
Reduction of *Barnardiella*, *Galaxia*, *Gynandriris*, *Hexaglottis*, *Homeria*, and *Roggeveldia* in *Moraea* (Iridaceae: Irideae)

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ABSTRACT. *Moraea*, central genus of the Old World and largely African subtribe Homeriinae of Iridaceae tribe Irideae and currently including some 130 species, is understood to be paraphyletic. The remaining genera of Homeriinae, *Barnardiella* (1 sp.), *Galaxia* (15 spp.), *Gynandriris* (9 spp.), *Hexaglottis* (6 spp.), *Homeria* (ca. 32 spp.), and *Roggeveldia* (2 spp.), are each believed to be monophyletic but nested in *Moraea*. Morphological and anatomical evidence showing the likely paraphyly of *Moraea* has now been confirmed by DNA sequence analysis of two chloroplast genes, *trnL-F* and *rbcL*. The species of the six genera nested in *Moraea* are here transferred to the genus. Members of *Galaxia*, *Gynandriris*, *Hexaglottis*, and *Homeria* are provisionally assigned to sections bearing their names. *Barnardiella* is included in section *Moraea*, in which it is evidently closely related to *M. rigidifolia*. The two species of *Roggeveldia* are placed in section *Polyanthes*, and they are believed to be allied to the *M. crispa* group of that section. New combinations or new names are provided for species transferred to *Moraea*. Preliminary data show that the infrageneric classification of *Moraea* will require extensive revision, but until more molecular data are available the current classification of this genus, now including some 200 species, must remain in place.

As currently defined, *Moraea*, the largest genus of Irideae subtribe Homeriinae (Goldblatt, 1990), comprises some 130 species spread throughout sub-Saharan Africa (Goldblatt, 1986a; Goldblatt & Manning, 1995). Other genera of this largely African subtribe are centered in southern Africa (Goldblatt, 1981). *Gynandriris* (9 spp.), however, occurs outside southern Africa, and it has two or possibly three species in the Mediterranean and Middle East (Goldblatt, 1980a). The subtribe comprises some 200 species, and seven genera are usually recognized, these being *Homeria* (including *Sessilistigma*—Goldblatt, 1991) (32 spp.), *Galaxia* (15 spp.), *Hexaglottis* (6 spp.), *Roggeveldia* (2 spp.), and *Barnardiella* (1 sp.) in addition to *Gynandriris* and *Mo-*

raea. Morphological and anatomical data (Goldblatt, 1987; Rudall & Goldblatt, 1993) have suggested that *Moraea* is paraphyletic, and research using DNA sequence analysis has confirmed the paraphyly of the genus (Goldblatt et al., in prep.). DNA sequence analysis of two chloroplast genes, *trnL-F* and *rbcL*, shows that representative species of *Galaxia*, *Gynandriris*, *Hexaglottis*, and *Homeria* are nested in *Moraea* and most closely allied to different species of the genus. *Barnardiella* and *Roggeveldia* can also be confidently allied to particular species or lineages within *Moraea* on morphological and cytological grounds. While other genera of Homeriinae have discrete synapomorphies and can readily be defined, *Moraea* can only be defined by synapomorphies that define Homeriinae. In order to have a phylogenetic classification with *Moraea* monophyletic, the remaining genera of Homeriinae are reduced to synonymy here and their constituent species transferred to *Moraea*.

MORPHOLOGY OF HOMERIINAE

Vegetative morphology. The genera of Homeriinae are defined by two derived features, a cormous rootstock, with the corms covered by fibrous to more or less woody tunics, and a bifacial and dorsiventral leaf. Most other Iridaceae have unifacial, isobilateral leaves, as do *Iris* and *Diets* (Iridinae) and *Ferraria* (Ferrariinae), the genera believed to be most closely allied to Homeriinae on both morphological and molecular grounds (Goldblatt, 1990, 1991; Souza-Chies et al., 1997). The leaf is specialized in having a closed sheath and a bifacial, usually channeled, blade lacking a midrib. In Homeriinae the unifacial blade ancestral in the family is represented by a short, flattened apical portion. The corm of all Homeriinae consists of a single swollen internode with a terminal apical bud, and on germination roots are produced from the base of the apical bud (Goldblatt, 1990). The corm is entirely axillary in origin and is also distinguished by the presence of persistent tunics of the corm of various texture and color. Tunics are formed from a

