN QUE SAS SDA TEN UTA [VEN] VER WAS WVA WYO YUK.
53. *G. bockii* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 180 (1912) [26]
Regions.—China.
Botanical countries.—CHC.
54. *G. bolivianum* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 575 (1912) [62]
Regions.—Western South America.
Botanical countries.—BOL.
55. *G. brycei* N.E. Br. in Bull. Misc. Inform. 1901(175/177): 120 (1901) [7, 40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP LES NAT OFS.
56. *G. butuoense* Z.M. Tan in Bull. Bot. Res., Harbin 10(1): 26, tab. 2 (1990) [26]
Regions.—China.
Botanical countries.—CHC.
57. *G. caeruleatum* Schur, Enum. Pl. Transsilv.: 136 (1866) [37, 47]
Regions.—Southeastern Europe.
Botanical countries.—ALB BUL ROM YUG.
58. *G. caespitosum* E. James, Account Exped. Pittsburgh ed. Amer. 2: 3 (1823) [7, 11, 14, 15]
Regions.—Northwestern USA, Southwestern USA, South-Central USA & North and Central Mexico.
Botanical countries.—ARI COL MXE MXN NEV NWM TEX UTA WYO.
59. *G. caffrum* Eckl. & Zeyh., Enum. Pl. Afr. Austral.: 58 (1834-35) [7, 40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP NAT.
60. *G. californicum* G.N. Jones & F.L. Jones in Rhodora 45: 38 (1943) [7, 15]
Regions.—Southwestern USA.
Botanical countries.—CAL.
61. *G. campanulatum* Paray in Bol. Soc. Bot. México 16: 22, 23 fig. 2 (1954) [57]
Regions.—North and Central Mexico.
Botanical countries.—MXE-DU MXE-QU.

62. *G. campii* H.E. Moore in *Brittonia* 15: 92, 93 fig. 1 (1963)
Regions.—Western South America.
Botanical countries.—ECU.
63. *G. canescens* L'Hér. ex Aiton, *Hort. Kew.* 2: 433 (1789) [7, 40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP.
64. *G. canopurpureum* Yeo in *Edinburgh J. Bot.* 49(2): 138, 139 fig. 3 (1992)
Regions.—China.
Botanical countries.—CHC.
65. *G. carmineum* R. Knuth in *Engl., Pflanzenz.* IV.129 (Heft 53): 119 (1912) [11]
Regions.—North and Central Mexico.
Botanical countries.—MXS-OA.
66. *G. carolinianum* L., *Sp. Pl.*: 682 (1753) [7, 11, 12, 15, 26, 27, 32, 45, 54]
Regions.—[Western Indian Ocean], [China], [Eastern Asia], [Indian Subcontinent], [Subartic America], Western Canada, Eastern Canada, Northwestern USA, North-Central USA, Northeastern USA, Southwestern USA, South-Central USA, Southeastern USA, North and Central Mexico, Caribbean, [Brazil South], [Brazil Southeast], [Western South America] & [Southern South America].
Botanical countries.—ABT [AGE] [AGW] ALA ARI ARK [ASK] BAH BER BRC [BZL] [BZS] CAL [CHC] [CHS] CNT COL DEL FLA GEO IDA ILL [IND] INI JAM [JAP] KAN KTY LOU MAI MAN MAS MIC MIN MNT MSI MRY MSO MXN-BS NCA NDA NEB NEV NWH NWM NWY OHI OKL ONT ORE [PAR] PEN [PER] [REU] SAS SDA [TAI] TEN TEX UTA VER VRG WAS WIS WVA WYO.
67. *G. caucense* R. Knuth in *Repert. Spec. Nov. Regni Veg.* 28: 9 (1930)
Regions.—Western South America.
Botanical countries.—CLM.
68. *G. chamaense* Pittier in *J. Wash. Acad. Sci.* 19: 179 (1929) [18]
Regions.—Northern South America.
Botanical countries.—VEN.
69. *G. chaparense* R. Knuth in *Repert. Spec. Nov. Regni Veg.* 28: 4 (1930) [62]
Regions.—Western South America.
Botanical countries.—BOL.
70. *G. charucanum* Standl. in *Publ. Field Mus. Nat. Hist., Bot. Ser.* 22(1): 32 (1940) [11]
Regions.—North and Central Mexico.
Botanical countries.—MXE-CU MXN-SI.
71. *G. chilense* Aedo & Muñoz Garm. in *Kew Bull.* 52(3): 725 (1997) [7, 61]
Regions.—Southern South America.
Botanical countries.—CLN.
72. *G. chilloense* Kunth in *Humb., Bonpl. & Kunth, Nov. Gen. Sp.* 5: 231 (1822) [7]
Regions.—Western South America.
Botanical countries.—ECU.
73. *G. chimborazense* R. Knuth in *Engl., Pflanzenz.* IV.129 (Heft 53): 212 (1912)
Regions.—Western South America.
Botanical countries.—ECU.
74. *G. chinchense* R. Knuth in *Repert. Spec. Nov. Regni Veg.* 28: 4 (1930) [12, 13]
Regions.—Western South America.
Botanical countries.—PER.
75. *G. chinense* Migo in *J. Shanghai Sc. Inst.* 3: 95 (1935)
Regions.—China.
Botanical countries.—CHS.
76. *G. christensenianum* Hand.-Mazz., *Symb. Sin.* 7: 621, Taf. 10 Abb. 2 (1933) [26, 64]
Regions.—China.
Botanical countries.—CHC.
77. *G. clarkei* Yeo, *Hardy Geraniums*: 188, 86 fig. 9.22, photo 11 (1985)
Regions.—Indian Subcontinent.
Botanical countries.—JMK.
78. *G. clarum* Small in *Underw. & Britton (eds.), N. Amer. Fl.* 25(1): 19 (1907) [7, 11]
Regions.—North and Central Mexico.
Botanical countries.—MXS-OA.
79. *G. collae* Aedo, Muñoz Garm. & Pando, *nom. nov.* [7, 61]
= *G. intermedium* Colla in *Mem. Reale Accad. Sci. Torino* 37: 46 (1834), *nom. illeg.*, non E. James (1823)
Regions.—Southern South America.
Botanical countries.—AGW CLN.

80. *G. collinum* Stephan ex Willd., Sp. Pl. 3(1): 705 (1801) [7, 8, 10, 29, 30, 31, 36, 37, 45, 46, 47]
Regions.—Southwestern Europe, South-eastern Europe, East Europe, Siberia, Soviet Middle Asia, Caucasus, Western Asia, China & Indian Subcontinent.
Botanical countries.—AFG ALT BLR CHX IRN JMK KAZ KGZ KRY NCS PAK ROM RUC RUE RUS SPA TCS TKM TUR TZK UKR UZB WSB.
81. *G. columbianum* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 212 (1912) [18, 58]
Regions.—Northern South America & Western South America.
Botanical countries.—CLM? VEN.
82. *G. columbinum* L., Sp. Pl.: 682 (1753) [7, 10, 15, 29, 30, 31, 36, 37, 45, 47, 61]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, South-eastern Europe, East Europe, Northern Africa, Soviet Middle Asia, Caucasus, Western Asia, [North-Central USA], [Northeastern USA], [Northwestern USA], [Southeastern USA], [Southwestern USA] & [Southern South America].
Botanical countries.—ALB ALG AUT BAL BGM BLT BUL [CAL] [CLN] COR CYP CZE [DEL] DEN FIN FRA [GEO] GER GRB GRC HUN [INI] IRE IRN ITA KAZ KRI KRY [KTY] LBS LBY [MIC] MOR [MRY] [NCA] NCS NET NOR [NWJ] [NWY] [OHI] [ORE] PAL [PEN] POL POR ROM RUC RUE RUS RUW SAR [SDA] SIC SPA SWE SWI TCS [TEN] TUE TUN TUR UKR [VRG] [WAS] [WDC] [WVA] YUG.
83. *G. comarapense* R. Knuth in Meded. Rijks-Herb. 27: 69 (1915) [62]
Regions.—Western South America.
Botanical countries.—BOL.
84. *G. commutatum* Steud. in Flora 39(28): 439 (1856) [7, 61]
Regions.—Southern South America.
Botanical countries.—CLN.
85. *G. confertum* Standl. in Contr. U.S. Natl. Herb. 18: 111 (1916)
Regions.—Western South America.
Botanical countries.—CLM.
86. *G. contortum* Eckl. & Zeyh., Enum. Pl. Afric. Austral. 1: 59 (1834-35) [40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP.
87. *G. core-core* Steud. in Flora 39(28): 438 (1856) [7, 16, 17, 61]
Regions.—Southern South America.
Botanical countries.—AGW CLN JNF.
88. *G. costaricense* H.E. Moore in Gentes Herb. 8(3): 253 (1951) [19]
Regions.—Mesoamerica.
Botanical countries.—COS PAN.
89. *G. crassipes* Hook. ex A. Gray, U.S. Expl. Exped., Phan. 1: 309 (1854) [12, 13]
Regions.—Western South America.
Botanical countries.—BOL PER.
90. *G. crassiusculum* R. Knuth in Repert. Spec. Nov. Regni Veg. 40: 217 (1936)
Regions.—Western South America.
Botanical countries.—ECU.
91. *G. crenatifolium* H.E. Moore in Contr. Gray Herb. 146: 38 (1943) [7]
Regions.—North and Central Mexico.
Botanical countries.—MXE-CO MXE-DU MXE-NL MXE-TA.
92. *G. cruceroense* R. Knuth in Bull. Misc. Inform. 1937(10): 502 (1937) [7, 11, 57]
Regions.—North and Central Mexico.
Botanical countries.—MXC-DF MXC-ME MXC-PU MXG MXS-MI.
93. *G. cuatrecasasii* R. Knuth in Repert. Spec. Nov. Regni Veg. 34: 143 (1933)
Regions.—Western South America.
Botanical countries.—CLM.
94. *G. cuchillense* R. Knuth in Repert. Spec. Nov. Regni Veg. 34: 144 (1933) [62]
Regions.—Western South America.
Botanical countries.—BOL.
95. *G. dahuricum* DC., Prodr. 1: 642 (1824) [7, 26, 29, 30, 34, 45, 50, 51, 52, 54, 64]
Regions.—Siberia, Soviet Far East, China, Mongolia & Eastern Asia.
Botanical countries.—AMU CHC CHI? CHM CHN CTA JAP KHA KOR MON? PRM.
96. *G. delavayi* Franch. in Bull. Soc. Bot. France 33: 442 (1887) [7, 26, 45, 54, 64]
Regions.—China.
Botanical countries.—CHC.

- 97. *G. deltoideum*** Rydb. ex Hansk & Small in Underw. & Britton (eds.), *N. Amer. Fl.* 25(1): 18 (1907) [7, 11, 57]
Regions.—North and Central Mexico.
Botanical countries.—MXE-CU MXE-DU MXE-GU MXE-QU MXE-SL MXE-ZA MXN-SI MXS-GR MXS-JA MXS-MI.
- 98. *G. dielsianum*** R. Knuth in *Bot. Jahrb. Syst.* 37: 563 (1906) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.
- 99. *G. diffusum*** Kunth in Humb., *Bonpl. & Kunth, Nov. Gen. Sp.* 5: 230 (1822) [7, 12, 13, 62]
Regions.—Western South America.
Botanical countries.—BOL ECU PER.
- 100. *G. digitatum*** R. Knuth in *Repert. Spec. Nov. Regni Veg.* 28: 1 (1930) [12, 13]
Regions.—Western South America.
Botanical countries.—PER.
- 101. *G. discolor*** Hilliard & B.L. Burt in *Notes Roy. Bot. Gard. Edinburgh* 42(2): 186, 173 fig. 1 F (1985) [55]
Regions.—Southern Africa.
Botanical countries.—CPP.
- 102. *G. donianum*** Sweet, *Geraniaceae* 4, tab. 338 in textu (1827) [7, 26, 35, 45, 64]
Regions.—China & Indian Subcontinent.
Botanical countries.—BHU CHC CHT NEP.
- 103. *G. drakensbergense*** Hilliard & B.L. Burt in *Notes Roy. Bot. Gard. Edinburgh* 42(2): 190, 173 fig. 1 H (1985) [55]
Regions.—Southern Africa.
Botanical countries.—NAT.
- 104. *G. dregei*** Hilliard & B.L. Burt in *Notes Roy. Bot. Gard. Edinburgh* 42(2): 201, 174 fig. 2 D (1985) [55]
Regions.—Southern Africa.
Botanical countries.—CPP OFS.
- 105. *G. drummondii*** Carolin in *Proc. Linn. Soc. New South Wales ser. 2*, 89: 353, pl. 6 fig. 4 (1965) [42]
Regions.—Australia.
Botanical countries.—WAU.
- 106. *G. duclouxii*** Yeo in *Edinburgh J. Bot.* 49(2): 148, 149 fig. 5 (1992)
Regions.—China.
Botanical countries.—CHC.
- 107. *G. durangense*** H.E. Moore in *Brittonia* 15: 95, 94 fig. 2 (1963)
Regions.—North and Central Mexico.
Botanical countries.—MXE.
- 108. *G. ecuadoriense*** Hieron. in *Bot. Jahrb. Syst.* 20, *Beiblatt* 49: 30 (1895) [7]
Regions.—Western South America.
Botanical countries.—ECU.
- 109. *G. editum*** Veldkamp in *Blumea* 24(2): 470 (1978)
Regions.—Malesia.
Botanical countries.—NWG.
- 110. *G. eginense*** Hausskn. & Sint. ex R. Knuth in *Engl., Pflanzenr.* IV.129 (Heft 53): 61 (1912) [7, 36, 47]
Regions.—Western Asia.
Botanical countries.—TUR.
- 111. *G. elatum*** (Maxim.) R. Knuth in *Engl., Pflanzenr.* IV.129 (Heft 53): 113 (1912) [30, 60]
Regions.—Soviet Far East.
Botanical countries.—KHA PRM?
- 112. *G. endressii*** J. Gay in *Ann. Sci. Nat. (Paris)* 26: 228 (1832) [7, 10, 37, 45, 47]
Regions.—[Northern Europe], [Middle Europe] & Southwestern Europe.
Botanical countries.—[BGM] FRA [GRB].
- 113. *G. erianthum*** DC., *Prodr.* 1: 641 (1824) [7, 14, 15, 29, 30, 34, 45, 60, 61, 64]
Regions.—Siberia, Soviet Far East, China, Subarctic America & Western Canada.
Botanical countries.—ABT ALU AMU ASK BRC CHM KAM KHA MAG KUR PRM SAK YAK YUK.
- 114. *G. escalonense*** R. Knuth in *Repert. Spec. Nov. Regni Veg.* 34: 145 (1933) [62]
Regions.—Western South America.
Botanical countries.—BOL.
- 115. *G. exellii*** J.R. Laundon in *Bol. Soc. Brot. ser. 2*, 35: 62, [foto 2] (1961) [38, 43]
Regions.—South Tropical Africa.
Botanical countries.—MOZ ZIM.
- 116. *G. fallax*** Steud. in *Flora* 39(28): 439 (1856) [7, 12, 13]
Regions.—Western South America & Southern South America.
Botanical countries.—AGW PER.

