# Two new species of *Babiana* (Iridaceae: Crocoideae) from western South Africa, new names for *B. longiflora* and *B. thunbergii*, and comments on the original publication of the genus

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#### ABSTRACT

Babiana symmetrantha and B. virescens are two new species of section Teretifolieae of this southern African genus, now comprising 90 species. Babiana symmetrantha blooms in August and early September and is restricted to the summit of the Langberg, which lies along the border of Namaqualand and the western Karoo near Loeriesfontein. One of only three species of the section with radially symmetric flowers, it is acaulescent and has linear, almost plane leaves covered with long hairs, a perianth tube 45–60(–75) mm long, and subequal, spreading tepals. Babiana virescens blooms in early winter, in May and June, and occurs in seasonally moist open ground on gentle slopes and valley bottoms in southern Namaqualand between Nuwerus and Bitterfontein. It is distinguished by the slightly twisted, oblong leaves with thickened, pale margins, and the glabrous cataphylls and leaf sheaths. The stem, which may be produced up to 100 mm above the ground, is simple or has a single short branch and the spikes bear 2–6 greenish flowers, the tepals of which are unusually narrow and longer than the perianth tube. We also propose a new name, B. tubaeformis, for the homonym B. longiflora, and provide a new combination B. hirsuta based on the 1783 name Antholyza hirsuta Lam., which replaces B. thunbergii Ker Gawl. (1804). Lastly, we present an argument that Babiana is correctly attributed to Ker Gawler alone and that its protologue dates from 1802, contrary to some current authorities.

#### INTRODUCTION

Botanical exploration in western southern Africa since the completion of our monograph of Babiana in February 2005 (Goldblatt & Manning 2007) has resulted in the discovery of two additional species of this southern African and largely western South African genus. Including the new species described below, Babiana now comprises 90 species, all but two of which are endemic to the southern African winter rainfall zone. The new species are B. symmetrantha, from the isolated Langberg massif between Namaqualand and the western Karoo, which is unusual in its linear leaves and radially symmetric flower with an elongate perianth tube 45-60(-75) mm long, and B. virescens from the granite hills of southern Namaqualand, which has narrow tepals, usually a well-developed aerial stem, and unusual, twisted leaves with thickened, hyaline margins. Both fall in section Teretifolieae G.J.Lewis emend. Goldblatt & J.C.Manning. Formal descriptions, illustrations, and a discussion of the biology and relationships of the two species are presented below. Recent collections have also extended the known range of B. ambigua, with a first record for the Northern Cape. Then, two names in current use in the genus, need to be replaced. Babiana longiflora is a homonym, and we propose the replacement name, B. tubaeformis, for the species, and Antholyza hirsuta Lam. (1783) is a legitimate earlier epithet for B. thunbergii Ker Gawl. (1804), hence we provide the new combination B. hirsuta for this common plant of the

west coast of South Africa. Finally, the question of the author of the genus is re-examined in the light of some confusion as to the correct citation.

# TAXONOMY

**Babiana symmetrantha** *Goldblatt & J.C.Manning*, sp. nov.

Plantae 100-200(-300) mm altae foliis inclusis, caule subterraneo vel supra terram producto simplici vel uniramoso, foliis anguste linearibus usque ad 200 mm longis 2-5(-8) mm latis, spica 2- vel 3-flora, bracteis viridibus, 30-35 mm longis bractea interiore ad apicem furcata, floribus hypocrateriformibus actinomorphis violaceis basem versus colore atroviolaceo notatis tubo externe albo, die odorem *Violae* exhalentibus, tubo perianthii 45-60(-75) mm longo, tepalis aequalibus patentibus lanceolatis  $(22-)28-35\times 5-7$  mm, filamentis  $\pm$  10 mm longis, antheris  $\pm$  5 mm longis ad apicem connatis, ovario glabro, stylo diviso infra basem antherarum, ramis styli 4-5 mm longis.

