Gladiolus somalensis (Iridaceae), a New Species from Northeastern Somalia

Peter Goldblatt

B. A. Krukoff Curator of African Botany, Missouri Botanical Garden, P. O. Box 299, St. Louis, Missouri 63166-0299, U.S.A.

Mats Thulin

Department of Systematic Botany, University of Uppsala, Villavägen 6, S-752 36 Uppsala, Sweden

ABSTRACT. *Gladiolus somalensis* is a new species restricted to the limestone escarpments of the Sanaag and Bari Regions of northeastern Somalia. Although *Gladiolus* is the largest genus of Iridaceae subfamily Ixioideae and has some 83 species in tropical Africa, only 4 species occur in Somalia and only *G. somalensis* is endemic there. The affinities of this new species are uncertain, but the relatively small flowers with a short perianth tube appear to place the species in subgenus *Gladiolus*, a taxon that is most diverse and speciose in southern Africa.

The Old World genus *Gladiolus*, a member of Iridaceae subfamily Ixioideae and one of the larger, if not the largest genus of the family, consists of some 250 species (Goldblatt, in press; Goldblatt & Manning, ms.). The center of *Gladiolus* in terms of species numbers and taxonomic diversity is temperate southern Africa, more particularly the winter rainfall region of southern Africa (Lewis et al., 1972; Goldblatt, 1991). The genus is, however, well represented in tropical Africa, where some 83 species occur south of the Sahara and north of the borders of Namibia, Botswana, and South Africa (Goldblatt, in press), 75 of them endemic. At least 150 species occur in southern Africa (Goldblatt & Manning, in prep.), another 8 in Madagascar (Goldblatt, 1989), and perhaps 10 more in Europe, North Africa, and the Middle East. Here we describe a new species of *Gladiolus* restricted to northeastern Somalia, one of only four species of the genus recorded from that country, and the only one endemic there (Goldblatt, 1995).

Although first collected in 1956, *Gladiolus somalensis* remained until now too poorly known to be described or even assigned with confidence to genus. The type collection made in January 1995, however, is well preserved, and is accompanied by photographs and spirit material. This has made it possible to draw up a description, formally name the species, and have an illustration made.

Gladiolus somalensis Goldblatt & Thulin, sp. nov. TYPE: Somalia. Sanaag Region, escarpment S of Laasqoray, near Ragad, 11°00′N, 48°29′E, evergreen bush on limestone, 16 Jan. 1995, *Thulin, Dahir & Hassan 9079* (holotype, UPS). Figure 1.

Plantae (7–)12–30 cm altae, cormo ca. 12 mm in diametro, foliis 4–5 linearibus (1–)2–4 mm latis, spica 2–10 florum, bracteis externis viridibus (7–)12–17(–23) mm longis internis minoribus, flos aurantiacus, tepalis lateralibus infernis infra flavis (raro tepalo inferiore infra flavo), tubo perianthii infundibuliformi 6–8 mm longo, tepalis lanceolatis tribus supernis majoribus 16–18 × ca. 8 mm, infernis 12–15 × 5–5.5 mm, filamentis 8–10 mm longis, antheris 3–5 mm longis, ramis styli filiformibus ca. 2.5 mm longis.

Plants (7–)12–30 cm high. *Corm* obconic, ca. 12 mm diam., the tunics of softly textured layers, these decaying with age into fine netted fibers. *Leaves* four or five, the lower three basal and longest, reaching at least to the base of the spike and one or more often slightly exceeding the spike, the blades ± linear, (1–)2–4 mm wide, the upper one or two leaves inserted on the lower half of the stem, smaller than the basal leaves. *Stem* erect, simple or with one or two branches, ca. 1.2 mm diam. below the base of the spike. *Spike* lightly flexuose, 2–10-flowered; *bracts* green and soft-textured, the outer (7–)12–17(–23) mm long, the inner about two-thirds as long as the outer. *Flowers* zygomorphic, orange, the lower lateral tepals (rarely the lower median tepal) bright yellow in the lower half; *perianth tube* funnel-shaped, 6–8 mm long; *tepals* unequal, lanceolate, the upper three larger than the lower, the dorsal inclined over the stamens, 16–18 × 8 mm, the upper laterals about as long, the lower tepals ± parallel to the ground, the lower lateral