117. *G. fargesii* Yeo in Edinburgh J. Bot. 49(2): 150, 151 fig. 6 (1992)
Regions.—China.
Botanical countries.—CHC.
118. *G. farreri* Stapf in Bot. Mag. 151, tab. 9092 (1926) [26, 45, 54]
Regions.—China.
Botanical countries.—CHN.
119. *G. ferganense* Bobrov in Kom. & al. (eds.), Fl. URSS 14: 713 (1949) [29, 30]
Regions.—Soviet Middle Asia.
Botanical countries.—UZB.
120. *G. fiebrigianum* R. Knuth in Bot. Jahrb. Syst. 37: 560 (1906) [7, 62]
Regions.—Western South America.
Botanical countries.—BOL.
121. *G. filipes* Killip in J. Wash. Acad. Sci. 16: 569 (1926) [12, 13]
Regions.—Western South America.
Botanical countries.—PER.
122. *G. finitimum* Woronow in Kusn., N. Busch & Fomin, Fl. Cauc. Crit. 3(7): 50 (1908) [30, 36, 47]
Regions.—Caucasus & Western Asia.
Botanical countries.—TCS TUR.
123. *G. flaccidum* Small in Underw. & Britton (eds.), N. Amer. Fl. 25(1): 11 (1907) [7, 11]
Regions.—North and Central Mexico.
Botanical countries.—MXN-BC.
124. *G. flanaganii* Schltr. ex R. Knuth in Bot. Jahrb. Syst. 40: 69 (1908) [7, 40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP NAT SWZ.
125. *G. franchetii* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 177 (1912) [26, 64]
Regions.—China.
Botanical countries.—CHC.
126. *G. frigidurbis* Moerman in Blumea 24(2): 469 (1978)
Regions.—Malesia.
Botanical countries.—SUL.
127. *G. fuscicaule* R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 7 (1930) [62]
Regions.—Western South America.
Botanical countries.—BOL.
128. *G. geissei* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 70 (1912) [61]
Regions.—Southern South America.
Botanical countries.—CLN.
129. *G. gentryi* H.E. Moore in Contr. Gray Herb. 146: 74, pl. 1 fig. 1, pl. 5 fig. 6 (1943)
Regions.—North and Central Mexico.
Botanical countries.—MXN-SO.
130. *G. goldmanii* Rose ex Hansk & Small in Underw. & Britton (eds.), N. Amer. Fl. 25(1): 17 (1907) [7, 11]
Regions.—Mesoamerica.
Botanical countries.—SMX-CI.
131. *G. gorbizense* Aedo & Muñoz Garm. in Kew Bull. 52(3): 725 (1997) [30, 60]
Regions.—Soviet Far East & Eastern Asia.
Botanical countries.—AMU KHA KOR PRM.
132. *G. grandistipulatum* Hilliard & B.L. Burtt in Notes Roy. Bot. Gard. Edinburgh 42(2): 213, 174 fig. 2 I (1985) [55]
Regions.—Southern Africa.
Botanical countries.—CPP.
133. *G. graniticola* Carolin in Proc. Linn. Soc. New South Wales ser. 2, 89: 345, pl. 6 fig. 10, pl. 7 fig. 9 (1965) [42]
Regions.—Australia.
Botanical countries.—NSW.
134. *G. guamanense* Halfdan-Nielsen in Nordic J. Bot. 16: 271 fig. 3 (1996)
Regions.—Western South America.
Botanical countries.—ECU.
135. *G. guatemalense* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 200 (1912) [11, 19]
Regions.—Mesoamerica.
Botanical countries.—COS ELS GUA HON NIC PAN SMX-CI.
136. *G. harmsii* R. Knuth in Bot. Jahrb. Syst. 37: 559 (1906) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.
137. *G. harveyi* Briq. in Annuaire Conserv. Jard. Bot. Genève 11/12: 183 (1908) [7, 40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP.
138. *G. hattae* Nakai in Bot. Mag. (Tokyo) 26: 263 (1912) [34]
Regions.—China & Eastern Asia.
Botanical countries.—CHM KOR.

139. *G. hayatanum* Ohwi in Acta Phytotax. Geobot. 2(3): 152 (1933) [7, 32]
Regions.—Eastern Asia.
Botanical countries.—TAI.
140. *G. heinrichsae* R. Knuth in Repert. Spec. Nov. Regni Veg. 40: 216 (1936)
Regions.—Western South America.
Botanical countries.—ECU.
141. *G. henryi* R. Knuth in Repert. Spec. Nov. Regni Veg. 19: 228 (1923) [26, 52, 54]
Regions.—China.
Botanical countries.—CHC CHN?
142. *G. hernandesii* Moç. & Sessé ex DC., Prodr. 1: 640 (1824) [7, 11, 57]
Regions.—North and Central Mexico.
Botanical countries.—MXC-DF MXC-ME MXE-GU MXE-HI MXN-SI MXS-GR MXS-JA MXS-ML.
143. *G. herrerae* R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 1 (1930) [12, 13]
Regions.—Western South America.
Botanical countries.—PER.
144. *G. herzogii* R. Knuth in Meded. Rijks-Herb. 27: 69 (1915) [62]
Regions.—Western South America.
Botanical countries.—BOL.
145. *G. himalayense* Klotzsch, Bot. Ergebn. Reise Waldemar: 122, Taf. 16 (1862) [7, 29, 30, 31, 35, 45, 46, 64]
Regions.—Soviet Middle Asia, Western Asia, China & Indian Subcontinent.
Botanical countries.—AFG CHX JMK NEP PAK TZK.
146. *G. hintonii* H.E. Moore in Contr. Gray Herb. 146: 80, pl. 1 fig. 5 (1943)
Regions.—North and Central Mexico.
Botanical countries.—MXS-GR.
147. *G. holm-nielsenii* Halfdan-Nielsen in Nordic J. Bot. 16: 272, 273 fig. 4 (1996)
Regions.—Western South America.
Botanical countries.—ECU.
148. *G. holosericeum* Willd. ex Spreng., Syst. Veg. 3: 72 (1826) [7]
Regions.—Northern South America & Western South America.
Botanical countries.—CLM VEN.
149. *G. homeanum* Turcz. in Bull. Soc. Imp. Naturalistes Moscou 36(1): 591 (1863) [15, 21, 42, 59]
Regions.—Malesia, Australasia, [North-Central Pacific] & [Southwestern USA]?
Botanical countries.—[CAL]? [HAW] JAW QLD LSI NSW NZN TAS.
150. *G. huantense* R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 8 (1930) [12, 13]
Regions.—Western South America.
Botanical countries.—PER.
151. *G. humboldtii* Spreng., Syst. Veg. 3: 70 (1826) [12, 13]
Regions.—Western South America & Southern South America.
Botanical countries.—AGW CLN ECU PER.
152. *G. hyperacrion* Veldkamp in Blumea 24(2): 470 (1978)
Regions.—Malesia.
Botanical countries.—NWG.
153. *G. hystricinum* H.E. Moore in Contr. Gray Herb. 146: 72, pl. 3 fig. 10, pl. 5 figs. 3, 7 (1943)
Regions.—North and Central Mexico.
Botanical countries.—MXS-GR.
154. *G. igualatense* R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 88 (1930)
Regions.—Western South America.
Botanical countries.—ECU.
155. *G. imbaburae* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 211 (1912)
Regions.—Western South America.
Botanical countries.—ECU.
156. *G. incanum* Burm. f., Spec. Bot. Geran.: 28, tab. 1 fig. 26 (1759) [7, 28, 38, 40, 43, 45, 55]
Regions.—East Tropical Africa & Southern Africa.
Botanical countries.—CPP TAN.
157. *G. jaekelae* J.F. Macbr. in Candollea 6: 7 (1934) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.
158. *G. jinchuanense* Z.M. Tan in Bull. Bot. Res., Harbin 14(3): 232, 235 tab. 2 (1994)
Regions.—China.
Botanical countries.—CHC-SI.
159. *G. kashmirianum* Sapru & Raina in Geobios, New Rep. 5(1): 63, 64 figs. 1-12 (1986)
Regions.—Indian Subcontinent.
Botanical countries.—JMK.

- 160. *G. kerberi*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 200 (1912) [11, 18, 58]
Regions.—North and Central Mexico, Northern South America & Western South America.
Botanical countries.—CLM MXC-DF MXC-ME MXC-MO MXC-PU MXE-HI MXE-SL VEN.
- 161. *G. kilimandscharicum*** Engl. in Abh. Königl. Akad. Wiss. Berlin 1891(2): 274 (1892) [7, 28, 43]
Regions.—East Tropical Africa.
Botanical countries.—KEN TAN UGA.
- 162. *G. killipianum*** R. Knuth in Repert. Spec. Nov. Regni Veg. 34: 144 (1933) [12, 13]
Regions.—Western South America.
Botanical countries.—PER.
- 163. *G. killipii*** R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 8 (1930)
Regions.—Western South America.
Botanical countries.—CLM PER.
- 164. *G. kishtvariense*** R. Knuth in Repert. Spec. Nov. Regni Veg. 19: 229 (1923) [45]
Regions.—Indian Subcontinent.
Botanical countries.—JMK.
- 165. *G. knuthianum*** J.F. Macbr. in Candollea 6: 7 (1934)
Regions.—Western South America.
Botanical countries.—ECU.
- 166. *G. knuthii*** Nakai in Bot. Mag. (Tokyo) 26: 263 (1912) [50]
Regions.—Eastern Asia.
Botanical countries.—KOR.
- 167. *G. koreanum*** Kom. in Trudy Imp. S.-Peterburgsk. Bot. Sada 18(6): 433 (1901) [7, 34, 50, 51, 64]
Regions.—China & Eastern Asia.
Botanical countries.—CHM KOR.
- 168. *G. krameri*** Franch. & Sav., Enum. Pl. Jap. 2: 306 (1878) [7, 26, 29, 33, 34, 45, 50, 54, 64]
Regions.—Soviet Far East, China & Eastern Asia.
Botanical countries.—AMU CHC CHM JAP KHA KOR PRM.
- 169. *G. lacustre*** Veldkamp in Blumea 24(2): 471 (1978)
Regions.—Malesia.
Botanical countries.—NWG.
- 170. *G. lambertii*** Sweet, Geraniaceae: 4, tab. 338 (1827) [7, 31, 35, 45, 46, 64]
Regions.—China & Indian Subcontinent.
Botanical countries.—BHU CHT IND NEP JMK PAK.
- 171. *G. lasiocaulon*** Nakai in Bot. Mag. (Tokyo) 49: 350 (1935)
Regions.—Eastern Asia.
Botanical countries.—KOR.
- 172. *G. latilobum*** H.E. Moore in Contr. Gray Herb. 146: 70, pl. 3 fig. 15 (1943)
Regions.—North and Central Mexico.
Botanical countries.—MXS-JA.
- 173. *G. latum*** Small in Underw. & Britton (eds.), N. Amer. Fl. 25(1): 18 (1907) [7, 11, 57]
Regions.—North and Central Mexico.
Botanical countries.—MXC-DF MXC-MO MXE-DU? MXE-HI MXE-QU MXS-MI.
- 174. *G. laxicaule*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 209 (1912) [12, 13]
Regions.—Western South America.
Botanical countries.—ECU PER.
- 175. *G. lechleri*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 80 (1912) [7, 12, 13, 62]
Regions.—Western South America.
Botanical countries.—BOL PER.
- 176. *G. lentum*** Wooton & Standl. in Contr. U.S. Natl. Herb. 16: 142 (1913) [14, 15]
Regions.—Southwestern USA, South-Central USA & North and Central Mexico.
Botanical countries.—ARI MXE NWM TEX.
- 177. *G. leptodactylon*** Veldkamp in Blumea 24(2): 471 (1978)
Regions.—Malesia.
Botanical countries.—NWG.
- 178. *G. leucanthum*** Griseb., Pl. Lorentz.: 55 (1874); preprinted or reprinted in Abh. Königl. Ges. Wiss. Göttingen 19: 103 (1874), n.v. [7]
Regions.—Southern South America.
Botanical countries.—AGW.
- 179. *G. lignosum*** R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 10 (1930)
Regions.—Western South America.
Botanical countries.—CLM.

- 180. *G. lilacinum*** R. Knuth in Bull. Misc. Inform. 1937(10): 502 (1937) [11, 57]
Regions.—North and Central Mexico.
Botanical countries.—MXC-ME MXC-MO MXE-SL MXS-GR MXS-MI.
- 181. *G. limae*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 74 (1912) [12, 13]
Regions.—Western South America.
Botanical countries.—PER.
- 182. *G. loxense*** Halfdan-Nielsen in Nordic J. Bot. 16: 273, 274 fig. 5 (1996)
Regions.—Western South America.
Botanical countries.—ECU.
- 183. *G. lozanoi*** Rose in Contr. U.S. Natl. Herb. 10(3): 108 (1906) [7, 11, 57]
Regions.—North and Central Mexico.
Botanical countries.—MXE-HI MXS-MI.
- 184. *G. maculatum*** L., Sp. Pl.: 681 (1753) [7, 14, 15, 45]
Regions.—Western Canada, Eastern Canada, North-Central USA, Northeastern USA, Southwestern USA & Southeastern USA.
Botanical countries.—ALA ARK CNT DEL GEO ILL INI IOW KAN KTY LOU MAI MAN MAS MIC MIN MRY MSI MSONCA NDA NEB NWH NWJ NWY OHI OKL ONT PEN QUE RHO SCA SDA TEN VER VRG WDC WIS WVA.
- 185. *G. madreense*** Rose ex Hansk & Small in Underw. & Britton (eds.), N. Amer. Fl. 25(1): 17 (1907) [7, 11]
Regions.—North and Central Mexico.
Botanical countries.—MXE-DU MXS-NA.
- 186. *G. magellanicum*** Hook. f., Fl. Antarct. 2: 251 (1845) [7, 17, 61]
Regions.—Southern South America.
Botanical countries.—AGW CLS.
- 187. *G. magniflorum*** R. Knuth in Bot. Jahrb. Syst. 40: 68 (1908) [7, 40, 45, 55]
Regions.—Southern Africa.
Botanical countries.—CPP LES NAT OFS.
- 188. *G. malpasense*** R. Knuth in Repert. Spec. Nov. Regni Veg. 34: 146 (1933) [62]
Regions.—Western South America.
Botanical countries.—BOL.
- 189. *G. maniculatum*** H.E. Moore in Gentes Herb. 8(3): 254 fig. 102 (1951)
Regions.—Western South America.
Botanical countries.—ECU.
- 190. *G. mathewsii*** Briq. in Annuaire Conserv. Jard. Bot. Genève 11/12: 188 (1908) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.
- 191. *G. matucanense*** R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 5 (1930) [12, 13]
Regions.—Western South America.
Botanical countries.—PER.
- 192. *G. maximowiczii*** Regel & Maack in Regel, Tent. Fl.-Ussur.: 39, tab. 3 figs. 4-6 c, f, g (1861) [7, 29, 30, 34, 50, 54, 64]
Regions.—Soviet Far East, China & Eastern Asia.
Botanical countries.—AMU CHM KHA KOR PRM.
- 193. *G. melanopotamicum*** Speg. in Anales Mus. Nac. Hist. Nat. Buenos Aires ser. 2, 4: 254 (1902) [7, 44]
Regions.—Southern South America.
Botanical countries.—AGE AGS.
- 194. *G. meridense*** Pittier in J. Wash. Acad. Sci. 19: 178 (1929) [18]
Regions.—Northern South America.
Botanical countries.—VEN.
- 195. *G. mexicanum*** Kunth in Humb., Bonpl. & Kunth, Nov. Gen. Sp. 5: 230 (1822) [7, 11, 57]
Regions.—North and Central Mexico & Mesoamerica.
Botanical countries.—MXC-ME MXE-AG MXE-DU MXE-GU MXE-ZA MXS-GR MXS-JA MXS-MI SMX-CI.
- 196. *G. mlanjensis*** J.R. Laundon in Bol. Soc. Brot. ser. 2, 35: 70, [foto 4] (1961) [38, 43]
Regions.—South Tropical Africa.
Botanical countries.—MLW.
- 197. *G. mogotocoreense*** R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 88 (1930)
Regions.—Western South America.
Botanical countries.—CLM.
- 198. *G. mollendiense*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 580 (1912) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.