cataphyll subtending the axillary bud from which a corm is produced. The ancestral rootstock in Irideae (and probably in all Iridaceae) is a creeping rhizome, and, except for Homeriinae, only *Ferraria* has a corm. In that genus the corm comprises several internodes, the old corms persist, lasting many years (as does a rhizome), and new corms, produced annually, develop from tissue in the base of the flowering stem, incorporating axillary buds in this part of the stem (De Vos, 1979). Corm tunics of *Ferraria* consist of the membranous bases of foliage leaves and are short lived, seldom persisting on the mature corm.

The genera of the subtribe all have this basic vegetative organization, and each is recognized taxonomically largely by its flower, an organ that is central to the pollination strategy of the plant and more directly subject to selection than either fundamental leaf form, surprisingly uniform in the subtribe, or corm features, which vary within limited parameters and show no correlation between habitat and morphology. Corm tunics are the only features useful for recognizing large species clusters throughout Homeriinae. Their utility for phylogenetic interpretation is, however, hindered by their uniqueness within the subtribe so that polarity by outgroup comparison cannot be determined. Objective interpretation of tunic types is sometimes difficult, evidently due to subsequent modification, but their morphology is, nevertheless, useful in studies of the phylogeny of *Moraea*.

Basic flower organization. The ancestral (plesiomorphic) flower type in Homeriinae is similar to that of *Dietes* and *Iris* (Goldblatt, 1990). The outer tepals are larger than the inner and strongly clawed, with the claw appressed to an enlarged petaloid style branch, and the spreading tepal limb is marked with a nectar guide. The inner tepals typically have an ascending claw and spreading limb and lack contrasting markings. Perigonal nectaries are located within the flower at the base of the outer tepals. The style in such flowers is short and much exceeded by three broad style branches against which the upper part of the filaments and the anthers are appressed (Goldblatt, 1986a, 1990). In Homeriinae and *Ferraria* the filaments are united in the lower part, a synapomorphy for the clade, whereas in *Dietes* and *Iris* the stamens are free. The style branches each bear a pair of conspicuous terminal petaloid appendages, the style crests, extending above a transverse stigmatic lobe.

This basic flower organization varies in several ways, and it is the flower alone that defines the several other genera of Homeriinae. In *Gynandris* the ovary is subsessile, and the flower is raised out

of the spathe-enclosed inflorescence on an elongated tubular extension of the ovary (Goldblatt, 1980a). In *Barnardiella*, *Galaxia*, *Homeria*, *Hexaglottis*, and *Roggeveldia* the differences between the outer and inner tepal whorls are weak or absent. The tepal limbs of both whorls may have nectar guides, and both inner and outer tepals may have basal nectaries. Together the tepal claws form a narrow to wide cup surrounding a staminal column that encloses at least part of the style and sometimes the style branches and anthers. This type of flower defines *Homeria* (Goldblatt, 1981) but is not restricted to the genus. *Barnardiella*, like *Gynandris*, also has a sessile ovary with an elongate tubular upper part (Goldblatt, 1976). *Galaxia* has the *Homeria*-like flower, but plants are acaulescent, and the tepals are basally united to form a tube (Goldblatt, 1979a). *Hexaglottis* has flowers closely resembling some species of *Homeria*, but the anthers diverge, and the style branches are each divided to the base into filiform arms that extend between the anthers (Goldblatt, 1987). In *Roggeveldia* the style arms are filiform but simple and extend between free stamens (Goldblatt, 1979b).

Few of the above specializations are unique within Homeriinae. *Moraea hexaglottis* Goldblatt has a flower like that of *Hexaglottis*, several species of *Moraea* have *Homeria*-like flowers (e.g., *M. crispa* Thunberg (subg. *Moraea*), *M. elisiae* Goldblatt (subg. *Visciramosa*) (Goldblatt, 1986a)), and acaulescence is developed in several species of *Moraea*, evidently unrelated to *Galaxia*. A perianth tube comparable to that in *Galaxia* is present in three species of *Moraea* belonging to two different lineages. Lastly, a sterile, beak-like upper part of the ovary characterizes sections *Deserticola* and *Subracemosae* of *Moraea*. This is a similar, though less pronounced condition than the tubular ovary extension of *Barnardiella* and *Gynandris*.