TYPE.—Western Cape, 3019 (Loeriesfontein): summit plateau of the Langberg among dolerite boulders, (-DB), 5 September 2006, *Goldblatt & Porter 12772* (NBG, holo.; K, MO, PRE, S, iso.).

Plants 100–200(–300) mm high, including leaves, forming clumps. *Corms* globose, 8.5–11.0 mm diam., with fibrous tunics. *Stem* subterranean or reaching above ground when growing through vegetation, producing slender cormlets in lower axils, simple or 1-branched, enclosed by neck of brittle, brown fibres. *Leaves* basal, linear, exceeding flowers, up to  $200 \times 2-5(-8)$  mm, flat, sparsely pubescent. *Spike* 2- or 3-flowered; bracts green,

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becoming dry and light brown at tips, 30-35 mm long, finely pubescent, long-attenuate, inner slightly shorter than outer, forked apically and 2-keeled. Flowers actinomorphic, salver-shaped, tepals outspread when fully open, violet with darker violet marks near base of tepals, sometimes lower lateral tepals with white marks outlined with violet, sweetly scented of violets during day; perianth tube cylindric, 45-60(-75) mm long, straight, slightly expanded in upper 10 mm, hollow above but with thick walls tightly enclosing style in lower half, containing nectar; tepals subequal, lanceolate, (22–)28–  $35 \times 5-7$  mm, inner tepals narrower than outer. Stamens symmetrically arranged, erect; filaments  $\pm$  10 mm long, exserted  $\pm$  7 mm, purple; anthers arched inward,  $\pm$  6 mm long, contiguous at tips, white; pollen white. Ovary glabrous; style erect, purple, dividing below base of anthers, style branches 4-5 mm long, expanded in upper third, arching between anthers. Capsules and seeds unknown. Flowering time: mid-August to mid-September. Figure

Distribution and ecology: restricted to the summit plateau of the Langberg west of Loeriesfontein in the Northern Cape (Figure 2), Babiana symmetrantha appears to be a narrow geographic and edaphic endemic. The Langberg, an isolated, flat-topped mountain ± 1 000 m in elevation, is capped by a dolerite sill and B. symmetrantha occurs in heavy red clay among dolerite boulders in succulent Karoo vegetation.

Discussion: the species has inner floral bracts that are forked at the apex, placing it in section Teretifolieae, one of the three sections of the genus currently recognized (Goldblatt & Manning 2007). It is one of just three species of the section with a radially symmetric perianth, the others being Babiana pygmaea (Burm.f.) Baker and B. radiata Goldblatt & J.C.Manning, but B. symmetrantha is distantly allied to these species and is more likely related to the B. framesii L.Bolus-B. sambucina Ker Gawl. group, which also has an underground stem and elongate perianth tube, but bilabiate and often scented flowers. Apart from the radially symmetric flowers, B. symmetrantha is unusual in its linear, almost plane leaves that show little hint of the pleating present in most species. We assume that the long-tubed flowers are adapted for pollination by long-proboscid flies as they have the long, hollow perianth tube associated with the Prosoeca peringueyi pollination system (Goldblatt et al. 1995; Manning & Goldblatt 1996; Goldblatt & Manning 2000). Flowers in this guild are typically unscented but floral fragrance is present, and possibly atavistic, in a few species, including B. framesii and some populations of B. sambucina subsp. longibracteata (G.J.Lewis) Goldblatt & J.C.Manning.

Babiana symmetrantha was only discovered in 2006 when we mounted an expedition to explore the botany of the Langberg. The mountain stands some 1 000 m high, well above the surrounding low granite domes and sandy flats of eastern Namaqualand and the western Karoo. Geologically the mountain consists of rocks of early Karoo System age, mostly bedded Ecca shales, intruded by dolerite sills. The flat, slightly tilted summit plateau consists of weathered dolerite boulders and heavy, red