199. *G. monanthum* Small in Underw. & Britton (eds.), *N. Amer. Fl.* 25(1): 21 (1907) [7, 11]
Regions.—North and Central Mexico.
Botanical countries.—MXS-OA.
200. *G. monticola* Ridl. in *Trans. Linn. Soc. London, Bot.* 9(1): 23 (1916) [21, 41]
Regions.—Malesia.
Botanical countries.—NWG.
201. *G. moorei* Phil. in *Anales Univ. Chile* 82: 728 (1893) [7, 61]
Regions.—Southern South America.
Botanical countries.—CLN.
202. *G. multiceps* Turcz. in *Bull. Soc. Imp. Naturalistes Moscou* 31(2): 417 (1858) [7, 18, 58]
Regions.—Northern South America & Western South America.
Botanical countries.—VEN.
203. *G. multipartitum* Benth., *Pl. Hartw.* 2: 166 (1845) [7, 13]
Regions.—Western South America.
Botanical countries.—BOL ECU PER.
204. *G. multisectum* N.E. Br. in *Bull. Misc. Inform.* 1901(175/177): 120 (1901) [7, 40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP LES NAT OFS TVL.
205. *G. napuligerum* Franch., *Pl. Delavay.*: 115 (1889) [7, 26, 54]
Regions.—China & Eastern Asia.
Botanical countries.—CHC KOR.
206. *G. natalense* Hilliard & B.L. Burt in *Notes Roy. Bot. Gard. Edinburgh* 42(2): 204, 174 fig. 2 H (1985) [55]
Regions.—Southern Africa.
Botanical countries.—CPP NAT.
207. *G. neglectum* Carolin in *Proc. Linn. Soc. New South Wales ser. 2*, 89: 343, pl. 6 fig. 12, pl. 7 fig. 8 (1965) [42]
Regions.—Australia.
Botanical countries.—NSW QLD VIC.
208. *G. neohispidum* Aedo & Muñoz Garm. in *Kew Bull.* 52(3): 725 (1997) [7, 61]
Regions.—Southern South America.
Botanical countries.—CLN.
209. *G. neopumilum* Aedo & Muñoz Garm., *Kew Bull.* 52(3): 726 (1997)
Regions.—Western South America.
Botanical countries.—ECU.
210. *G. nepalense* Sweet, *Geraniaceae*: 1, tab. 12 (1820) [7, 26, 31, 35, 41, 45, 46, 53, 54, 64]
Regions.—Soviet Far East, Western Asia, China, Eastern Asia, Indian Subcontinent, Indo-China & Malesia.
Botanical countries.—AFG ASS BHU BMA CHC CHM CHT IND JMK KOR KUR LAO NEP PAK SRL SUM THA VIE.
211. *G. niuginiense* Veldkamp in *Blumea* 24(2): 473 (1978)
Regions.—Malesia.
Botanical countries.—NWG.
212. *G. nivale* R. Knuth in *Bot. Jahrb. Syst.* 37: 563 (1906) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.
213. *G. niveum* S. Watson in *Proc. Amer. Acad. Arts* 21: 421 (1886) [7, 11]
Regions.—North and Central Mexico.
Botanical countries.—MXE-CU.
214. *G. nodosum* L., *Sp. Pl.*: 681 (1753) [7, 10, 37, 45, 47]
Regions.—[Northern Europe], Middle Europe, Southwestern Europe & Southeastern Europe.
Botanical countries.—[BGM] COR FRA [GER] [GRB] ITA [NET] SPA SWI YUG.
215. *G. nuristanicum* Schönb.—Tem. in *Rech. f. (ed.), Fl. Iran.* 69: 19, tab. 6 (1970)
Regions.—Western Asia.
Botanical countries.—AFG.
216. *G. nyassense* R. Knuth in *Repert. Spec. Nov. Regni Veg.* 18: 289 (1922) [28, 38, 40, 43, 55]
Regions.—East Tropical Africa, South Tropical Africa & Southern Africa.
Botanical countries.—MLW MOZ TAN TVL ZIM.
217. *G. oaxacanum* H.E. Moore in *Contr. Gray Herb.* 146: 30, pl. 1 fig. 2 (1943)
Regions.—North and Central Mexico & Mesoamerica.
Botanical countries.—GUA MXS-OA.
218. *G. obtusisepalum* Carolin in *Proc. Linn. Soc. New South Wales ser. 2*, 89: 344, pl. 6 fig. 11, pl. 7 fig. 7 (1965) [42]

- Regions.—Australia.
Botanical countries.—NSW.
219. *G. ochsenii* Phil. in *Linnaea* 28: 676 (1856) [7, 61]
Regions.—Southern South America.
Botanical countries.—CLN.
220. *G. oreganum* Howell, *Fl. N. W. Amer.* 1: 106 (1897) [7, 14, 15, 45]
Regions.—Western Canada, North-western USA & Southwestern USA.
Botanical countries.—ABT BRC CAL ORE WAS.
221. *G. orientali-tibeticum* R. Knuth in *Repert. Spec. Nov. Regni Veg.* 19: 230 (1923) [26, 45]
Regions.—China.
Botanical countries.—CHC.
222. *G. ornithopodioides* Hilliard & B.L. Burtt in *Notes Roy. Bot. Gard. Edinburgh* 42(2): 220, 175 fig. 3 B (1985) [55]
Regions.—Southern Africa.
Botanical countries.—NAT.
223. *G. ornithopodon* Eckl. & Zeyh., *Enum. Pl. Afr. Austral.* 1: 59 (1834-35) [7, 40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP.
224. *G. paishanense* Y.L. Chang, *Fl. Plant. Herb. Chinae Bor.-Or.* 6: 291, 17 tab. 6 fig. 2 (1977)
Regions.—China.
Botanical countries.—CHM.
225. *G. palcaense* R. Knuth in *Meded. Rijks-Herb.* 27: 68 (1915) [62]
Regions.—Western South America.
Botanical countries.—BOL.
226. *G. pallidifolium* R. Knuth in *Repert. Spec. Nov. Regni Veg.* 28: 3 (1930) [62]
Regions.—Western South America.
Botanical countries.—BOL.
227. *G. paludosum* R. Knuth in *Repert. Spec. Nov. Regni Veg.* 28: 2 (1930)
Regions.—Western South America.
Botanical countries.—CLM.
228. *G. palustre* L., *Cent. Pl. II*: 25 (1756) [7, 10, 29, 30, 36, 37, 45, 47]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Caucasus & Western Asia.
Botanical countries.—AUT BGM BLR BLT BUL CZE DEN FIN FRA GER HUN ITA NCS POL ROM RUC RUE RUN RUS RUW SWE SWI TCS TUR UKR YUG.
229. *G. pamiricum* Ikonn. in *Novosti Sist. Vyssh. Rast.* 9: 301 (1972) [30, 46]
Regions.—Soviet Middle Asia, Western Asia & Indian Subcontinent.
Botanical countries.—AFG PAK TZK UZB.
230. *G. papuanum* Ridl. in *Trans. Linn. Soc. London, Bot.* 9(1): 22 (1916) [41]
Regions.—Malesia.
Botanical countries.—NWG.
231. *G. paramicola* R. Knuth in *Repert. Spec. Nov. Regni Veg.* 40: 216 (1936)
Regions.—Western South America.
Botanical countries.—CLM.
232. *G. parodii* I.M. Johnst. in *Contr. Gray Herb.* 81: 92 (1928)
Regions.—Southern South America.
Botanical countries.—AGE.
233. *G. patagonicum* Hook. f., *Fl. Antarct.* 2: 252 (1845) [7, 12, 13, 17, 62]
Regions.—Western South America & Southern South America.
Botanical countries.—AGE AGS AGW BOL CLS PER.
234. *G. pavonianum* Briq. in *Annuaire Conserv. Jard. Bot. Genève* 11-12: 183 (1908) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.
235. *G. peruvianum* Hieron. in *Bot. Jahrb. Syst.* 21: 316 (1895) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.
236. *G. pflanzii* R. Knuth in *Engl., Pflanzenr.* IV.129 (Heft 53): 576 (1912) [62]
Regions.—Western South America.
Botanical countries.—BOL.
237. *G. philippii* J.F. Macbr. in *Candollea* 6: 7 (1934) [7, 16, 61]
Regions.—Southern South America.
Botanical countries.—CLN.
238. *G. pichinchense* Aedo & Muñoz Garm., *Kew Bull.* 52(3): 726 (1997) [7]
Regions.—Western South America.
Botanical countries.—ECU.

- 239. *G. pilgerianum*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 106 (1912)
Regions.—Western South America.
Botanical countries.—CLM.
- 240. *G. pinetophilum*** R. Knuth in Notizbl. Bot. Gart. Berlin-Dahlem 14: 352 (1939) [46]
Regions.—Indian Subcontinent.
Botanical countries.—JMK.
- 241. *G. piurense*** R. Knuth in Repert. Spec. Nov. Regni Veg. 18: 290 (1922) [12, 13]
Regions.—Western South America.
Botanical countries.—PER.
- 242. *G. platyanthum*** Duthie in Gard. Chron. ser. 3, 39: 52 (1906) [7, 26, 29, 34, 45, 50, 51, 52, 54, 64]
Regions.—Siberia, Soviet Far East, China, Mongolia & Eastern Asia.
Botanical countries.—AMU BRY CHC CHM CHN CHT CTA IRK KHA KOR MON PRM SAK.
- 243. *G. platyrenifolium*** Z.M. Tan in Bull. Bot. Res., Harbin 6(2): 52, 61 tab. 4 (1986) [26, 64]
Regions.—China.
Botanical countries.—CHC.
- 244. *G. pogonanthum*** Franch., Pl. Delavay.: 111 (1889) [7, 26, 45]
Regions.—China & Indo-China.
Botanical countries.—BMA CHC.
- 245. *G. potentillifolium*** DC., Prodr. 1: 639 (1824) [7, 11, 57]
Regions.—North and Central Mexico.
Botanical countries.—MXC-DF MXC-ME MXC-MO MXC-PU MXC-TL MXE-HI MXG MXS-MI.
- 246. *G. potentilloides*** L'Hér. ex DC., Prodr. 1: 639 (1824) [7, 15, 21, 42]
Regions.—Australia, New Zealand & [Southwestern USA].
Botanical countries.—ATP [CAL] NSW NZN NZS SOA TAS VIC.
- 247. *G. potosinum*** H.E. Moore in Contr. Gray Herb. 146: 41, pl. 4 fig. 3 (1943)
Regions.—North and Central Mexico.
Botanical countries.—MXE-NL.
- 248. *G. pratense*** L., Sp. Pl.: 681 (1753) [7, 10, 15, 26, 29, 30, 31, 34, 35, 37, 45, 46, 47, 54]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Siberia, [Soviet Far East], Soviet Middle Asia, Caucasus, Western Asia, China, Mongolia, Indian Subcontinent, [Western Canada], [Eastern Canada] & [Northeastern USA].
Botanical countries.—ALT AMU AUT BGM BLR BLT BRY BUL CHC CHM CHX [CNT] CZE DEN FIN FRA GER GRB GRC HUN IND [IRE] IRK ITA JMK KAZ KGZ KRA [LAB] [MAI] [MAN] [MAS] MON [NBR] NEP NET [NFL] NOR [NSC] [ONT] PAK [PEI] POL [PRM] [QUE] ROM RUC RUE RUN RUS SPA SWE SWI TCS TUR TZK UKR WSB YAK YUG.
- 249. *G. pringlei*** Rose in Contr. U.S. Natl. Herb. 10(3): 109 (1906) [7, 11]
Regions.—North and Central Mexico.
Botanical countries.—MXE-HI.
- 250. *G. procurrens*** Yeo in Bot. Mag. 179(3), tab. 644 (1973) [35, 45]
Regions.—Indian Subcontinent.
Botanical countries.—ASS BHU IND NEP.
- 251. *G. pseudofarreri*** Z.M. Tan in Bull. Bot. Res., Harbin 6(2): 50, 60 tab. 3 (1986) [26]
Regions.—China.
Botanical countries.—CHC.
- 252. *G. pseudosibiricum*** J. Mayer in Abh. Böhm. Ges. Wiss. 1786: 238 (1786) [7, 29, 30, 37, 45, 54]
Regions.—East Europe, Siberia, Soviet Middle Asia & Mongolia.
Botanical countries.—ALT BRY IRK KAZ KRA MON RUE WSB YAK.
- 253. *G. psilostemon*** Ledeb., Fl. Ross. 1(2): 465 (1842) [7, 10, 29, 30, 36, 45, 47]
Regions.—[Northern Europe], Caucasus & Western Asia.
Botanical countries.—[GRB] NCS TCS TUR.
- 254. *G. pulchrum*** N.E. Br. in Bull. Misc. Inform. 1895: 143 (1895) [7, 40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP NAT.
- 255. *G. pylzowianum*** Maxim. in Bull. Acad. Imp. Sci. Saint-Petersbourg 26: 466 (1880) [7, 26, 45, 52, 54, 64]

- Regions.—China.
Botanical countries.—CHC CHN CHT.
256. *G. raimondii* R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 9 (1930) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.
257. *G. rapulum* A. St.-Hil. & Naudin in Ann. Sci. Nat. Bot. (Paris) ser. 2, 18: 25 (1842) [7]
Regions.—Brazil.
Botanical countries.—BZL.
258. *G. rectum* Trautv. in Bull. Soc. Imp. Naturalistes Moscou 33(1): 459 (1860) [7, 29, 30, 45, 46, 64]
Regions.—Soviet Middle Asia, China & Indian Subcontinent.
Botanical countries.—CHX JMK KAZ KGZ PAK.
259. *G. refractum* Edgew. & Hook. f. in Hook. f., Fl. Brit. India 1: 428 (1874) [7, 26, 35, 45, 54]
Regions.—China, Indian Subcontinent & Indo-China.
Botanical countries.—BHU BMA CHC CHT NEP.
260. *G. reinii* Franch. & Sav., Enum. Pl. Jap. 2: 304 (1878) [7, 33, 51]
Regions.—Eastern Asia.
Botanical countries.—JAP KOR.
261. *G. renifolium* Hieron. in Bot. Jahrb. Syst. 21: 315 (1895) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.
262. *G. repens* H.E. Moore in Contr. Gray Herb. 146: 78 (1943)
Regions.—North and Central Mexico & Mesoamerica.
Botanical countries.—COS GUA MXS-GR PAN SMX-CI.
263. *G. reptans* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 214 (1912)
Regions.—Western South America.
Botanical countries.—ECU.
264. *G. repectum* Yeo in Edinburgh J. Bot. 49(2): 179, 180 fig. 9 (1992)
Regions.—China.
Botanical countries.—CHC.
265. *G. retrorsum* L'Hér. ex DC., Prodr. 1: 644 (1824) [15, 21, 42, 59]
Regions.—Australia, New Zealand, [North-Central Pacific] & [Southwestern USA].
Botanical countries.—[CAL] [HAW] NSW NZN NZS QLD SOA TAS VIC WAU.
266. *G. rhomboidale* H.E. Moore in Gentes Herb. 8(3): 255, 256 fig. 103 (1951)
Regions.—Western South America.
Botanical countries.—CLM.
267. *G. richardsonii* Fisch. & Trautv. in Fisch., C.A. Mey. & Trautv., Index Sem. Hort. Petrop. 4: 37 (1838) [7, 14, 15, 45]
Regions.—Subartic America, Western Canada, Northwestern USA, North-Central USA, Southwestern USA & South-Central USA.
Botanical countries.—ABT ARI BRC CAL COL IDA MNT NEV NWM NWT-MK ORE SAS SDA UTA WYO YUK.
268. *G. rivulare* Vill., Prosp. Hist. Pl. Dauphiné: 40 (1779) [7, 37, 45, 47]
Regions.—Middle Europe, Southwestern Europe & Southeastern Europe.
Botanical countries.—FRA ITA SWI.
269. *G. robustipes* R. Knuth in Repert. Spec. Nov. Regni Veg. 45: 62 (1938)
Regions.—Northern South America.
Botanical countries.—VEN.
270. *G. robustum* Kuntze, Revis. Gen. Pl. 3(2): 32 (1898) [7, 40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP LES NAT OFS TVL.
271. *G. rosthornii* R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 180 (1912) [26]
Regions.—China.
Botanical countries.—CHC.
272. *G. rotundifolium* L., Sp. Pl.: 683 (1753) [7, 10, 15, 21, 29, 30, 31, 36, 37, 40, 42, 44, 45, 46, 47, 55]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Northern Africa, Macaronesia, [Southern Africa], Soviet Middle Asia, Caucasus, Western Asia, Indian Subcontinent, [Australia], [Northwestern USA], [North-Central