Figure 1. *Gladiolus somalensis* Goldblatt & Thulin (from *Thulin, Dahir & Hassan 9079*). Scale: approximately life size. (Drawn by John C. Manning.)

tepals ca. 15 × 5.5 mm, the margins raised below and the surface channeled in the lower half, the lower median ca. 12 × 5 mm, not normally channeled. *Filaments* 8–10 mm long, exserted 4–6 mm from the tube; *anthers* 3–5 mm long, yellow. *Ovary* ovoid, 2–3 mm long; *style* arching over the stamens, dividing ca. 1.5 mm beyond the anther apices, the branches ca. 2.5 mm long, filiform, evidently not expanded apically. *Capsules* and *seeds* unknown.

Flowering January and February.

Distribution and Habitat

Still poorly known, *Gladiolus somalensis* appears to be restricted to the limestone escarpments of the Sanaag and Bari Regions facing the Gulf of Aden in northeastern Somalia. In the type locality, in the eastern part of the Cal Madow Range in Sanaag, only a single plant was seen despite extensive searching. This was growing in evergreen bushland dominated by *Buxus hildebrandtii* Baillon (Buxaceae), a native boxwood, and *Cadia purpurea* Forsskal (Fabaceae) at 1350 m elevation. *Gladiolus schweinfurthii* Baker, a species of moderate elevations in Eritrea, Ethiopia, and Kenya, is a fairly common and conspicuous plant in the area. Cal Madow is a major center of endemism in Somalia, described in detail by Thulin (1994a).

Two early collections are referred to *Gladiolus somalensis*, both from the Cal Miskat Range in Bari Region, some 150 km to the east of the type locality. Nothing is known about the habitat of the species in this area, one that is generally drier than Cal Madow, and from where neither *Buxus* or *Cadia* is known.

Diagnosis, Variation, and Relationships

Gladiolus somalensis is readily distinguished from all other tropical African species of the genus by its small, bright orange flowers with a conspicuous yellow nectar guide located on the lower lateral tepals (or sometimes, and presumably abnormally, only on the lower median tepal) and fairly short perianth tube, 6–8 mm long (Fig. 1). The flowers have a superficial resemblance to species of *Tritonia*, a genus in which most species have bright orange flowers with yellow markings on the lower tepals. A characteristic feature of most orange-flowered species of *Tritonia* is the presence of a large, tooth-like callus in the lower center of each of the lower tepals, and this feature is lacking in *G. somalensis*. *Gladiolus* and *Tritonia* also differ fundamentally in their seeds and in the nature of the floral bracts. The seeds of *Tritonia* are prismatic to globose, smooth, and have the vascular trace excluded (Goldblatt & Manning, 1995), and the bracts of the genus are typically fairly short, more or less membranous to scarious, and have bifurcate or trifurcate apices. The capsules and seeds of *G. somalensis* are unknown and cannot be used to assist in generic placement. The bracts, however, are relatively large, soft-textured, and green, hence quite typical of *Gladiolus*. The style branches are linear and do not appear to be apically expanded as is the case with most species of *Gladiolus*, but this minor difference in style branch structure does not seem particularly significant in relation to generic placement.

The two collections from Cal Miskat both consist of small plants up to 12 cm high with leaves 1–2 mm wide, whereas the type specimen is 30 cm high and has leaves up to 4 mm wide. *Sacco s.n.* is sterile, but the inflorescence of *Azzaroli 6* is unbranched and has only two flowers. The type, from Cal Madow, has a branched inflorescence with 10 flowers on the main axis. Also, the flowers are somewhat smaller in *Azzaroli 6* than in the type. To properly evaluate these differences further field studies are needed. For the present we think these three collections are best regarded as representing a single variable species.