DISCUSSION

The basic flower of *Iris* and *Moraea* (and presumably of tribe Irideae) has been said to function as three separate bilabiate units, or meranthia, each consisting of a lower lip with a nectar guide (outer tepal limb), an upper lip (the petaloid style crests), and a gullet (the narrow space enclosed by the outer tepal claw and the lightly appressed style branch) (Müller, 1883; Proctor et al., 1996). Each unit or meranthium bears a close resemblance to the zygomorphic, bilabiate flower of many species of dicot families like Acanthaceae, Lamiaceae, and Scrophulariaceae. Such flowers are usually pollinated by large, long-tongued bees, and both anec-

dotal and documented observations indicate that bees (*Bombus* in the case of *Iris*, Apidae, Anthophoridae, and Mellitidae for *Moraea*) treat the flower in just this way, visiting one bilabiate meranthium of a flower before moving to a meranthium of a different flower (Müller, 1883; Knuth, 1909; Goldblatt et al., 1989). In such flowers the inner tepals apparently serve a minor role in attracting potential pollinators, and they may be erect, spreading, or reduced in various ways. They are absent or vestigial in several species that otherwise maintain the *Iris*-type floral organization and pollination ecology.

Both morphological cladistic analyses (Goldblatt, 1990; Rudall & Goldblatt, 1993) and DNA sequence data (Souza-Chies et al., 1997; Goldblatt et al., in prep.) support the view that this complex, highly specialized flower most probably arose once in tribe Irideae, but the complexity has been lost or modified repeatedly (Goldblatt, 1980b, 1986b). The decrease in size of the style branches and crests, accompanied by the tendency for the inner tepals to resemble the outer in size as well as having a nectar guide at the base of the limb and a nectary at the claw base is evidently an important adaptive shift. Such flowers are adapted for different pollination strategies (Goldblatt & Bernhardt, unpublished).

Species with a short floral cup and prominently displayed anthers (*Barnardiella*, *Hexaglottis*, *Homeria* sect. *Conanthera*, *Moraea pseudospicata* Goldblatt) are pollinated largely by female bees foraging for pollen (Goldblatt, 1981, 1987; Goldblatt & Bernhardt, unpublished). Those with longer tepal claws have larger, wider floral cups, and both nectar and pollen are available to a variety of insects. Such species (e.g., *Homeria comptonii* L. Bolus, *H. elegans* (Jacquin) Sweet, *H. ochroleuca* (Salisbury) Sweet) may be pollinated by a range of different insects, and depending on the type of floral odor and tepal markings, they may be visited by muscid and scathophagid flies, hopliine beetles, and halictid and honey bees (Goldblatt et al., 1998). Thus, what have been considered morphological specializations deserving taxonomic recognition at generic level are now understood to be adaptations for a range of pollination strategies. These adaptations have evolved repeatedly in different lineages (Goldblatt, 1986b), and, I argue, are not *per se* useful for defining genera in Homeriinae. The demonstration that species of *Galaxia*, *Hexaglottis*, and *Homeria* are nested within *Moraea* now makes the reduction of these genera necessary for the maintenance of a phylogenetic classification.

Likewise, the unusual ovary of *Barnardiella* and

Gynandriris appears to have evolved convergently within *Moraea*. The adaptation, presumably for protection of the ovules, is less strongly developed in some lineages of *Moraea*, and in this light no longer seems as remarkable. It is the climax of a trend within the *Moraea* lineage for concealment and protection of the ovary that has occurred repeatedly, associated either with shorter pedicels (*Moraea* sect. *Deserticola*), the development of an ovary beak (*Moraea* sect. *Subracemosae*), a perianth tube (*Hexaglottis virgata* (Jacquin) Sweet, *M. cooperi* Baker), or a sterile, elongate ovary tube (*Gynandriris*, *Barnardiella*). *Gynandriris* is nested within *Moraea* (Goldblatt et al., in prep.), and *Barnardiella* is almost certainly as well, although it is not closely allied to *Gynandriris*. The flowers of *Barnardiella* externally resemble those of *M. rigidifolia*, and both species have the same basic chromosome number, centric leaves, and sessile lateral branches (Goldblatt, 1976, 1986a), the latter both specialized features. There is no merit in maintaining either *Barnardiella* or *Gynandriris*.