- USA], [Northeastern USA], [Caribbean] & [Southern South America].
 Botanical countries.—AFG [AGE] ALB ALG AUT AZO BAL BGM BLR BLT BUL CNY [COL] COR [CPP] [CVI] CYP CZE [DOM] EGY FRA GER GRB GRC [HAI] HUN IND IRE IRN IRQ ITA JMK [KAN] KAZ KGZ KRI KRY LBS LBY MDR [MIC] MOR [NRY] PAK PAL [PEN] POR [PRM] ROM RUC? RUS? RUW SAR SAU SIC SPA SWE SWI [TAS] TCS TKM TUE TUN TUR TZK UKR [URU] YUG.
- 273. *G. rubifolium*** Lindl. in Edward's Bot. Reg. 26, tab. 67 (1840) [7, 45, 46, 64]
 Regions.—Indian Subcontinent.
 Botanical countries.—JMK PAK.
- 274. *G. ruizii*** Hieron. in Bot. Jahrb. Syst. 20, Beiblatt 49: 31 (1895) [7, 12, 13]
 Regions.—Western South America.
 Botanical countries.—BOL PER.
- 275. *G. rupicola*** Wedd., Chlor. Andina 2: 285 (1861) [7, 62]
 Regions.—Western South America.
 Botanical countries.—BOL.
- 276. *G. ruprechtii*** (Woronow) Grossh., Fl. Kavk. 3: 7 (1932) [29, 30]
 Regions.—Caucasus.
 Botanical countries.—NCS TCS.
- 277. *G. sanguineum*** L., Sp. Pl.: 683 (1753) [7, 10, 15, 29, 30, 36, 37, 45, 47]
 Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Siberia, Caucasus, Western Asia, [Subartic America] & [Northeastern USA].
 Botanical countries.—ALB [ASK] AUT BGM BLR BLT BUL COR? CZE DEN FIN FRA GER GRB GRC HUN IRE ITA KRY [MIC] NCS NOR [NRY] POL POR ROM RUC RUE RUS RUW SIC SPA SWE SWI TCS TUE TUR UKR WSB YUG.
- 278. *G. santacruzense*** R. Knuth in Repert. Spec. Nov. Regni Veg. 18: 289 (1922)
 Regions.—Southern South America.
 Botanical countries.—AGS.
- 279. *G. santanderiense*** R. Knuth in Repert. Spec. Nov. Regni Veg. 18: 291 (1922)
 Regions.—Northern South America & Western South America.
 Botanical countries.—CLM VEN.
- 280. *G. saxatile*** Kar. & Kir. in Bull. Soc. Imp. Naturalistes Moscou 15(1): 177 (1842) [29, 30]
 Regions.—Soviet Middle Asia, China & Indian Subcontinent.
 Botanical countries.—AFG CHX KAZ PAK TKM TZK.
- 281. *G. schiedeanum*** Schtdl. in Linnaea 10: 253 (1836) [7, 11, 45, 57]
 Regions.—North and Central Mexico & Mesoamerica.
 Botanical countries.—MXC-ME MXC-PU MXC-TL MXE-HI MXE-QU MXE-SL MXG MXS-OA SMX-TB.
- 282. *G. schimpffii*** R. Knuth in Repert. Spec. Nov. Regni Veg. 40: 219 (1936)
 Regions.—Western South America.
 Botanical countries.—ECU.
- 283. *G. schlechteri*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 207 (1912) [40, 55]
 Regions.—Southern Africa.
 Botanical countries.—CPP LES NAT OFS TVL.
- 284. *G. schultzei*** R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 2 (1930)
 Regions.—Western South America.
 Botanical countries.—CLM.
- 285. *G. scissum*** R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 4 (1930) [12, 13]
 Regions.—Western South America.
 Botanical countries.—PER.
- 286. *G. scullyi*** R. Knuth in Repert. Spec. Nov. Regni Veg. 19: 230 (1923)
 Regions.—Indian Subcontinent.
 Botanical countries.—NEP.
- 287. *G. sebosum*** S.F. Blake in Contr. U.S. Natl. Herb. 20(13): 526 (1924) [18]
 Regions.—Northern South America.
 Botanical countries.—VEN.
- 288. *G. seemannii*** Peyr. in Linnaea 30: 66 (1859) [7, 11, 12, 13, 57]
 Regions.—North and Central Mexico, Mesoamerica & Western South America.
 Botanical countries.—ECU GUA MXC-DF MXC-ME MXC-PU MXC-TL

- MXE-CO MXE-DU MXE-GU MXE-HI
 MXE-NL MXE-QU MXE-TA MXG
 MXN-SI MXS-GR MXS-JA MXS-MI
 MXS-OA PER SMX-CI.
289. *G. selloi* Aedo & Muñoz Garm., Kew Bull. 52(3): 726 (1997)
 Regions.—Brazil.
 Botanical countries.—BZS.
290. *G. sepalo-roseum* Rusby in Mem. Torrey Bot. Club 3(3): 12 (1893) [7, 62]
 Regions.—Western South America.
 Botanical countries.—BOL.
291. *G. sericeum* Willd. ex Spreng., Syst. Veg. 3: 70 (1826) [7]
 Regions.—Western South America.
 Botanical countries.—ECU.
292. *G. sessiliflorum* Cav., Diss. 4: 198, tab. 77 fig. 2 (1787) [7, 12, 13, 17, 21, 42, 45, 61, 62]
 Regions.—Australia, New Zealand, Western South America & Southern South America.
 Botanical countries.—AGS AGW BOL CLN CLS NSW NZN NZS PER TAS.
- a. *G. sessiliflorum* subsp. *sessiliflorum*
 Regions.—Western South America & Southern South America.
 Botanical countries.—AGS AGW BOL CLN CLS PER.
- b. *G. sessiliflorum* subsp. *brevicaule* (Hook. f.) Carolin in Proc. Linn. Soc. New South Wales ser. 2, 89: 357 (1965)
 Regions.—Australia.
 Botanical countries.—NSW TAS.
- c. *G. sessiliflorum* subsp. *novaezelandiae* Carolin in Proc. Linn. Soc. New South Wales ser. 2, 89: 356 (1965)
 Regions.—New Zealand.
 Botanical countries.—NZN NZS.
293. *G. shensianum* R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 5 (1930) [52, 64]
 Regions.—China.
 Botanical countries.—CHN.
294. *G. shikokianum* Matsum. in Bot. Mag. (Tokyo) 15: 123 (1901) [7, 33, 45, 50, 51]
 Regions.—Eastern Asia.
 Botanical countries.—JAP KOR.
295. *G. siamense* Craib in Bull. Misc. Inform. 1926(4): 158 (1926) [53]
 Regions.—Indo-China.
 Botanical countries.—THA.
296. *G. sibbaldoides* Benth., Pl. Hartw. 2: 166 (1845) [7, 12, 13]
 Regions.—Western South America.
 Botanical countries.—CLM ECU PER.
297. *G. sibiricum* L., Sp. Pl.: 683 (1753) [7, 10, 15, 26, 29, 30, 31, 33, 34, 37, 45, 46, 47, 50, 51, 52, 54]
 Regions.—[Northern Europe], [Middle Europe], [Southwestern Europe], Southeastern Europe, East Europe, Siberia, Soviet Far East, Soviet Middle Asia, Caucasus, Western Asia, China, Eastern Asia, Indian Subcontinent, [North-Central USA], [Northeastern USA] & [Southwestern USA].
 Botanical countries.—AFG ALT AMU [AUT] BLT BRY [CAL] CHC CHM CHN CHT CHX CTA [CZE] [FRA] [GER] [HUN] [ILL] [ITA] JAP JMK KAM KAZ KGZ KHA KOR KRA MAG [MAS] MON NCS [NOR] [NWY] PAK [PEN] [POL] PRM? ROM RUC RUE RUS SAK [SWI] TCS TUR TZK UKR [WIS] WSB YAK.
298. *G. sinense* R. Knuth in Engl., Pflanzenr. IV. 129 (Heft 53): 577 (1912) [26, 45, 64]
 Regions.—China.
 Botanical countries.—CHC.
299. *G. skottsbergii* R. Knuth in Repert. Spec. Nov. Regni Veg. 34: 143 (1933) [61]
 Regions.—Southern South America.
 Botanical countries.—CLN.
300. *G. smithianum* R. Knuth in Repert. Spec. Nov. Regni Veg. 34: 146 (1933) [12, 13]
 Regions.—Western South America.
 Botanical countries.—PER.
301. *G. soboliferum* Kom. in Trudy Imp. S.-Peterburgsk. Bot. Sada 18(6): 433 (1901) [7, 29, 30, 33, 34, 45, 50, 64]
 Regions.—China, Soviet Far East & Eastern Asia.
 Botanical countries.—CHM JAP KOR PRM.
302. *G. sodiroanum* R. Knuth in Bot. Jahrb. Syst. 37: 557 (1906) [7, 12, 13]
 Regions.—Western South America.
 Botanical countries.—CLM ECU PER.

- 303. *G. solanderi*** Carolin in Proc. Linn. Soc. New South Wales ser. 2, 89: 350, pl. 6 fig. 2, pl. 7 fig. 2 (1965) [7, 15, 42, 59] Regions.—Australia, New Zealand, [North-eastern USA] & [Southwestern USA]. Botanical countries.—[CAL] LHN NSW [NWY] NZN NZS QLD SOA TAS VIC WAU.
- 304. *G. solitarium*** Z.M. Tan in Acta Phytotax. Sin. 33(6): 608, 609 fig. 1 (1995) Regions.—China. Botanical countries.—CHC.
- 305. *G. sophiae*** Fed. in Bot. Zhurn. S.S.S.R. 33: 28, 29 tab. 1 (1948) [29, 30] Regions.—Soviet Middle Asia. Botanical countries.—UZB (Fergana Range).
- 306. *G. soratae*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 212 (1912) [62] Regions.—Western South America. Botanical countries.—BOL.
- 307. *G. sparsiflorum*** R. Knuth in Bot. Jahrb. Syst. 40: 68 (1908) [7, 40, 55] Regions.—Southern Africa. Botanical countries.—CPP.
- 308. *G. squamosum*** Phil. in Anales Univ. Chile 82: 733 (1893) [7, 61] Regions.—Southern South America. Botanical countries.—CLN.
- 309. *G. staffordianum*** R. Knuth in Repert. Spec. Nov. Regni Veg. 40: 216 (1936) [12, 13] Regions.—Western South America. Botanical countries.—PER.
- 310. *G. stapfianum*** Hand.-Mazz., Symb. Sin. 7: 620 (1933) [26, 45] Regions.—China. Botanical countries.—CHC CHT.
- 311. *G. stoloniferum*** Standl. in Contr. U.S. Natl. Herb. 18: 110 (1916) [18] Regions.—Northern South America. Botanical countries.—VEN.
- 312. *G. stramineum*** Triana & Planch. in Ann. Sci. Nat. Bot. (Paris) ser. 5, 17: 112 (1873) [7, 13] Regions.—Western South America. Botanical countries.—CLM PER.
- 313. *G. stuebelii*** Hieron. in Bot. Jahrb. Syst. 21: 316 (1895) [7, 12, 13] Regions.—Western South America. Botanical countries.—PER.
- 314. *G. subcompositum*** Veldkamp in Blumea 24(2): 474 (1978) Regions.—Malasia. Botanical countries.—NWG.
- 315. *G. subglabrum*** Hilliard & B.L. Burt in Notes Roy. Bot. Gard. Edinburgh 42(2): 202, 174 fig. 2 F (1985) [55] Regions.—Southern Africa. Botanical countries.—CPP.
- 316. *G. sublaevispermum*** H.E. Moore in Contr. Gray Herb. 146: 69, pl. 3 fig. 8, pl. 4 figs. 5, 8 (1943) Regions.—North and Central Mexico. Botanical countries.—MXE-CU.
- 317. *G. submolle*** Steud. in Flora 39(28): 438 (1856) [7, 16, 61] Regions.—[Southwestern Europe] & Southern South America. Botanical countries.—AGW CLN [FRA-CI].
- 318. *G. subnudicaule*** Turcz. in Bull. Soc. Imp. Naturalistes Moscou 31(2): 418 (1858) [7, 18] Regions.—Northern South America. Botanical countries.—VEN.
- 319. *G. subscandens*** R. Knuth in Biblioth. Bot. 29(Heft 116): 98 (1937) Regions.—Western South America. Botanical countries.—ECU.
- 320. *G. subsericeum*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 49 (1912) Regions.—Western South America. Botanical countries.—AGS AGW.
- 321. *G. subulato-stipulatum*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 199 (1912) [11] Regions.—North and Central Mexico. Botanical countries.—MXC-DF MXC-ME MXC-MO MXC-PU MXE-CU MXE-DU MXE-GU MXE-HI MXG.
- 322. *G. subumbelliforme*** R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 123 (1912) [30, 61] Regions.—Soviet Far East & Eastern Asia. Botanical countries.—JAP KAM KUR.
- 323. *G. superbum*** R. Knuth in Bot. Jahrb. Syst. 37: 561 (1906) [7, 12, 13, 62] Regions.—Western South America. Botanical countries.—BOL PER.

324. *G. suzukii* Masam. in J. Soc. Trop. Agric. 3: 392 (1931) [32]
Regions.—Eastern Asia.
Botanical countries.—TAI.
325. *G. swatense* Schönb.—Tem. in Rech. f. (ed.), Fl. Iran. 69: 22, tab. 1 (1970) [46]
Regions.—Indian Subcontinent.
Botanical countries.—JMK PAK.
326. *G. sylvaticum* L., Sp. Pl.: 681 (1753) [7, 10, 15, 29, 30, 31, 36, 37, 45, 47]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Siberia, Soviet Middle Asia, Caucasus, Western Asia & Subarctic America.
Botanical countries.—ALB ALT? AUT BGM BLR BLT BUL COR CZE DEN FIN FOR FRA GER GNL GRB GRC HUN ICE IRE IRN ITA KAZ KRA NCS [NET] NOR POL ROM RUC RUE RUN RUS RUW SPA SWE SWI TCS TUR UKR WSB YUG.
327. *G. tafiense* Aedo & Muñoz Garm. in Kew Bull. 52(3): 726 (1997)
Regions.—Southern South America.
Botanical countries.—AGW.
328. *G. tanii* Aedo & Muñoz Garm. in Novon 6: 229 (1996)
Regions.—China.
Botanical countries.—CHC-SI.
329. *G. tenue* Hanks in Underw. & Britton (eds.), N. Amer. Fl. 25(1): 10 (1907) [7, 11]
Regions.—North and Central Mexico.
Botanical countries.—MXE-SL.
330. *G. texanum* (Trel.) A. Heller in Bull. Torrey Bot. Club 25: 198 (1898) [7, 15]
Regions.—[Macaronesia], North-Central USA, South-Central USA, Southeastern USA & North and Central Mexico.
Botanical countries.—ARK [AZO] LOU MXE-CU OKL TEX.
331. *G. thunbergii* Siebold ex Lindl. & Paxton, Paxt. Fl. Gard. 1(12): 186 fig. 115 (1851) [15, 26, 30, 32, 33, 45, 50, 51, 64]
Regions.—Soviet Far East, China, Eastern Asia & [Northeastern USA].
Botanical countries.—CHN [CNT] JAP KOR KUR [MAS] NNS TAI.
332. *G. tiguense* Aedo & Muñoz Garm., Kew Bull. 52(3): 726 (1997) [13]
Regions.—Western South America.
Botanical countries.—ECU PER.
333. *G. totoense* R. Knuth in Repert. Spec. Nov. Regni Veg. 28: 7 (1930) [62]
Regions.—Western South America.
Botanical countries.—BOL.
334. *G. tracyi* Sandwith in Bull. Misc. Inform. 1941(3): 219 (1942) [18]
Regions.—Northern South America.
Botanical countries.—VEN.
335. *G. transbaicalicum* Serg. in Sist. Zametki Mater. Gerb. Krylova Tomsk. Gosud. Univ. Kiybyševa 1934(1): 4 (1934) [30, 34, 45]
Regions.—Siberia, China & Mongolia.
Botanical countries.—BRY CHI CHM CTA IRK MON.
336. *G. traversii* Hook. f., Handb. N. Zeal. Fl.: 726 (1867) [7, 21, 45]
Regions.—New Zealand.
Botanical countries.—CTM.
337. *G. trianae* Aedo & Muñoz Garm., Kew Bull. 52(3): 726 (1997) [7]
Regions.—Northern South America & Western South America.
Botanical countries.—CLM VEN.
338. *G. tripartitum* R. Knuth in Engl., Pflanzenz. IV.129 (Heft 53): 191 (1912) [33, 50, 51]
Regions.—Eastern Asia.
Botanical countries.—JAP KOR.
339. *G. trolliifolium* Small in Underw. & Britton (eds.), N. Amer. Fl. 25(1): 14 (1907) [7, 11]
Regions.—North and Central Mexico.
Botanical countries.—MXE-CU MXE-DU.
340. *G. unguiculatum* H.E. Moore in Contr. Gray Herb. 146: 24, pl. 2 fig. 5, pl. 4 figs. 2, 7 (1943)
Regions.—North and Central Mexico.
Botanical countries.—MXS-GR.
341. *G. uralense* Kuvaev in Novosti Sist. Vyssh. Rast. 27: 102 fig. 1 (1990) [30]
Regions.—East Europe & Siberia.
Botanical countries.—RUN WSB.
342. *G. vagans* Baker in Bull. Misc. Inform. 1897: 246 (1897) [7, 28, 38, 43, 49]
Regions.—West-Central Tropical Africa, East Tropical Africa & South Tropical Africa.