The relationships of *Gladiolus somalensis* within the genus are uncertain. It bears a fair resemblance to the Ethiopian *G. calcicola* Goldblatt and to the Eritrean *G. mensensis* Baker (both subgenus *Ophiolyza*), largely because both these species have relatively small flowers and are fairly small plants with several well-developed foliage leaves (Goldblatt, in press). It is more likely that the affinities of *G. somalensis* lie with southern African species of subgenus *Gladiolus*. Members of that subgenus usually have short-tubed flowers of a size comparable to those of *G. somalensis*. Most southern African species of subgenus *Gladiolus* have ellipsoid, apically acute capsules, unlike the ovoid to oblong, apically three-lobed capsules of *G. calcicola* and *G. mensensis*, more characteristic of subgenus *Ophiolyza*. Until more is known about *G. somalensis*, especially the nature of its capsules and seeds, its affinities remain speculative at best.

Although a relationship with southern African species seems less likely because of the distance involved, there are phytogeographical connections between the Somalian region and arid parts of southern Africa (de Winter, 1974; Thulin, 1994b). In Iridaceae the distribution of *Babiana* is a striking example. One species of this largely South African genus occurs on Socotra, an island off the coast of Somalia (Lewis, 1959). Another example

involving a petaloid monocot concerns a new species of *Trachyandra* (Asphodelaceae) that grows in the same area as *Gladiolus somalensis*, but in a different habitat, crevices in shady limestone rocks (Thulin, 1995). *Trachyandra* is otherwise a mainly southern African genus with a few species extending into tropical Africa.

Paratypes. SOMALIA. **Bari Region:** Wadi Hantara, Candala, 6 Feb. 1956, *Azzaroli 6* (FT); Azienda Uar Mahan, Jan.–Feb. 1959, *Sacco s.n.* (FT).

Acknowledgments. Mats Thulin's fieldwork in Somalia was supported by SAREC (Swedish Agency for Research Cooperation with Developing Countries). We thank John Manning for the illustration reproduced here.

Literature Cited

Goldblatt, P. 1989. Systematics of *Gladiolus* (Iridaceae) in Madagascar. Bull. Mus. Natl. Hist. Nat., Sér. 4, Sect. B, Adansonia 11: 235–255.

———. 1991. An overview of the systematics, phylogeny and biology of the southern African Iridaceae. Contrib. Bolus Herb. 13: 1–74.

———. 1995. Iridaceae. Pp. 62–67 *in* M. Thulin (editor), Flora of Somalia, volume 4. Royal Botanic Gardens, Kew. In press.

———. In press (1996). *Gladiolus* in Tropical Africa. Timber Press, Portland, Oregon.

——— & J. C. Manning. 1995. Phylogeny of the African genera *Anomatheca* and *Freesia* (Iridaceae–Ixioideae), and a new genus *Xenoscapa*. Syst. Bot. 20: 161–178.

Lewis, G. J. 1959. The genus *Babiana*. J. S. African Bot., Suppl. 3.

———, A. A. Obermeyer & T. T. Barnard. 1972. A revision of the South African species of *Gladiolus*. J. S. African Bot., Suppl. 10: 1–316.

Thulin, M. 1994a. Cal Madow, Somalia. Pp. 194–195 *in* S. D. Davis, V. H. Heywood & A. C. Hamilton (editors), Centre of Plant Diversity, a Guide and Strategy for their Conservation, Volume 1. Information Press, Oxford, U.K.

———. 1994b. Aspects of disjunct distributions and endemism in the arid parts of the Horn of Africa, particularly Somalia. Pp. 1105–1119 *in* J. H. Seyani & A. C. Chikuni (editors), Proceedings of the XIIIth plenary Meeting AETFAT, Malawi, Volume 2. National Herbarium and Botanic Gardens of Malawi, Zomba.

———. 1995. *Trachyandra triquetra* (Asphodelaceae), a new species from the Horn of Africa. Nordic J. Bot. 16. In press.

Winter, B. de. 1974. Floristic relationships between the northern and southern arid areas of Africa. Mitt. Bot. Staatssamml. München 10: 424–437.