The revised taxonomy of Homeriinae proposed here represents an unconventional treatment of several southern African and one Eurasian genus. It flaunts traditional taxonomy based on Linnaean (phenetic) principles, and it will, for a time, confound and confuse many biologists, naturalists, and ecologists. Nevertheless, the revised classification, which is, as far as knowledge allows, phylogenetic, must be adopted. The reason for this, which is also the ultimate reason for my decision to upset tradition, is that a phylogenetic classification is predictive and the logical goal of systematics.

NOMENCLATURE: NEW COMBINATIONS AND NEW NAMES

It is premature to attempt a complete reclassification of *Moraea* until a more extensive molecular analysis has been done. The degree of homoplasy in morphological characters renders traditional phylogenetic analysis impractical. The five subgenera of *Moraea* (Goldblatt, 1986a) thus continue to be recognized (Table 1). Four of these, *Monocephalae*, *Visciramosa*, *Vieusseuxia*, and *Grandiflora*, appear to be monophyletic. Subgenus *Moraea* is evidently defined only by plesiomorphic features and is too heterogeneous to be maintained in its present state. It will have to be redefined. Provisionally *Galaxia*, *Gynandriris*, *Hexaglottis*, and *Homeria* are treated as new sections of subgenus *Moraea* (Table 1). *Barnardiella* is referred to section *Moraea* and *Roggeveldia* to section *Polyanthes* of subgenus *Moraea*.

Table 1. Outline of the current classification of *Moraea* based on the system by Goldblatt (1986). Generic synonyms are indicated in parentheses under the appropriate section or subgenus.

Subg. <i>Moraea</i>	
Sect. <i>Moraea</i>	
(<i>Barnardiella</i> Goldblatt)	
Sect. <i>Deserticola</i> Goldblatt	
Sect. <i>Subracemosae</i> Baker	
Sect. <i>Polyanthes</i> Goldblatt	
(<i>Roggeveldia</i> Goldblatt)	
Sect. <i>Acaules</i> (Baker) Goldblatt	
Sect. <i>Homeria</i> (Ventenat) Goldblatt	
(<i>Homeria</i> Ventenat; <i>Sessilistigma</i> Goldblatt)	
Sect. <i>Hexaglottis</i> (Ventenat) Goldblatt	
(<i>Hexaglottis</i> Ventenat)	
Sect. <i>Gynandriris</i> (Parlatore) Goldblatt	
(<i>Gynandriris</i> Parlatore)	
Sect. <i>Tubiflora</i> Goldblatt	
(<i>Helixyra</i> Salisbury ex N. E. Brown; <i>Rheome</i> Goldblatt)	
Sect. <i>Flexuosae</i> Goldblatt	
Sect. <i>Galaxia</i> (Thunberg) Goldblatt	
(<i>Galaxia</i> Thunberg)	
Ser. <i>Galaxia</i>	
Ser. <i>Eurystigma</i> (Goldblatt) Goldblatt	
Subg. <i>Visciramosa</i> Goldblatt	
Subg. <i>Monocephalae</i> (Baker) Goldblatt	
Subg. <i>Vieusseuxia</i> (Delaroche) Goldblatt	
(<i>Vieusseuxia</i> Delaroche)	
Sect. <i>Thomasiae</i> Goldblatt	
Sect. <i>Vieusseuxia</i>	
Subg. <i>Grandiflora</i> Goldblatt	
(<i>Hymenostigma</i> Hochstetter)	

In the list that follows all the species of the genera reduced to sectional rank are listed for completeness, including those that have valid names in *Moraea*. Complete lists of species assigned at the time to sections *Moraea* and *Polyanthes* are provided by Goldblatt (1986).

Moraea Miller, Fig. pl. Gard. Dict. 2: 159. 1766 (as *Morea*). TYPE: *Moraea vegeta* L.