- Botanical countries.—CON? KEN MLW RWA TAN UGA ZAI.
- a. **G. vagans** subsp. **vagans**
Regions.—West-Central Tropical Africa, East Tropical Africa & South Tropical Africa.
Botanical countries.—CON? KEN MLW RWA TAN UGA ZAI.
- b. **G. vagans** subsp. **whytei** (Baker) J.R. Laundon in *Bol. Soc. Brot. ser. 2*, 35: 71 (1961)
Regions.—South Tropical Africa.
Botanical countries.—MLW.
343. **G. venezuelae** R. Knuth in *Engl., Pflanzenz. IV.129 (Heft 53)*: 201 (1912) [18]
Regions.—Northern South America.
Botanical countries.—VEN.
344. **G. venturianum** R. Knuth in *Repert. Spec. Nov. Regni Veg.* 40: 218 (1936)
Regions.—Southern South America.
Botanical countries.—AGW.
345. **G. versicolor** L., *Cent. Pl. I*: 21 (1755) [7, 10, 37, 45, 47]
Regions.—[Northern Europe], [Southwestern Europe] & Southeastern Europe.
Botanical countries.—ALB [FRA] [GRB] GRC [IRE] ITA SIC YUG.
346. **G. viscosissimum** Fisch. & C.A. Mey. in C.A. Mey., *Index Sem. Hort. Petrop.* 11, Suppl.: 18 (1846) [7, 14, 15, 45]
Regions.—Western Canada, North-western USA, North-Central USA & Southwestern USA.
Botanical countries.—ABT BRC CAL COL IDA MNT NEV ORE SDA SAS UTA WAS WYO.
347. **G. vulcanicola** Small in Underw. & Britton (eds.), *N. Amer. Fl.* 25(1): 12 (1907) [7, 11]
Regions.—North and Central Mexico & Mesoamerica.
Botanical countries.—MXC-DF MXC-ME MXG MXS-MI SMX-CI.
348. **G. wakkerstroomianum** R. Knuth in *Repert. Spec. Nov. Regni Veg.* 45: 62 (1938) [40, 55]
Regions.—Southern Africa.
Botanical countries.—CPP LES NAT OFS SWZ TVL.
349. **G. wallichianum** D. Don ex Sweet, *Geraniaceae*: 1, tab. 90 (1821) [7, 31, 35, 46, 64]
Regions.—Western Asia, China & Indian Subcontinent.
Botanical countries.—AFG BHU? CHT IND JMK NEP PAK.
350. **G. weberbauerianum** R. Knuth in *Bot. Jahrb. Syst.* 37: 556 (1906) [7, 12, 13]
Regions.—Western South America.
Botanical countries.—PER.
351. **G. weddellii** Briq. in *Annuaire Conserv. Jard. Bot. Genève* 11/12: 183 (1908) [7, 12, 13, 62]
Regions.—Western South America.
Botanical countries.—BOL PER.
352. **G. whartonianum** Veldkamp in *Blumea* 24(2): 476 (1978)
Regions.—Malaysia.
Botanical countries.—NWG.
353. **G. wilfordii** Maxim. in *Bull. Acad. Imp. Sci. Saint-Pétersbourg* 26: 453 (1880) [7, 26, 29, 30, 32, 33, 34, 50, 51, 52, 54]
Regions.—[Middle Europe], Soviet Far East, China & Eastern Asia.
Botanical countries.—AMU CHC CHM CHN JAP KOR [POL] PRM TAI.
354. **G. wilhelminae** Veldkamp in *Blumea* 24(2): 476 (1978)
Regions.—Malaysia.
Botanical countries.—NWG.
355. **G. wislizenii** S. Watson in *Proc. Amer. Acad. Arts* 21: 421 (1886) [7, 11, 14, 15]
Regions.—Southwestern USA, South-Central USA & North and Central Mexico.
Botanical countries.—ARI MXE-CU MXE-DU MXN-SO NWM TEX.
356. **G. wlassovianum** Fisch. ex Link, *Enum. Hort. Berol. Alt.* 2: 197 (1822) [7, 25, 26, 29, 30, 34, 45, 50, 54, 64]
Regions.—Siberia, Soviet Far East, China, Eastern Asia, Indian Subcontinent & Indo-China?
Botanical countries.—AMU BMA? BRY CHC? CHM CHN CTA IRK JMK KHA KOR MON PRM.
357. **G. yaanense** Z.M. Tan in *Acta Phytotax. Sin.* 33(6): 611, 610 fig. 2 (1995)
Regions.—China.
Botanical countries.—CHC.

358. *G. yesoense* Franch. & Sav., Enum. Pl. Jap. 2: 305 (1878), [7, 30, 33, 45]
Regions.—Soviet Far East & Eastern Asia.
Botanical countries.—JAP KUR SAK.
359. *G. yoshinoi* Makino ex Nakai in Bot. Mag. (Tokyo) 26: 258 (1912) [33]
Regions.—Eastern Asia.
Botanical countries.—JAP.
360. *G. yuexiense* Z.M. Tan in Bull. Bot. Res., Harbin 6(2): 55, 64 tab. 7 (1986) [26]
Regions.—China.
Botanical countries.—CHC.
361. *G. yunnanense* Franch., Pl. Delavay.: 114 (1889) [7, 25, 26, 45]
Regions.—China & Indo-China.
Botanical countries.—BMA CHC.
6. *Geranium* sect. *Dissecta* Yeo in Bot. J. Linn. Soc. 89: 10 (1984)
362. *G. asphodeloides* Burm. f., Spec. Bot. Geran.: 28 (1759) [7, 10, 29, 36, 37, 45, 47]
Regions.—Southeastern Europe, East Europe, Caucasus & Western Asia.
Botanical countries.—ALB BUL GRC ITA KRY LBS ROM SIC TCS TUE TUR YUG.
- a. *G. asphodeloides* Burm. f. subsp. *asphodeloides*
Regions.—Southeastern Europe, East Europe, Caucasus & Western Asia.
Botanical countries.—ALB BUL GRC ITA KRY LBS ROM SIC TCS TUE TUR YUG.
- b. *G. asphodeloides* subsp. *crenophilum* (Boiss.) Bornm. in Repert. Spec. Nov. Regni Veg. Beih. 89(3): 134 (1936)
Regions.—Western Asia.
Botanical countries.—LBS.
- c. *G. asphodeloides* subsp. *sintensisii* (Frey) P.H. Davis in Notes Roy. Bot. Gard. Edinburgh 28: 36 (1967)
Regions.—Western Asia.
Botanical countries.—TUR.
363. *G. chelikii* Kit Tan & Yildiz in Notes Roy. Bot. Gard. Edinburgh 45(3): 440 (1989)
Regions.—Western Asia.
Botanical countries.—TUR.
364. *G. davisianum* Peşmen & Güner in Notes Roy. Bot. Gard. Edinburgh 38(3): 436 (1980)
Regions.—Western Asia.
Botanical countries.—TUR.
365. *G. dissectum* L., Cent. Pl. I: 21 (1755) [7, 10, 12, 15, 21, 29, 30, 31, 36, 37, 39, 40, 42, 43, 44, 45, 47, 55, 61]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Northern Africa, Macaronesia, [Northeast Tropical Africa], [Southern Africa], Soviet Middle Asia, Western Asia, [Eastern Asia], [Australia], [New Zealand], [North-Central Pacific], [Western Canada], [Eastern Canada], [Northwestern USA], [North-Central USA], [Northeastern USA], [Southwestern USA], [South-Central USA], [Southeastern USA], [Caribbean], [Western South America], [Brazil South] & [Southern South America].
Botanical countries.—AFG [AGE] ALB ALG [ARK] [ATP] AUT AZO BAL BGM BLR BLT [BRC] BUL [BZS] [CAL] [CLN] [CNT] CNY COR [CPP] CYP CZE [DEL] DEN [DOM] EGY [ETH] FIN FRA [GEO] GER GRB GRC [HAI] [HAW] HUN [ILL] IRE IRN IRQ ITA [JAP] [KER] KRI KRY [KTY] LBS LBY [LHN]† [LOU] [MAS] MDR [MIC] MOR [MRY] [MSI] [MSO] [NCA] NCS NET NOR [NSW] [NWy] [NZN] [OKL] [NZS] [ONT] [ORE] PAL [PEN] [PER] POL POR ROM RUC RUE RUN RUS RUW SAR SIC [SOA] SPA SWE SWI [TAS] TCS [TEN] [TEX] TUE TUN TUR TZK UKR [URU] [VIC] [VRG] [WAS] [WAU] YUG.
7. *Geranium* sect. *Tuberosa* (Boiss.) Reiche in Engl. & Prantl, Nat. Pflanzenfam. 3(4): 8 (1890) [5, 7, 9]
- 7.1. *Geranium* subsect. *Tuberosa* (Boiss.) Yeo in Bot. J. Linn. Soc. 89: 12 (1984) [7, 9]

- 366. *G. kotschyi* Boiss., Diagn. Pl. Orient. ser. 1, 6: 30 (1846) [7, 9, 29, 30, 31, 46]**
Regions.—Soviet Middle Asia & Western Asia.
Botanical countries.—AFG IRN PAK TKM TZK.
- a. ***G. kotschyi* Boiss. subsp. *kotschyi***
Regions.—Soviet Middle Asia & Western Asia.
Botanical countries.—AFG IRN TKM.
- b. ***G. kotschyi* subsp. *charlesii* (Aitch. & Hemsl.) P.H. Davis in Israel J. Bot. 19: 111 (1970)**
Regions.—Soviet Middle Asia & Western Asia.
Botanical countries.—AFG IRN PAK TKM TZK.
- 367. *G. libanoticum* A. Schenk, Pl. Spec. Schubert: 39 (1840) [7, 9, 36, 47]**
Regions.—Western Asia.
Botanical countries.—LBS IRN TUR.
- 368. *G. linearilobum* DC. in Lam. & DC., Fl. Franç. ed. 3, 5: 629, in note (1815) [9, 10, 29, 30, 31, 37, 45, 47, 54, 64]**
Regions.—East Europe, Siberia, Soviet Middle Asia, Caucasus, Western Asia & China.
Botanical countries.—ALT CHX IRN IRQ KAZ KGZ KRY NCS RUE RUS TCS TKM TUR UKR UZB.
- a. ***G. linearilobum* DC. subsp. *linearilobum***
Regions.—East Europe, Caucasus & Western Asia.
Botanical countries.—KRY NCS RUS TCS TUR UKR.
- b. ***G. linearilobum* subsp. *transversale* (Kar. & Kir.) P.H. Davis in Israel J. Bot. 19: 105 (1970)**
Regions.—East Europe, Siberia, Soviet Middle Asia, Caucasus, Western Asia & China.
Botanical countries.—ALT CHX IRN IRQ KAZ KGZ RUE TCS TKM TUR UZB.
- 369. *G. macrostylum* Boiss., Diagn. Pl. Orient. ser. 1, 1: 58 (1843) [9, 36, 37, 45, 47]**
Regions.—Southeastern Europe & Western Asia.
Botanical countries.—ALB BUL GRC TUR YUG.
- 370. *G. malviflorum* Boiss. & Reut., Pugill. Pl. Afr. Bot. Hispan.: 27 (1852) [7, 9, 37, 45, 47]**
Regions.—Southwestern Europe & Northern Africa.
Botanical countries.—ALG MOR SPA TUN?
- 371. *G. persicum* Schönb.—Tem. in Rech. f. (ed.), Fl. Iran. 69: 9, tab. 4 (1970) [30]**
Regions.—Western Asia.
Botanical countries.—IRN IRQ.
- 372. *G. tuberaria* Jacquem. ex Cambess. in Jacquem., Voy. Inde 4: 33, tab. 37 (1844) [7, 46]**
Regions.—Indian Subcontinent.
Botanical countries.—JMK.
- 373. *G. tuberosum* L., Sp. Pl.: 680 (1753) [7, 9, 10, 29, 30, 31, 36, 37, 45, 47]**
Regions.—Southeastern Europe, East Europe, Northern Africa, Soviet Middle Asia, Caucasus & Western Asia.
Botanical countries.—ALB? ALG BUL COR? CYP FRA GRC IRN IRQ ITA KRI KRY LBS LBY NCS PAL ROM RUS SAR? SIC SIN TCS TKM TUN TUR YUG.
- a. ***G. tuberosum* L. subsp. *tuberosum***
Regions.—Southeastern Europe, East Europe, Northern Africa, Caucasus & Western Asia.
Botanical countries.—ALB? ALG BUL COR? CYP FRA GRC IRN IRQ ITA KRI KRY LBS LBY PAL ROM RUS SAR? SIC SIN TCS TUN TUR YUG.
- b. ***G. tuberosum* subsp. *linearifolium* (Boiss.) P.H. Davis in Notes Roy. Bot. Gard. Edinburgh 22: 26 (1956)**
Regions.—Soviet Middle Asia, Caucasus & Western Asia.
Botanical countries.—IRN IRQ LBS NCS TCS TKM TUR.
- c. ***G. tuberosum* subsp. *micranthum* Schönb.—Tem. in Rech. f. (ed.), Fl. Iran. 69: 7, tab. 2 (1970)**
Regions.—Western Asia.
Botanical countries.—IRN IRQ.
- 7.2. *Geranium* subsect. *Mediterranea***
R. Knuth in Engl., Pflanzenr. IV.129 (Heft 53): 107 (1912) [5]

- 374. *G. bohemicum* L.**, Cent. Pl. II: 25 (1756) [5, 7, 10, 29, 30, 36, 37, 45, 47]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Caucasus & Western Asia.
Botanical countries.—ALB BLR BLT BUL COR CZE FIN FRA GER GRC HUN ITA KRY NCS NOR POL ROM RUC RUE RUN RUS RUW SAR SPA SWE SWI TCS TUR UKR YUG.
- 375. *G. gracile* Ledeb. ex Nordm.** in Bull. Sci. Acad. Imp. Sci. Saint-Petersbourg 2(20): 314 (1837) [5, 7, 10, 29, 30, 31, 36, 45, 47]
Regions.—Caucasus & Western Asia.
Botanical countries.—IRN NCS TCS TUR.
- 376. *G. gymnocaulon* DC.**, Prodr. 1: 640 (1824) [5, 7, 10, 29, 30, 36, 45, 47]
Regions.—Caucasus & Western Asia.
Botanical countries.—NCS TCS TUR.
- 377. *G. ibericum* Cav.**, Diss. 4: 209, tab. 124 fig. 1 (1787) [5, 7, 10, 15, 29, 30, 36, 37, 45, 47]
Regions.—[Northern Europe], [Southwestern Europe], Caucasus, Western Asia, [Eastern Canada] & [Northeastern USA].
Botanical countries.—[FRA] [GRB] [MAS] NCS [NFL] [NWY]† TCS TUR.
- a. *G. ibericum* Cav. subsp. *ibericum***
Regions.—[Southwestern Europe], Caucasus, Western Asia, [Eastern Canada] & [Northeastern USA].
Botanical countries.—[FRA] [MAS] NCS [NFL] [NWY]† TCS TUR.
- b. *G. ibericum* subsp. *jubatum* (Hand.-Mazz.) P.H. Davis** in Notes Roy. Bot. Gard. Edinburgh 22: 24 (1955)
Regions.—Western Asia.
Botanical countries.—TUR.
- 378. *G. kurdicum* Bormm.** in Repert. Spec. Nov. Regni Veg. 8: 82 (1910) [5, 7, 31, 36, 47]
Regions.—Western Asia.
Botanical countries.—IRQ TUR.
- 379. *G. lanuginosum* Lam.**, Encycl. 2: 655 (1788) [5, 7, 10, 36, 37, 45, 47]
Regions.—[Northern Europe], Southwestern Europe, Southeastern Europe, Northern Africa & Western Asia.
Botanical countries.—ALB ALG BUL COR FRA GRC ITA MOR POR SAR SIC SPA [SWE] TUN TUR.
- 380. *G. libani* P.H. Davis** in Notes Roy. Bot. Gard. Edinburgh 22: 25 (1955) [5, 36, 45, 47]
Regions.—Western Asia.
Botanical countries.—LBS PAL TUR.
- 381. *G. montanum* Hablitz ex Pall.** in Neue Nord. Beytr. Phys. Geogr. Erd-Völkerbeschreib. 4: 51 (1784); in S.G. Gmel., Reise Russland 4: 51 (1784) [5, 29, 30, 31]
Regions.—Caucasus & Western Asia.
Botanical countries.—IRN TCS.
- 382. *G. peloponnesiacum* Boiss.**, Diagn. Pl. Orient. ser. 2, 1: 110 (1854) [5, 7, 37, 45, 47]
Regions.—Southeastern Europe.
Botanical countries.—ALB GRC.
- 383. *G. platypetalum* Fisch. & C.A. Mey.**, Index Sem. Hort. Petrop. [1]: 28 (1835) [5, 7, 29, 30, 31, 36, 45, 47]
Regions.—Caucasus & Western Asia.
Botanical countries.—IRN TCN TCS TUR.
- 384. *G. renardii* Trautv.** in Trautv., Regel, Maxim. & C. Winkl., Decas Pl. Nov.: 5 (1882) [5, 7, 10, 29, 30, 45]
Regions.—Caucasus.
Botanical countries.—NCS TCS.
- 8. *Geranium* sect. *Neurophyllodes* A. Gray**, U.S. Expl. Exped., Phan. 1: 311 (1854) [6, 7, 63]
- 385. *G. arboreum* A. Gray**, U.S. Expl. Exped., Phan. 1: 315, tab. 31 (1854) [6, 7, 15, 20]
Regions.—North-Central Pacific.
Botanical countries.—HAW (Maui I).
- 386. *G. cuneatum* Hook.**, Icon. Pl. 2, tab. 198 (1837) [6, 7, 15, 20]
Regions.—North-Central Pacific.
Botanical countries.—HAW (Maui and Hawaii Is).
- a. *G. cuneatum* Hook. subsp. *cuneatum***
Regions.—North-Central Pacific.
Botanical countries.—HAW (Hawaii I).