- Galaxia* Thunberg, Gen. pl. nov. 50. 1782. Syn. nov. TYPE: *Galaxia graminea* L. fil. (lectotype, designated by E. P. Phillips (1951)).
- Homeria* Ventenat, Dec. gen. nov. no. 2. 1808. Syn. nov. TYPE: *Homeria collina* (Thunberg) Ventenat.
- Hexaglottis* Ventenat, Dec. gen. nov. no. 3. 1808. Syn. nov. TYPE: *Hexaglottis longifolia* (Jacquin) Salisbury (lectotype, designated by Lewis (1959)).
- Gynandriris* Parlatore, Nuov. gen. sp. 49. 1854. Syn. nov. TYPE: *Gynandriris sisyrinchium* (L.) Parlatore.
- Barnardiella* Goldblatt, Ann. Missouri Bot. Gard. 63: 312. 1976. Syn. nov. TYPE: *Barnardiella spiralis* (N. E. Brown) Goldblatt.
- Roggeveldia* Goldblatt, Ann. Missouri Bot. Gard. 66: 840. 1979. Syn. nov. TYPE: *Roggeveldia fistulosa* Goldblatt.

Section Moraea

Moraea herrei (L. Bolus) Goldblatt, comb. nov.
Basionym: *Homeria herrei* L. Bolus, S. African Gard. 211: 367. 1931.

Other names: *Moraea spiralis* Baker, Handb. Irid. 55. 1892, nom. illeg., non *M. spiralis* L. fil. (1782). *Helixyra spiralis* N. E. Brown, Trans. Roy. Soc. S. Africa 17: 349. 1929. *Barnardiella spiralis* (N. E. Brown) Goldblatt, Ann. Missouri Bot. Gard. 63: 312. 1976.

Section Polyanthes Goldblatt (1976)

Moraea fistulosa (Goldblatt) Goldblatt, comb. nov.
Basionym: *Roggeveldia fistulosa* Goldblatt, Ann. Missouri Bot. Gard. 66: 840. 1979.

M. monticola Goldblatt, nom. nov. Replaced name: *Roggeveldia montana* Goldblatt, S. African J. Bot. 58: 211. 1992, non *M. montana* Schlechter (1900) (= *M. lurida* Ker Gawler).

Section Homeria (Ventenat) Goldblatt, comb. et stat. nov. Basionym: *Homeria* Ventenat, Dec. Gen. Nov. no. 2. 1808.

Moraea aspera Goldblatt, nom. nov. Replaced name: *Homeria spiralis* L. Bolus, J. Bot. 69: 260. 1931, non *M. spiralis* L. fil. (1782) (= *Aristea spiralis* (L. fil.) Ker Gawler).

M. autumnalis (Goldblatt) Goldblatt, comb. nov. Basionym: *Homeria autumnalis* Goldblatt, Ann. Missouri Bot. Gard. 68: 467. 1981.

M. bifida (L. Bolus) Goldblatt, comb. nov. Basionym: *Homeria bifida* L. Bolus, Ann. Bolus Herb. 3: 10. 1920.

M. brachygyne (Schlechter) Goldblatt, comb. nov. Basionym: *Homeria brachygyne* Schlechter, Bot. Jahrb. Syst. 27: 94. 1900.

M. britteniae (L. Bolus) Goldblatt, comb. nov. Basionym: *Homeria britteniae* L. Bolus, J. Bot. 69: 11. 1931.

M. bulbillifera (G. J. Lewis) Goldblatt, comb. nov. Basionym: *Homeria bulbillifera* G. J. Lewis, J. S. African Bot. 11: 117. 1945.

M. cedar monticola Goldblatt, nom. nov. Replaced name: *Homeria cedar montana* Goldblatt, Ann. Missouri Bot. Gard. 68: 451. 1981, non *M. cedar montana* (Goldblatt) Goldblatt (1998).

M. collina Thunberg, *Moraea* 11. 1787.

Other name: *Homeria collina* (Thunberg) Salisbury, Trans. Hort. Soc. London 1: 307. 1812.