- b. **G. cuneatum** subsp. **hololeucum** (A. Gray) Carlquist & Bissing in *Biotropica* 8(4): 258 (1976)
Regions.—North-Central Pacific.
Botanical countries.—HAW (Hawai I).
- c. **G. cuneatum** subsp. **hypoleucum** (A. Gray) Carlquist & Bissing in *Biotropica* 8(4): 258 (1976)
Regions.—North-Central Pacific.
Botanical countries.—HAW (Hawai I).
- d. **G. cuneatum** subsp. **tridens** (Hillebr.) Carlquist & Bissing in *Biotropica* 8(4): 259 (1976)
Regions.—North-Central Pacific.
Botanical countries.—HAW (Maui I).
387. **G. hanaense** A.C. Medeiros & H. St. John in *Brittonia* 40(2): 214, 215 fig. 1 (1988) [15]
Regions.—North-Central Pacific.
Botanical countries.—HAW (Maui I).
388. **G. hillebrandii** Aedo & Muñoz Garm., *Kew Bull.* 52(3): 725 (1997) [6, 7, 15, 20]
Regions.—North-Central Pacific.
Botanical countries.—HAW (Maui I).
389. **G. kauaiense** (Rock) H. St. John in *Bull. Torrey Bot. Club* 111(4): 481 (1984) [6, 15, 20]
Regions.—North-Central Pacific.
Botanical countries.—HAW (Kauai I).
390. **G. multiflorum** A. Gray, U.S. Expl. Exped., *Phan.* 1: 311, tab. 29 figs. 1-4 (1854) [6, 7, 15, 20]
Regions.—North-Central Pacific.
Botanical countries.—HAW (Maui I).
- a. **G. multiflorum** A. Gray subsp. **multiflorum**
Regions.—North-Central Pacific.
Botanical countries.—HAW (Maui I).
- b. **G. multiflorum** subsp. **ovatifolium** (A. Gray) Carlquist & Bissing in *Biotropica* 8(4): 258 (1976)
Regions.—North-Central Pacific.
Botanical countries.—HAW (Maui I).
9. **Geranium** sect. **Paramensia** R. Knuth in *Engl., Nat. Pflanzenfam.* ed. 2, 19a: 55 (1931) [2]
391. **G. exallum** H.E. Moore in *Brittonia* 13(2): 142, 143 fig. 1A (1961)
Regions.—Western South America.
Botanical countries.—ECU.
392. **G. jahnii** Standl. in *J. Wash. Acad. Sci.* 5: 601 (1915) [2, 18]
Regions.—Northern South America.
Botanical countries.—VEN.
10. **Geranium** sect. **Azorelloida**, Aedo, Muñoz Garm. & Pando, **nom. nov.**
= *G.* sect. *Petraea* R. Knuth, *Repert. Spec. Nov. Regni Veg.* 40: 220 (1936), **nom. subst., nom. illeg., non Bubani** (1901).-HT.: *G. azorelloides*
393. **G. azorelloides** Sandwith in *Bull. Misc. Inform.* 1929: 121 (1929)
Regions.—Western South America.
Botanical countries.—CLM.
- III. **Geranium** subgen. **Robertium** (Picard) Rouy in Rouy & Fouc., *Fl. France* 4: 94 (1897)
11. **Geranium** sect. **Polyantha** Reiche in *Engl. & Prantl, Nat. Pflanzenfam.* 3(4): 8 (1890) [5, 7]
394. **G. hispidissimum** (Franch.) R. Knuth in *Engl., Pflanzenr.* IV.129 (Heft 53): 183 (1912) [5, 26]
Regions.—China.
Botanical countries.—CHC.
395. **G. moupinense** Franch. in *Nouv. Arch. Mus. Hist. Nat.* ser. 2, 8(2): 208 (1885) [5, 7, 26, 64]
Regions.—China.
Botanical countries.—CHC.
396. **G. nakaoanum** H. Hara in *Acta Phytotax. Geobot.* 16: 1 (1955); in H. Kihara (ed.), *Fauna Fl. Nepal Himalaya*: 276, 277 fig. 83 (1955) [5, 35]
Regions.—Indian Subcontinent.
Botanical countries.—BHU NEP.
397. **G. polyanthes** Edgew. & Hook. f. in *Hook. f., Fl. Brit. India* 1: 431 (1874) [5, 7, 26, 35, 45, 64]
Regions.—China & Indian Subcontinent.
Botanical countries.—ASS BHU CHC CHT IND NEP.
398. **G. strictipes** R. Knuth in *Engl., Pflanzenr.* IV.129 (Heft 53): 581 (1912) [5]

- Regions.—China.
Botanical countries.—CHC.
399. *G. umbelliforme* Franch. in Bull. Soc. Bot. France 33: 443 (1887) [5, 7, 26]
Regions.—China.
Botanical countries.—CHC.
400. *G. wardii* Yeo in Notes Roy. Bot. Gard. Edinburgh 34(2): 195 (1975) [5]
Regions.—Indo-China.
Botanical countries.—BMA.
12. *Geranium* sect. *Trilopha* Yeo in Bot. J. Linn. Soc. 89: 13 (1984)
401. *G. bequaertii* De Wild., Pl. Bequaert. 1: 476 (1922) [49]
Regions.—West-Central Tropical Africa.
Botanical countries.—ZAI.
402. *G. biuncinatum* Kokwaro in Webbia 25(2): 639 (1971) [5, 43, 45]
Regions.—Northeast Tropical Africa.
Botanical countries.—ETH SOC SOM SUD YEM.
403. *G. favosum* Hochst. in G.W. Schimp., Iter Abyssinicum Sect. II, n.° 806 (1842), in sched., cum descr.; ex A. Rich., Tent. Fl. Abyss. 1: 117 (1847) [5, 7, 39, 43]
Regions.—Northern Africa, Northeast Tropical Africa & Arabian Peninsula.
Botanical countries.—DJI EGY ETH SAU SUD.
404. *G. mascatense* Boiss., Diagn. Pl. Orient. ser. 1, 1: 59 (1843) [5, 7, 26, 28, 31, 35, 38, 39, 43, 46, 49]
Regions.—West Tropical Africa, West-Central Tropical Africa, Northeast Tropical Africa, East Tropical Africa, South Tropical Africa, Western Asia, Arabian Peninsula, China & Indian Subcontinent.
Botanical countries.—AFG ANG ASS CHC CMN DJI EGY ETH IND IRN JMK KEN MLW NGA NEP OMA PAK SAU SOC SOM SUD TAN UGA YEM ZAI ZIM.
Some authors classified *G. ocellatum* Cambess. in Jacquem., Voy. Inde 4: 33, tab. 38 (1844) as separate of *G. mascatense* (KOKWARO, 1971). In agreement with KNUTH (1912), we consider both taxa as the same species, though under Boissier's previous name. Nevertheless, as Yeo (comm. pers.) mentioned, plants from Tropical Africa, could be distinguished at species level.
405. *G. trilophum* Boiss., Diagn. Pl. Orient. ser. 1, 6: 30 (1846) [5, 7, 31, 39, 43, 45, 47]
Regions.—Northern Africa, Northeast Tropical Africa, Western Asia & Arabian Peninsula.
Botanical countries.—DJI EGY ETH IRN PAL SOC SOM SUD YEM.
13. *Geranium* sect. *Divaricata* Rouy in Rouy & Fouc., Fl. France 4: 88 (1897) [5]
406. *G. albanum* M. Bieb., Fl. Taur.-Caucas. 2: 137 (1808) [5, 7, 10, 29, 30, 31, 45]
Regions.—Caucasus & Western Asia.
Botanical countries.—IRN NCS TCS.
407. *G. divaricatum* Ehrh. in Beitr. Naturk. 7: 164 (1792) [5, 7, 10, 29, 30, 31, 36, 37, 47]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Soviet Middle Asia, Caucasus, Western Asia, China & Indian Subcontinent.
Botanical countries.—AFG ALB ALT AUT BLR BLT BUL CHX CZE FRA GER GRC HUN IND IRN IRQ ITA JMK KAZ KGZ KRY NCS POL ROM RUC RUS SPA SWE SWI TCS TKM TZK TUR UKR UZB YUG.
14. *Geranium* sect. *Batrachioidea* W.D.J. Koch, Syn. Fl. Germ. Helv. 1: 139 (1835) [5]
408. *Geranium aequale* (Bab.) Aedo, Anales Jard. Bot. Madrid 55(2): 466 (1997)
Regions.—Northern Europe, Middle Europe, Southwestern Europe, [New Zealand] & [Northeastern USA].
Botanical countries.—BGM DEN FRA GER GRB [MAS] [NWJ] [NWy] [NZN] [OHI] [PEN] [VER].
409. *G. molle* L., Sp. Pl.: 682 (1753) [5, 7, 10, 15, 21, 29, 30, 31, 36, 37, 40, 42, 44, 45, 47, 55, 61]

Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Northern Africa, Macaronesia, [Southern Africa], Caucasus, Western Asia, [Eastern Asia], Indian Subcontinent, [Australia], [New Zealand], [North-Central Pacific], [Western Canada], [Eastern Canada], [Northwestern USA], [North-Central USA], [Northeastern USA], [Southwestern USA], [Southeastern USA], [North and Central Mexico], [Southern South America] & [Subantarctic Islands].
 Botanical countries.—AFG [AGE] ALB ALG [ARK] AUT AZO BAL BGM BLT BLR [BRC] BUL [CAL] [CLN] [CLS] [CNT] CNY COR [CPP] CYP CZE [DEL] DEN EGY [FAL] FIN FRA [GEO] GER GRB GRC [HAW] HUN [ICE] [IDA] IND IRE IRN IRQ ITA [JAP] JMK KRI KRY [KTY] LBS LBY [LHN] [MAI] [MAS] MDR [MIC] [MNT] MOR [MRY] [MSO] [MXN] [NCA] NCS NET NOR [NSC] [NSW] [NWS] [NWY] [NZN] [NYS] [OHI] [OKL] [ONT] [ORE] PAL [PEN] POL POR [QLD] [QUE] ROM RUC RUE RUS RUW SAR SAU SIC SIN [SOA] SPA SWE SWI [TAS] TCS [TEN] TUE TUN TUR UKR [URU] [UTA] [VER] [VIC] [VRG] [WAS] [WAU] [WIS] [WVA] YUG.

410. *G. pusillum* L., Syst. Nat. ed. 10, 2: 1144 (1759) [5, 7, 10, 15, 21, 29, 30, 31, 36, 37, 45, 46, 47]

Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, North Africa, Soviet Middle Asia, Caucasus, Western Asia, Indian Subcontinent, [New Zealand], [North-Central Pacific], [Western Canada], [Eastern Canada], [Northwestern USA], [North-Central USA], [Northeastern USA], [Southwestern USA], [South-Central USA], [Southeastern USA] & [Caribbean].

Botanical countries.—[ABT] AFG ALB ALG [ARK] AUT [BER] BGM BLR BLT [BRC] BUL [CAL] [CNT] [COL] COR CYP CZE [DEL] DEN FIN FRA

GER [GNL] GRB GRC [HAW] HUN [IDA] [ILL] IND [INI] IRE IRN IRQ ITA JMK [KAN] KAZ KRI KRY [KTY] LBS [MAI] [MAN] [MAS] [MIC] [MNT] MOR [MRY] [MSO] [NCA] NCS [NDA] [NEB] NET NOR [NWJ] [NWM] [NWY] [NZN] [NYS] [OHI] [OKL] [ONT] [ORE] PAK [PEN] POL POR [QUE] ROM RUC RUE RUN RUS RUW SAR [SDA] SIC SPA SWE SWI TCS [TEN] TKM TUE TUR UKR [URU] [UTA] UZB [VRG] [WAS] [WDC] [WIS] [WVA] [WYO] YUG.

411. *G. pyrenaicum* Burm. f., Spec. Bot. Geran.: 27 (1759) [5, 7, 10, 15, 29, 30, 31, 36, 37, 45, 47, 61]

Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, [East Europe], Northern Africa, Caucasus, Western Asia, [Eastern Canada], [Northeastern USA], [Southwestern USA] & [Southern South America].

Botanical countries.—ALB ALG AUT [BGM] [BLR] [BLT] BUL [CAL] [CLN] COR CZE [DEN] [FIN] FRA GER GRB GRC HUN IRE IRN ITA KRY LBS [MIC] MOR NCS [NET] [NOR] [NWY] [ONT] [POL] POR [QUE] ROM [RUC] [RUW] SIC SPA [SWE] SWI TCS TUE TUR [UKR] YUG.

- a. *G. pyrenaicum* Burm. f. subsp. *pyrenaicum*

Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, [East Europe], Northern Africa, Caucasus, Western Asia, [Eastern Canada], [Northeastern USA], [Southwestern USA] & [Southern South America].

Botanical countries.—ALB ALG AUT [BGM] [BLR] [BLT] BUL [CAL] [CLN] COR CZE [DEN] [FIN] FRA GER GRB GRC HUN IRE IRN ITA KRY LBS [MIC] MOR NCS [NET] [NOR] [NWY] [ONT] [POL] [QUE] ROM [RUC] [RUW] SIC SPA [SWE] SWI TCS TUE [UKR] YUG.

- b. *G. pyrenaicum* subsp. *lusitanicum* (Samp.) S. Ortiz in *Anales Jard. Bot. Madrid* 47(1): 244 (1990)
Regions.—Southwestern Europe
Botanical countries.—POR SPA
15. *Geranium* sect. *Unguiculata* (Boiss.) Reiche in *Engl. & Prantl, Nat. Pflanzenfam.* 3(4): 8 (1890) [5, 7]
412. *G. cataractarum* Coss., *Notes Pl. Crit.*: 99 (1851) [5, 7, 37, 45, 47, 48, 56]
Regions.—Southwestern Europe & Northern Africa.
Botanical countries.—MOR SPA.
- a. *G. cataractarum* Coss. subsp. *catarractarum*
Regions.—Southwestern Europe.
Botanical countries.—SPA.
- b. *G. cataractarum* subsp. *pitardii* Maire in *Bull. Soc. Hist. Nat. Afrique N.* 15: 96, fig. 2 (1924)
Regions.—Northern Africa.
Botanical countries.—MOR.
413. *G. dalmaticum* (Beck) Rech. f. in *Magyar Bot. Lapok* 33: 28 (1934) [5, 7, 10, 37, 45, 47, 56]
Regions.—Southeastern Europe.
Botanical countries.—ALB YUG.
414. *G. glaberrimum* Boiss. & Heldr. in *Boiss., Diagn. Pl. Orient. ser. 1*, 8: 116 (1849) [5, 7, 36, 45, 47]
Regions.—Western Asia.
Botanical countries.—TUR.
415. *G. lasiopus* Boiss. & Heldr. in *Boiss., Diagn. Pl. Orient. ser. 1*, 8: 117 (1849) [5, 7, 36, 47]
Regions.—Western Asia.
Botanical countries.—TUR.
416. *G. macrorrhizum* L., *Sp. Pl.*: 680 (1753) [5, 7, 10, 29, 30, 37, 45, 47, 56, 61]
Regions.—[Northern Europe], Middle Europe, Southeastern Europe, [East Europe] & [Southern South America].
Botanical countries.—ALB AUT [BGM] BUL [CLN] FRA [GER] [GRB] GRC ITA [KRY] ROM [UKR] YUG.
417. *G. lucidum* L., *Sp. Pl.*: 682 (1753) [5, 7, 10, 29, 30, 31, 35, 36, 37, 45, 46, 47, 56]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Northern Africa, Macaronesia, Soviet Middle Asia, Caucasus, Western Asia, Arabian Peninsula & Indian Subcontinent.
Botanical countries.—ALB ALG AUT BAL BGM BLT BUL COR CYP CZE DEN FIN FRA GER GRB GRC HUN IND IRE IRN IRQ ITA JMK KRI KRY LBS LBY MDR MOR NCS NEP NOR PAK PAL POR ROM RUS SAR SAU SIC SPA SWE SWI TCS TKM TUE TUN TUR UKR YUG.
17. *Geranium* sect. *Ruberta* Dumort., *Fl. Belg.*: 112 (1827) [4, 5, 7]
418. *G. purpureum* Vill., *Hist. Pl. Dauphiné* 1: 272 (1786) [4, 5, 7, 10, 22, 28, 30, 31, 36, 37, 40, 42, 47, 49, 55, 56]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Northern Africa, Macaronesia, East Tropical Africa, [Southern Africa], Caucasus, Western Asia & [New Zealand].
Botanical countries.—ALB ALG AZO BAL BUL CNY COR [CPP] CYP FRA GRB GRC IRE IRN IRQ ITA KEN KRI KRY LBN LBS LBY MDR MOR [NZN] PAL POR ROM SAR SIC SPA SWI TAN TSC TUE TUN TUR UGA YUG.
419. *G. reuteri* Aedo & Muñoz Garm., *Kew Bull.* 52(3): 726 (1997) [4, 5, 45, 56]
Regions.—Macaronesia.
Botanical countries.—CNY.
420. *G. robertianum* L., *Sp. Pl.*: 681 (1753) [4, 5, 7, 10, 15, 21, 23, 24, 26, 29, 30, 31, 35, 36, 37, 44, 45, 46, 47, 54, 56, 61]
Regions.—Northern Europe, Middle Europe, Southwestern Europe, Southeastern Europe, East Europe, Northern Africa, Macaronesia, Northeast Tropical Africa, [Western Indian Ocean], Siberia, Soviet Middle Asia, Caucasus, Western Asia, Arabian Peninsula, China, Eastern Asia, Indian

Subcontinent, [Malesia], [New Zealand], [Subartic America], [Western Canada], [Eastern Canada], [North-western USA], [North-Central USA], [Northeastern USA], [Southwestern USA], [Southeastern USA], [Caribbean], [Western South America], [Brazil] & [Southern South America].
 Botanical countries.—[AGE] [AGW] ALB ALG ALT [ASK] AUT AZO BGM BLR BLT [BOL] [BRC] BUL [BZS] [CAL] CHC [CLN] [CLS] [CNT] CNY COR CYP CZE [DEL] DEN [DOM] ETH FIN FRA GER GRB GRC [HAI] HUN [ILL] [INI] IRE IRN ITA JAP JMK [JNF] KAZ KGZ KRI KRY LBS LBY [MAI] [MAN] [MAS] [MDG] MDR [MIC] [MIN] [MLY] MOR [MRY] [NBR] NCS [NEB] NEP NET [NFL] NOR [NSC] [NWH] [NWJ] [NWY] [NZN] [NZS] [OHI] [ONT] PAK [PEI] [PEN] POL POR [QUE] [REU] [RHO] ROM RUC RUE RUN RUS RUW SAR SAU SIC SPA SWE SWI TAI TCS [TEN] TUE TUN TUR TZK UKR [URU] [VER] [WAS] [WIS] [WVA] YEM YUG.

421. *G. yeoi* Aedo & Muñoz Garm. in Kew Bull. 52(3): 726 (1997) [4, 5, 45, 56]
 Regions.—Macaronesia.
 Botanical countries.—MDR.

18. *Geranium* sect. *Anemonifolia* R. Knuth in Engl., Pflanzenz. IV. 129 (Heft 53): 98 (1912) [4, 5, 7]

422. *G. maderense* Yeo in Bol. Mus. Munic. Funchal 23: 26, plate 2 (1969) [4, 5, 45, 56]
 Regions.—Macaronesia.
 Botanical countries.—MDR.

423. *G. palmatum* Cav, Diss. 4: 216, tab. 84 fig. 2 (1787) [4, 5, 7, 15, 45, 56]
 Regions.—Macaronesia & [South-western USA].
 Botanical countries.—[CAL] MDR.

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NUMERICAL CODES FOR REFERENCES

1. AEDO (1996)
2. MOORE (1961)
3. NIETO FELINER & AEDO (1995)
4. YEO (1973)
5. YEO (1984)
6. CARLQUIST & BISSING (1976)
7. KNUTH (1912)
8. LÓPEZ (1982)
9. DAVIS (1970)
10. TOKARSKI (1972)
11. MOORE (1943)
12. MACBRIDE (1949)
13. BRAKO & ZARUCCHI (1993)
14. JONES & JONES (1943)
15. KARTESZ (1994)
16. NAVAS (1976)
17. BARBOZA & CORREA (1988)
18. LASSER (1947)
19. BURGER (1991)
20. MEDEIROS & ST. JOHN (1988)
21. CAROLIN (1965)
22. BAKER (1955a)
23. BAKER (1955b)
24. BÖCHER (1947)
25. YEO (1975)
26. YEO (1992)
27. FERLAND (1935)
28. LASSER (1971)
29. BOBROV (1949)
30. CZEREPANOV (1995)
31. SCHÖNBECK-TEMESY (1970)
32. HUANG (1993)
33. ZOKU (1965)
34. KITAGAWA (1979)
35. HARA (1979)
36. DAVIS (1967)
37. WEBB & FERGUSON (1968)
38. LAUNDON (1963)

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39. KOKWARO (1971)
40. HILLIARD & BURTT (1985)
41. VELDkamp & MOERMAN (1978)
42. CHAPMAN (1991)
43. LEBRUN & STORK (1991)
44. DAWSON (1965)
45. YEO (1985)
46. NASIR (1983)
47. GREUTER, BURDET, & LONG (1986)
48. FONT QUER (1931)
49. PETTIT (1958)
50. LEE (1989)
51. LEE (1983)
52. HO (1981)
53. TARDIEU-BLOT (1945)
54. Anonymous (1980)
55. ARNOLD & WET (1993)
56. WIDLER-KIEFER & YEO (1987)
57. RZEDOWSKI & RZEDOWSKI (1995)
58. PITTIER (1929)
59. GARDNER (1984)
60. TSYRENOVA (1985)
61. MARTICORENA & QUEZADA (1985)
62. FOSTER (1958)
63. PAX, PRICE & MICHAELS (1997)
64. XU & HUANG (1998)

REFERENCES

- AEDO, C. (1996). Revision of *Geranium* subgenus *Erodioidea* (Geraniaceae). *Syst. Bot. Monogr.* 49 [ref. 1].
- AITON, W. (1789). *Hortus kewensis*. London.
- Anonymous (1980). *Iconographia Cormophytorum Sinicorum*. Vol. 2. Science Press, Beijing (in Chinese) [ref. 54].
- ARNOLD, T.H. & B.C. WET (1993). *Plants of Southern Africa: names and distribution*. National Botanical Institute, Pretoria [ref. 55].
- BAKER, H.G. (1955a). *Geranium purpureum* Vill. and *G. robertianum* L. in the British flora I. *Geranium purpureum*. *Watsonia* 3: 160-167 [ref. 22].
- BAKER, H.G. (1955b). *Geranium purpureum* Vill. and *G. robertianum* L. in the British flora II. *Geranium robertianum*. *Watsonia* 3: 270-279 [ref. 23].
- BARBOZA, G.E. & M.N. CORREA (1988). *Geranium* L. In: M.N. Correa (ed.), *Flora Patagonica*. Vol. 5. Instituto Nacional de Tecnología Agropecuaria, Buenos Aires: 31-39 [ref. 17].
- BOBROV, E.G. (1949). *Geranium* L. In: B.K. Shishkin & E.G. Bobrov (eds.), *Flora of the USSR*, Vol. 14. Koeltz Scientific Books, Koenigstein: 3-49 (English edition 1986) [ref. 29].
- BÖCHER, T.W. (1947). Cytogenetic and biological studies in *Geranium robertianum* L. *Biol. Meddel. Kongel. Danske Vidensk. Selsk.* 20(8): 1-29 [ref. 24].
- BRAKO, L. & J.L. ZARUCCHI (1993). Catalogue of the Flowering Plants and Gymnosperms of Peru. *Monogr. Syst. Bot. Missouri Bot. Gard.* 45 [ref. 13].
- BURGER, W. (1991). *Geranium* L. *Fieldiana, Bot.* 28: 17-20 [ref. 19].
- CARLQUIST, S. & D.R. BISSING (1976). Leaf anatomy of Hawaiian *Geraniums* in relation to ecology and taxonomy. *Biotropica* 8: 248-259 [ref. 6].
- CAROLIN, R.C. (1965). The genus *Geranium* L. in the south western Pacific area. *Proc. Linn. Soc. New South Wales*, ser. 2, 89: 326-361, pl. VI-VII [ref. 21].
- CHAPMAN, A.D. (1991). *Australian plant name index D-J*. AGPS Press, Canberra [ref. 42].
- CLIFTON, R.T.F. (1992). *Geranium family species checklist. Edition IV. Part 2 Geranium*. Dover, Kent.
- CZEREPANOV, S.K. (1995). *Vascular plants of Russia and adjacent states (the former USSR)*. Cambridge University Press, Cambridge, New York and Melbourne [ref. 30].
- DAVIS, P.H. (1967). *Geranium* L. In: P.H. Davis, J. Cullen & J.E. Coode (eds.), *Flora of Turkey*. Vol. 2. University Press, Edinburgh: 451-474 [ref. 36].
- DAVIS, P.H. (1970). *Geranium* sect. *Tuberosa*, revision and evolutionary interpretation. *Israel J. Bot.* 19: 91-113 [ref. 9].
- DAWSON, G. (1965). *Geranium* L. In: A.L. Cabrera (ed.), *Flora de la provincia de Buenos Aires*. Vol. 4a. Colección científica del INTA, Buenos Aires: 15-19 [ref. 44].
- DUMORTIER, B.C.J. (1827). *Florula belgica*. Tournay.
- FERLAND, M.L. (1935). *Geranium carolinianum* and allies of northeastern North America. *Rhodora* 37: 295-301, pls. 371-374 [ref. 27].
- FONT QUER, P. (1931). De flora occidentale adnotationes. *Cavanillesia* 4: 88-94 [ref. 48].
- FOSTER, R.C. (1958). A catalogue of the ferns and flowering plants of Bolivia. *Contr. Gray Herb.* 184 [ref. 62].
- GARDNER, R.O. (1984). *Geranium solanderi* and allies in New Zealand. *New Zealand J. Bot.* 22: 127-134 [ref. 59].
- GREUTER, W., H.M. BURDET & G. LONG (1986). *Med-Checklist*. Vol. 3. Éditions des Conservatoire et Jardin botaniques, Genève [ref. 47].
- HARA, H. (1979). *Geranium* L. In: H. Hara & H.J. Williams (eds.), *An enumeration of the flowering plants of Nepal*. Vol. 2. Trustees of British Museum (Natural History), London: 75-77 [ref. 35].
- HILLIARD, O.M. & B.L. BURTT (1985). A revision of *Geranium* in Africa south of the Limpopo. *Notes Roy. Bot. Gard. Edinburgh* 42: 175-225 [ref. 40].
- HO, S.B. (1981). *Geranium* L. In: K.T. Fu & C.W. Chang (eds.), *Flora Tsinlingensis*. Vol. 1(3). Science Press, Beijing: 120-126 (in Chinese) [ref. 52].
- HOLLIS, S. & R.K. BRUMMITT (1992). *World geographical scheme for recording plant distributions*. Hunt Institute for Botanical Documentation, Pittsburgh.
- HUANG, T.-C. (1993). *Flora of Taiwan*, ed. 2. Lungwei Printing Company Ltd., Taipei [ref. 32].
- JONES, G.N. & F.F. JONES (1943). A revision of the perennial species of *Geranium* of the United States and Canada. *Rhodora* 45: 5-26; 32-53 [ref. 14].
- KARTESZ, J.T. (1994). *A synonymized checklist of the vascular flora of the United States, Canada, and*