M. comptonii (L. Bolus) Goldblatt, comb. nov. Basionym: *Homeria comptonii* L. Bolus, S. African Gard. 19: 294. 1929.

M. cookii (L. Bolus) Goldblatt, comb. nov. Basionym: *Homeria cookii* L. Bolus, Fl. Pl. S. Africa 8: pl. 366. 1928.

M. demissa Goldblatt, nom. nov. Replaced name: *Homeria tenuis* Schlechter, Bot. Jahrb. Syst. 27: 95. 1900, non *M. tenuis* Ker Gawler (1802) (= *M. unguiculata* Ker Gawler).

M. elegans Jacquin, Pl. hort. schoenbr. 1: 6. 1797.

Other name: *Homeria elegans* (Jacquin) Sweet, Hort. brit. 395. 1826.

M. fenestrata (Goldblatt) Goldblatt, comb. nov. Basionym: *Homeria fenestrata* Goldblatt, Ann. Missouri Bot. Gard. 68: 491. 1981.

M. flaccida Sweet, Hort. brit. 395. 1826.

Other name: *Homeria flaccida* (Sweet) Steud., Nomencl. Bot. ed. 2, 2: 160. 1840.

M. flavescens (Goldblatt) Goldblatt, comb. nov. Basionym: *Homeria flavescens* Goldblatt, Ann. Missouri Bot. Gard. 68: 481. 1981.

M. fragrans Goldblatt, nom. nov. Replaced name: *Homeria odorata* L. Bolus, Bull. Misc. Inform. 1932: 326. 1932, non *M. odorata* G. J. Lewis (1941) (= *M. viscaria* (L. fil.) Ker Gawler).

M. fuscomontana (Goldblatt) Goldblatt, comb. nov. Basionym: *Homeria fuscomontana* Goldblatt, Ann. Missouri Bot. Gard. 68: 497. 1981.

M. karroica Goldblatt, nov. nov. Replaced name: *Homeria tricolor* G. J. Lewis, S. African Gard. 23: 266. 1933, non *M. tricolor* Andrews (1880).

M. knersvlaktensis Goldblatt, nom. nov. Replaced name: *Homeria ramosissima* Schlechter, Bot. Jahrb. Syst. 22: 95. 1900, non *Moraea ramosissima* (L. fil.) Druce (1916).

M. longistyla (Goldblatt) Goldblatt, comb. nov. Basionym: *Homeria longistyla* Goldblatt, Ann. Missouri Bot. Gard. 68: 475. 1981.

M. louisabolusiae Goldblatt, nom. nov. Replaced name: *Homeria bolusiae* Goldblatt, Ann. Missouri Bot. Gard. 68: 438. 1981, non *M. bolusii* Baker (1892).

M. marlothii (L. Bolus) Goldblatt, comb. nov. Basionym: *Homeria marlothii* L. Bolus, S. African Gard. 19: 320. 1929.

M. miniata Andrews, Bot. Repos. 5: pl. 404. 1804.

Other name: *Homeria miniata* (Andrews) Sweet, Brit. Fl. Gard. 2: pl. 152. 1826.

M. minor Ecklon, Topogr. verz. Pflanzensamml. 15. 1827.

Other name: *Homeria minor* (Ecklon) Goldblatt, Ann. Missouri Bot. Gard. 68: 473. 1981.

M. ochroleuca (Salisbury) Drapiez, Dict. Class. Nat. Sci. 4: 447. 1841.

Other name: *Homeria ochroleuca* Salisbury, Trans. Hort. Soc. London 1: 308. 1812.

M. pallida (Baker) Goldblatt, comb. nov. Basionym: *Homeria pallida* Baker, Handb. Irid. 75. 1892.

M. patens (Goldblatt) Goldblatt, comb. nov. Basionym: *Homeria patens* Goldblatt, Ann. Missouri Bot. Gard. 68: 477. 1981.

M. pendula (Goldblatt) Goldblatt, comb. nov. Basionym: *Homeria pendula* Goldblatt, Ann. Missouri Bot. Gard. 68: 488. 1981.

M. pyrophila Goldblatt, nom. nov. Replaced name: *Homeria galpinii* L. Bolus, Fl. Pl. S. Africa 10: pl. 417. 1931, non *M. galpinii* (Baker) N. E. Brown (1929).

M. radians (Goldblatt) Goldblatt, comb. nov. Basionym: *Sessilistigma radians* Goldblatt, J. S. African Bot. 50: 156. 1984. *Homeria radians* (Goldblatt) Goldblatt, Contr. Bolus Herb. 13: 51. 1991.

M. reflexa Goldblatt, nom. nov. Replaced name: *Homeria hantamensis* Goldblatt & J. C. Manning, Fl. Pl. Africa 55: pl. 2128. 1997, non *M. hantamensis* Klatt (1882) (= *M. ciliata* (L. fil.) Ker Gawler).

M. schlechteri (L. Bolus) Goldblatt, comb. nov. Basionym: *Homeria schlechteri* L. Bolus, Fl. Pl. S. Africa 8: sub pl. 306. 1928.

M. serratostyla (Goldblatt) Goldblatt, comb. nov.
Basionym: *Homeria serratostyla* Goldblatt, S. African J. Bot. 58: 212. 1992.

M. vallisbelli (Goldblatt) Goldblatt, comb. nov.
Basionym: *Homeria vallisbelli* Goldblatt, Ann. Missouri Bot. Gard. 68: 479. 1981.

Section Hexaglottis (Ventenat) Goldblatt comb. et stat. nov. Basionym: *Hexaglottis* Ventenat, Dec. gen. nov. 6. 1808.

Moraea brevituba (Goldblatt) Goldblatt, comb. nov. Basionym: *Hexaglottis brevituba* Goldblatt, Ann. Missouri Bot. Gard. 74: 562. 1987.

M. lewisiae (Goldblatt) Goldblatt, comb. nov. Basionym: *Hexaglottis lewisiae* Goldblatt, S. African J. Bot. 37: 234. 1971.

M. longifolia (Jacquin) Persoon, Syn. pl. 1: 49. 1805. Basionym: *Ixia longifolia* Jacquin, Hort. bot. vindob. 3: 47 & pl. 90. 1776. *Hexaglottis longifolia* (Jacquin) Salisbury, Trans. Hort. Soc. 1: 313. 1918. 1812, non *M. longifolia* (Schneevoogt) Sweet (1830) (= *M. fugax* (De-laroche) Jacquin (1776)).

M. namaquana (Goldblatt) Goldblatt, comb. nov. Basionym: *Hexaglottis namaquana* Goldblatt, Ann. Missouri Bot. Gard. 74: 554. 1987.

M. riparia (Goldblatt) Goldblatt, comb. nov. Basionym: *Hexaglottis riparia* Goldblatt, Ann. Missouri Bot. Gard. 74: 559. 1987.

M. virgata Jacquin, Icon. pl. rar. 2: pl. 228. 1791 et Collectanea 3: 194. 1791.

Other name: *Hexaglottis virgata* (Jacquin) Sweet, Hort. Brit. ed. 2, 498. 1830.

Section Gynandriris (Parlatore) Goldblatt, comb. et stat. nov. Basionym: *Gynandriris* Parlatore, Nuov. Gen. Sp. 49. 1854.

Moraea australis Goldblatt, comb. nov. Basionym: *Gynandriris australis* Goldblatt, Bot. Not. 133: 251. 1980.

M. cedarmontana (Goldblatt) Goldblatt, comb. nov. Basionym: *Gynandriris cedarmontana* Goldblatt, Bot. Not. 133: 250. 1980.

M. contorta Goldblatt, nom. nov. Replaced name: *Gynandriris anomala* Goldblatt, Bot. Not. 133: 250. 1980, non *M. anomala* G. J. Lewis (1940).

M. hesperantha (Goldblatt) Goldblatt, comb. nov. Basionym: *Gynandriris hesperantha* Goldblatt, Bot. Not. 133: 248. 1980.

M. mediterranea Goldblatt, nom. nov. Replaced name: *Gynandriris monophylla* Boissier & Heldreich ex Klatt, Linnaea 34: 578. 1866, non *M. monophylla* Baker (1906) (= *M. tri-petala* (L. fil.) Ker Gawler).

M. pritzeliana Diels, Bot. Jahrb. Syst. 44: 17. 1900.

Other name: *Gynandriris pritzeliana* (Diels) Goldblatt, Bot. Not. 133: 248. 1980.

M. setifolia (L. fil.) Druce, Bot. Exch. Club Brit. Isles Rep. 1916: 363. 1916.

Other name: *Gynandriris setifolia* (L. fil.) Foster, Contr. Gray Herb. 114: 40. 1936.