- Greenland, ed. 2. Timber Press, Portland, Oregon [ref. 15].
- KITAGAWA, M. (1979). *Neo-Lineamenta Florae Manchuricae*. J. Cramer, Vaduz [ref. 34].
- KNUTH, R. (1903). Über die geographische Verbreitung und die Anpassungserscheinungen der Gattung Geranium im Verhältnis zu ihrer systematischen Gliederung. *Bot. Jahrb. Syst.* 32: 190-230.
- KNUTH, R. (1912). Geraniaceae. In: A. Engler (ed.), *Das Pflanzenreich*, IV.129 (Heft 53). Wilhelm Engelmann, Leipzig: 1-640 [ref. 7].
- KNUTH, R. (1931). Geraniaceae. In: A. Engler & H. Harms (ed.), *Die natürlichen Pflanzenfamilien*, ed. 2, 19a. Wilhelm Engelmann, Leipzig: 43-66.
- KOKWARO, J.O. (1971). The family "Geraniaceae" in North-East tropical Africa. *Webbia* 25: 623-669 [ref. 39].
- LASSER, T. (1947). Geranium L. In: H. Pittier, T. Lasser, L. Schnee, Z.L. Febres & V. Badiillo (eds.), *Catálogo de la flora venezolana*. Vol. 2. Vargas, Caracas: 7-10 [ref. 18].
- LASSER, T. (1971). Geranium L. In: E. Milne-Redhead & R.M. Polhill (eds.), *Flora of Tropical East Africa*. Crown Agents for Oversea Governments and Administrations, London: 1-10 [ref. 28].
- LAUNSON, J.R. (1963). Geranium L. In: A.W. Exell, A. Fernandes & H. Willd (eds.), *Flora Zambesiaca*. Vol. 2. Crown Agents for Oversea Governments & Administrations, London: 131-136 [ref. 38].
- LEE, S. (1983). A taxonomic study on the genus Geranium in Korea. *Korean J. Pl. Taxon.* 13: 27-40 (in Korean) [ref. 51].
- LEE, T.B. (1989). *Illustrated flora of Korea* (in Korean) [ref. 50].
- LEBRUN, J.-P. & A.L. STORK (1991). *Énumération des plantes à fleurs d'Afrique tropicale*. Éditions des Conservatoire et Jardin botaniques, Genève [ref. 43].
- L'HÉRITIER, C.L. (1792). *Geraniologia*. Paris, London, Vienna & Strasbourg.
- LÓPEZ, G. (1982). Acerca de Geranium acutilobum Coincy. *Anales Jard. Bot. Madrid* 38: 528-529 [ref. 8].
- MACBRIDE, J.F. (1949). Flora of Peru. Geranium L. *Field Mus. Nat. Hist., Bot. Ser.* 13: 511-538 [ref. 12].
- MARTICORENA, C. & M. QUEZADA (1985). Catálogo de la flora vascular de Chile. *Gayana, Bot.* 42(1/2) [ref. 61].
- MEDeiros, A.C. & H. ST. JOHN (1988). Geranium hanaense (Geraniaceae), a new species from Maui, Hawaiian Islands. *Brittonia* 40: 214-220 [ref. 20].
- MOORE, H.E. (1943). A revision of the genus Geranium in Mexico and Central America. *Contr. Gray Herb.* 146 [ref. 11].
- MOORE, H.E. (1961). A remarkable new Geranium from Ecuador. *Brittonia* 13: 141-143 [ref. 2].
- NASIR, Y.J. (1983). Geranium L. In: E. Nasir & S.I. Ali (eds.), *Flora of Pakistan*. Vol. 149. Pakistan Agricultural Research Council, Islamabad [ref. 46].
- NAVAS, L.E. (1976). *Flora de la cuenca de Santiago de Chile*. Vol. 2. Ediciones de la Universidad de Chile [ref. 16].
- NIETO FELINER, G. & C. AEDO (1995). A cladistic analysis of Geranium subg. Erodioidea (Picard) Yeo (Geraniaceae). *Bot. J. Linn. Soc.* 119: 195-212 [ref. 3].
- PAX, D.L., R.A. PRICE & H.J. MICHAELS (1997). Phylogenetic position of the Hawaiian geraniums based on rbcL sequences. *Amer. J. Bot.* 84: 72-78 [ref. 63].
- PETT, E. (1958). *Flore du Congo Belge et du Ruanda-Urundi*. Vol. 7. Institut National pour l'étude agronomique du Congo Belge, Bruxelles [ref. 49].
- PICARD, C. (1837). Étude sur les Géraniées. *Mém. Soc. Agric. Boulogne-sur-Mer* 1: 95-138.
- PITTIER, H. (1929). Botanical notes on, and descriptions of, new and old species of Venezuelan plants. *J. Wash. Acad. Sci.* 19: 175-186 [ref. 58].
- PRICE, R.A. & J.D. PALMER (1993). Phylogenetic relationships of the Geraniaceae and Geraniales from rbcL sequence comparisons. *Ann. Missouri Bot. Gard.* 80: 661-671.
- REICHE, K. (1890). Geraniaceae. In: A. Engler & K. Prantl (eds.), *Die natürlichen Pflanzenfamilien*. Vol. 3(4). Wilhelm Engelmann, Leipzig: 1-14.
- RZEDOWSKI, J. & G.C. RZEDOWSKI (1995). *Flora del Bajío y de regiones adyacentes. Familia Geraniaceae*. Instituto de Ecología A.C. Centro Regional del Bajío, Pátzcuaro [ref. 57].
- SCHÖNBECK-TEMESY, E. (1970). Geranium L. In: K.H. Rechinger (ed.), *Flora Iranica*. Vol. 69. Akademische Druck- u. Verlagsanstalt, Graz: 1-39 [ref. 31].
- STANDLEY, C. (1915). A remarkable new Geranium from Venezuela. *J. Wash. Acad. Sci.* 5: 600-602.
- TARDIEU-BLOT, M.L. (1945). Geranium L. In: F. Gagnepain (ed.), *Supplément a la flore générale de l'Indo-Chine*. Vol. 1(4). Muséum National d'Histoire Naturelle, Paris: 551-552 [ref. 53].
- TOKARSKI, M. (1972). Morphological and taxonomical analysis of fruits and seeds of the European and Caucasian species of the genus Geranium L. *Monogr. Bot.* 36: 5-115 [ref. 10].
- TSYRENOVA, D.Y. (1985). Geranium erianthum (Geraniaceae) and closely related species. *Bot. Zhurn. (Moscow & Leningrad)* 70: 476-482 (in Russian) [ref. 60].
- TSYRENOVA, D. Y. (1986). Geranium subumbelliforme and its relation to G. erianthum (Geraniaceae). *Bot. Zhurn. (Moscow & Leningrad)* 71: 345-347 (in Russian) [ref. 61].
- VELDKAMP, J.F. & A. MOERMAN (1978). A review of the malasian species of Geranium L. (Geraniaceae). *Blumea* 24: 463-477 [ref. 41].
- WARBURG, E.F. (1938a). Taxonomy and relationship in the Geraniales in the light of their cytology. *New Phytol.* 37: 130-159.
- WARBURG, E.F. (1938b). Taxonomy and relationship in the Geraniales in the light of their cytology, II. *New Phytol.* 37: 189-210.
- WEBB, D.A. & J.K. FERGUSON (1968). Geranium L. In: T.G. Tutin, V.H. Heywood, N.A. Burges, D.M. Moore, D.H. Valentine, S.M. Walters & D.A. Webb (eds.), *Flora Europaea*. Vol. 2. Cambridge University Press, Cambridge: 193-199 [ref. 37].
- WIDLER-KIEFER, H. & P.F. YEO (1987). Fertility relationships of Geranium (Geraniaceae): sect. Ruberta, Anemonifolia, Lucida and Unguiculata. *Pl. Syst. Evol.* 155: 283-306 [ref. 56].

- XU, L.R. & C.C. HUANG (1998). *Flora Reipublicae Popularis Sinicae*. Vol. 43(1). Science Press, Beijing: 22-83 (in Chinese) [ref. 64].
- YEO, P.F. (1973). The biology and systematics of Geranium, sections *Anemonifolia* Knuth and *Ruberta* Dum. *Bot. J. Linn. Soc.* 67: 285-346 [ref. 4].
- YEO, P.F. (1975). Geranium species from mount Victoria, Burma. *Notes Roy. Bot. Gard. Edinburgh* 34: 195-200 [ref. 25].
- YEO, P.F. (1984). Fruit-discharge-type in Geranium (Geraniaceae): its use in classification and its evolutionary implications. *Bot. J. Linn. Soc.* 89: 1-36 [ref. 5].
- YEO, P.F. (1985). *Hardy Geraniums*. B.T. Batsford Ltd., London [ref. 45].
- YEO, P.F. (1990). The classification of Geraniaceae. In: P. Vorster (ed.), *Proceeding of the international Geraniaceae symposium*. Stellenbosch: 1-22.
- YEO, P.F. (1992). A revision of Geranium L. in South-west China. *Edinburgh J. Bot.* 49: 123-211 [ref. 26].
- ZOKU, F. (1965). Geranium L. In: J. Ohwi (ed.), *Flora of Japan*. Smithsonian institution, Washington: 578-579 [English edition by F.G. Meyer & E.H. Walker] [ref. 33].

APPENDIX 1

(Regions and their code number, ordered by continents)

EUROPE		33 Caucasus	72 Eastern Canada
10 Northern Europe		34 Western Asia	73 Northwestern USA
11 Middle Europe		35 Arabian Peninsula	74 North-Central USA
12 Southwestern Europe		36 China	75 Northeastern USA
13 Southeastern Europe		37 Mongolia	76 Southwestern USA
14 East Europe		38 Eastern Asia	77 South-Central USA
			78 Southeastern USA
			79 North and Central Mexico
AFRICA		ASIA-TROPICAL	
20 Northern Africa		40 Indian Subcontinent	
21 Macaronesia		41 Indo-China	
22 West Tropical Africa		42 Malesia	
23 West-Central Tropical Africa			SOUTHERN AMERICA
24 Northeast Tropical Africa			80 Mesoamerica
25 East Tropical Africa		AUSTRALASIA	
26 South Tropical Africa		50 Australia	81 Caribbean
27 Southern Africa		51 New Zealand	82 Northern South America
29 Western Indian Ocean			83 Western South America
			84 Brazil
			85 Southern South America
			ANTARTIC
ASIA-TEMPERATE		63 North-Central Pacific	90 Subantarctic Islands
30 Siberia		NORTHERN AMERICA	
31 Soviet Far East		70 Subartic America	
32 Soviet Middle Asia		71 Western Canada	

APPENDIX 2

(Codes of the botanical countries and their region number)

ABT Alberta (71)	ARK Arkansas (78)	BMA Burma (41)
AFG Afghanistan (34)	ASK Alaska (70)	BOL Bolivia (83)
AGE Argentina Northeast (85)	ASS Assam (40)	BRC British Columbia (71)
AGS Argentina South (85)	ATP Antipodean Is (51)	BRY Buryatiya (30)
AGW Argentina Northwest (85)	AUT Austria (11)	BUL Bulgaria (13)
ALA Alabama (78)	AZO Azores (21)	BUR Burundi (23)
ALB Albania (13)	BAH Bahamas (81)	BZL Brazil Southeast (84)
ALG Algeria (20)	BAL Balears (12)	BZS Brazil South (84)
ALT Altay (30)	BER Bermuda (81)	CAL California (76)
ALU Aleutian Is (70)	BGM Belgium (11)	CHC China South-Central (36)
AMU Amur (31)	BHU Bhutan-Sikkim (40)	(SI: Sichuan)
ANG Angola (26)	BLR Belorussia (14)	CHI Inner Mongolia (36)
ARI Arizona (76)	BLT Baltic States (14)	CHM Manchuria (36)

CHN	China North-Central (36)	JNF	Juan Fernández Is (85)	MXS	Mexico Southwest (79)
CHS	China Southeast (36)	KAM	Kamchatka (31)		(GR: Guerrero; JA:
CHT	Tibet-Qinghai (36)	KAN	Kansas (74)		Jalisco; MI: Michoacan;
CHX	Xinjiang (36)	KAZ	Kazakhstan (32)		NA: Nayarit;
CLM	Colombia (83)	KEN	Kenya (25)		OA: Oaxaca)
CLN	Chile North (85)	KER	Kermadec Is (51)	NAT	Natal (27)
CLS	Chile South (85)	KGZ	Kirgizstan (32)	NBR	New Brunswick (72)
CMN	Cameroon (23)	KHA	Khabarovsk (31)	NCA	North Carolina (78)
CNT	Connecticut (75)	KOR	Korea (38)	NCS	North Caucasus (33)
CNY	Canary Is (21)	KRA	Krasnoyarsk (30)	NDA	North Dakota (74)
COL	Colorado (73)	KRI	Kriti (13)	NEB	Nebraska (74)
COM	Comoros (29)	KRY	Krym (14)	NEP	Nepal (40)
CON	Congo (23)	KTY	Kentucky (78)	NET	Netherlands (11)
COR	Corse (12)	KUR	Kuril Is (31)	NEV	Nevada (76)
COS	Costa Rica (80)	LAB	Labrador (72)	NFL	Newfoundland I (72)
CPP	Cape Province (27)	LAO	Laos (41)	NGA	Nigeria (22)
CTA	Chita (30)	LBS	Lebanon-Syria (34)	NNS	Nansei-Shoto (38)
CTM	Chatham Is (51)	LBY	Libya (20)	NOR	Norway (10)
CVI	Cape Verde (21)	LES	Lesotho (27)	NSC	Nova Scotia (72)
CYP	Cyprus (34)	LHN	Lord Howe-Norfolk Is (50)	NSW	New South Wales (50)
CZE	Czechoslovakia (11)	LOU	Louisiana (78)	NWG	New Guinea (42)
DEL	Delaware (78)	LSI	Lesser Sunda Is (42)	NWH	New Hampshire (75)
DEN	Denmark (10)	MAG	Magadan (31)	NWJ	New Jersey (75)
DJI	Djibouti (24)	MAI	Maine (75)	NWM	New Mexico (77)
DOM	Dominican Republic (81)	MAN	Manitoba (71)	NWT	Northwest Territories (70)
ECU	Ecuador (83)	MAS	Massachusetts (75)		(MK: Mackenzie)
EGY	Egypt (20)	MDG	Madagascar (29)	NWY	New York (75)
ELS	El Salvador (80)	MDR	Madeira (21)	NZN	New Zealand North I (51)
ETH	Ethiopia (24)	MIC	Michigan (75)	NZS	New Zealand South I (51)
FAL	Falkland Is (90)	MIN	Minnesota (74)	OFS	Orange Free State (27)
FIN	Finland (10)	MLW	Malawi (26)	OHI	Ohio (75)
FLA	Florida (78)	MLY	Malaya (26)	OKL	Oklahoma (74)
FOR	Føroyar (10)	MNT	Montana (73)	OMA	Oman (35)
FRA	France (12)	MON	Mongolia (37)	ONT	Ontario (72)
	(CI: Channel Is)	MOR	Morocco (20)	ORE	Oregon (73)
GEO	Georgia (78)	MOZ	Mozambique (26)	PAK	Pakistan (40)
GER	Germany (11)	MRY	Maryland (78)	PAL	Palestine (34)
GGI	Gulf of Guinea Is (23)	MSI	Mississippi (78)	PAN	Panamá (80)
	(BI: Bioko)	MSO	Missouri (74)	PAR	Paraguay (85)
GNL	Greenland (70)	MXC	Mexico Central (79)	PEI	Prince Edward I (72)
GRB	Great Britain (10)		(DF: Distrito Federal;	PEN	Pennsylvania (75)
GRC	Greece (13)		ME: Mexico State;	PER	Perú (83)
GUA	Guatemala (80)		MO: Morelos;	POL	Poland (11)
HAI	Haiti (81)		PU: Puebla;	POR	Portugal (12)
HAW	Hawaii (63)		TL: Tlaxcala)	PRM	Primorye (31)
HON	Honduras (80)	MXE	Mexico Northeast (79)	QLD	Queensland (50)
HUN	Hungary (11)		(AG: Aguascalientes;	QUE	Québec (72)
ICE	Iceland (10)		CO: Coahuila;	REU	Réunion (29)
IDA	Idaho (73)		CU: Chihuahua;	RHO	Rhode Island (75)
ILL	Illinois (74)		DU: Durango;	RÓM	Romania (13)
IND	India (40)		GU: Guanajuato;	RUC	Russia Central (14)
INI	Indiana (75)		HI: Hidalgo; NL: Nuevo	RUE	Russia East (14)
IOW	Iowa (74)		Leon; QU: Querétaro;	RUN	Russia North (14)
IRE	Ireland (10)		SL: San Luis Potosi;	RUS	Russia South (14)
IRK	Irkutsk (30)		TA: Tamaupilas;	RUW	Russia Northwest (14)
IRN	Iran (34)		ZA: Zacatecas)	RWA	Rwanda (23)
IRQ	Iraq (34)	MXG	Mexico Gulf (79)	SAK	Sakhalin (31)
ITA	Italy (13)		(VC: Veracruz)	SAR	Sardegna (12)
JAM	Jamaica (81)	MXN	Mexico Northwest (79)	SAS	Saskatchewan (71)
JAP	Japan (38)		(BC: Baja California	SAU	Saudi Arabia (35)
JAW	Jawa (42)		BS: Baja California Sur;	SCA	South Carolina (78)
JMK	Jammu-Kashmir (40)		SI: Sinaola; SO: Sonora)	SDA	South Dakota (74)

SIC	Sicilia (13)	TCS	Transcaucasus (33)	VIE	Vietnam (41)
SIE	Sierre Leone (22)	TEN	Tennessee (78)	VRG	Virginia (78)
SIN	Sinai (34)	TEX	Texas (77)	WAS	Washington (73)
SMX	Mexico Southeast (80) (CI: Chiapas)	THA	Thailand (41)	WAU	Western Australia (50)
SOA	South Australia (50)	TKM	Turkmenistan (32)	WDC	District of Columbia (78)
SOC	Socotra (24)	TUE	Turkey-in-Europe (13)	WIS	Wisconsin (74)
SOM	Somalia (24)	TUN	Tunisia (20)	WSA	Western Sahara (20)
SPA	Spain (12)	TUR	Turkey (34)	WSB	West Siberia (30)
SRL	Sri Lanka (40)	TVA	Tuva (30)	WVA	West Virginia (75)
SUD	Sudan (24)	TVL	Transvaal (27)	WYO	Wyoming (73)
SUL	Sulawesi (42)	TZK	Tadzhikistan (32)	YAK	Yakutiya (30)
SUM	Sumatera (42)	UGA	Uganda (25)	YEM	Yemen (35)
SWE	Sweden (10)	UKR	Ukraina (14)	YUG	Yugoslavia (13)
SWI	Switzerland (11)	URU	Uruguay (85)	YUK	Yukon (70)
SWZ	Swaziland (27)	UTA	Utah (76)	ZAI	Zaire (23)
TAI	Taiwan (38)	UZB	Uzbekistan (32)	ZAM	Zambia (26)
TAN	Tanzania (25)	VEN	Venezuela (82)	ZIM	Zimbabwe (26)
TAS	Tasmania (50)	VER	Vermont (75)		
		VIC	Victoria (50)		

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