M. simulans Baker, Handb. Irid. 58. 1892.

Other name: *Gynandriris simulans* (Baker) R. C. Foster, Contr. Gray Herb. 114: 40. 1936.

M. sisyrinchium (L.) Ker Gawler, Ann. Bot. (König & Sims) 1: 201. 1805.

Other names: *Gynandriris sisyrinchium* (L.) Parlatore, Nuov. gen. sp. 49. 1854; *Iris sisyrinchium* L., Sp. Pl. 40. 1753.

Section Galaxia (Thunberg) Goldblatt, comb. et stat. nov. Basionym: *Galaxia* Thunberg, Gen. pl. nov. 50. 1782.

Series Galaxia

Moraea albiflora (G. J. Lewis) Goldblatt, comb. nov. Basionym: *Galaxia albiflora* G. J. Lewis, J. S. African Bot. 7: 44. 1941.

M. angulata Goldblatt, nom. nov. Replaced name: *Galaxia alata* Goldblatt, J. S. African Bot. 45: 418. 1979, non *M. alata* Vahl (1804) (= *Sisyrinchium* sp.).

M. fugacissima (L. fil.) Goldblatt, comb. nov. Basionym: *Ixia fugacissima* L. fil., Suppl. Pl. 94. 1782. *Galaxia fugacissima* (L. fil.) Druce, Bot. Exch. Club Brit. Isles Rep. 1916: 624. 1916.

- M. kamiesensis** Goldblatt, nom. nov. Replaced name: *Galaxia grandiflora* Andrews, Bot. Repos. pl. 164. 1801, non *M. grandiflora* Sesse & Moçino (1893) (= *Tigridia* sp.).
- M. luteoalba** (Goldblatt) Goldblatt, comb. nov. Basionym: *Galaxia luteoalba* Goldblatt, J. S. African Bot. 45: 410. 1979.
- M. ovalifolia** Goldblatt, nom. nov. Replaced name: *Galaxia ovata* Thunberg, Gen. pl. nov. 50. 1782, non *M. ovata* Thunberg (1800).
- M. pilifolia** Goldblatt, nom. nov. Replaced name: *Galaxia ciliata* Persoon, Syn. pl. 1: 41. 1805, non *M. ciliata* (L. fil.) Ker Gawler (1805).
- M. stagnalis** (Goldblatt) Goldblatt, comb. nov. Basionym: *Galaxia stagnalis* Goldblatt, J. S. African Bot. 45: 414. 1979.
- Series Eurystigma** (Goldblatt) Goldblatt, comb. et stat. nov. Basionym: *Galaxia* subg. *Eurystigma* Goldblatt, J. S. African Bot. 45: 398. 1979.
- M. barnardiella** Goldblatt, nom. nov. Replaced name: *Galaxia barnardii* Goldblatt, J. S. African Bot. 45: 398. 1979, non *Moraea barnardii* L. Bolus (1933).
- M. citrina** (G. J. Lewis) Goldblatt, comb. nov. Basionym: *Galaxia citrina* G. J. Lewis, J. S. African Bot. 4: 6. 1938.
- M. fenestralis** (Goldblatt & E. G. H. Oliver) Goldblatt, comb. nov. Basionym: *Galaxia fenestralis* Goldblatt & E. G. H. Oliver, Novon 3: 406. 1993.
- M. kamiesmontana** (Goldblatt) Goldblatt, comb. nov. Basionym: *Galaxia kamiesmontana* Goldblatt, Ann. Missouri Bot. Gard. 71: 1084. 1984.
- M. minima** Goldblatt, nom. nov. Replaced name: *Galaxia parva* Goldblatt, Ann. Missouri Bot. Gard. 71: 1085. 1984, non *M. parva* N. E. Brown (1929).
- M. variabilis** (G. J. Lewis) Goldblatt, comb. nov. Basionym: *Galaxia variabilis* G. J. Lewis, J. S. African Bot. 4: 6. 1938.
- M. versicolor** (Salisbury ex Klatt) Goldblatt, comb. nov. Basionym: *Galaxia versicolor* Salisbury ex Klatt, Linnaea 32: 783. 1863.

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