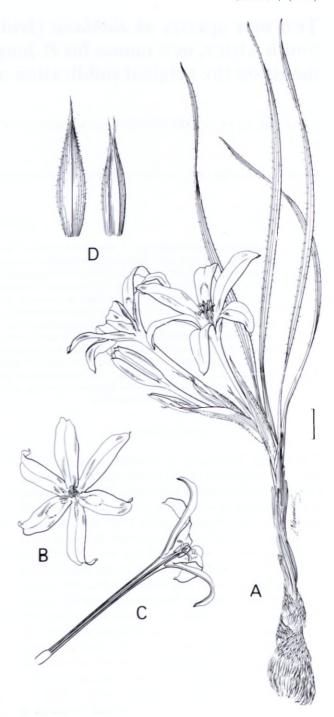


FIGURE 1.—Babiana symmetrantha, Goldblatt & Porter 12772 (NBG):
A, whole plant. B, C, flower: B, front view, C, side view. D, outer (left) and inner (right) floral bracts. Scale bar: 10 mm.
Artist: John Manning.

clay soil derived from weathered dolerite. The vegetation above the granite belt at the base of the mountain resembles that of the western Karoo rather than that of Namaqualand. *Ixia rapunculoides, Moraea bifida* and *M. tripetala* (Iridaceae) are three of the more common geophytes on the plateau, and occur also on the Bokkeveld Plateau and on doleritic clays east of Loeriesfontein, both sites ± 70 km to the southeast. Another disjunct is *Boophone haemanthoides* (Amaryllidaceae), which also occurs on dolerites of the Bokkeveld Plateau as well as on the western coastal plain of Western Cape Province. The fairly common Namaqualand species, *Babiana flabellifolia*, occurs at lower elevations, together with *Moraea serpentina* and *M. schlechteri*, both of which

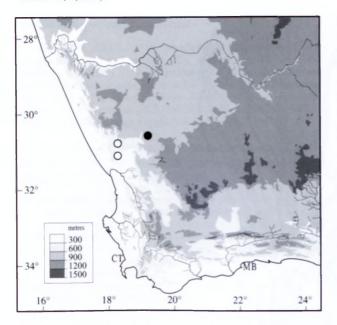


FIGURE 2.—Known distribution of *Babiana symmetrantha*, ●; and *B. virescens*, ○.

are common in Namaqualand but rare or absent from the western Karoo to the east. The Langberg is linked to the western Karoo highlands by a second isolated range, the Kubiskou Mountains, a short distance west of Loeriesfontein. The vegetation of this range has not been well explored but its lower and middle slopes have characteristic western Karoo species such as *Babiana crispa*, *B. spathacea* and *Ixia marginifolia*, whereas *I. sobolifera* and *Geissorhiza heterostyla* grow on the dolerite-topped summit. Of these species, only the two last named occur on the Langberg.

# Additional specimen examined

NORTHERN CAPE.—3019 (Loeriesfontein): summit plateau of the Langberg among dolerite boulders, (-DB), 16 September 2006, Goldblatt & Porter 12839 (MO, NBG).

# Babiana virescens Goldblatt & J.C.Manning, sp. nov.

Plantae 70–200 mm altae, caule usitate eramoso, foliis lanceolatis minute velutinis leviter plicatis marginibus incrassatis anguste hyalinis, spica 3- ad 7-flora arcuata, bracteis viridibus 20–30 mm longis subaequalibus, bractea exteriore velutina bractea interiore ad apicem furcata, floribus zygomorphis pallide viridi-griseis tepalis inferioribus flavis purpureo-notatis odoratis, tubo perianthii 18–23 mm longo oblique infundibuliformi, tepalis inaequalibus tepalo dorsali 32–38 × 6.5–8.0 mm, inferioribus 25–30 ×  $\pm$  4–5 mm, filamentis suberectis 12–16 mm longis, antheris 7–8 mm longis, ovario glabro, ramis styli 4–6 mm longis.

TYPE.—Western Cape, 3018 (Kamiesberg): Farm Kamagap, 1 km along Bitterfontein–Pofadder road, hillside on S side, (–CD), 26 May 2007, *Manning 3093* (NBG, holo.; MO, iso.).

Plants 70–200 mm high. *Corm* subglobose, 15–20 mm diam., outer tunics of fine-textured, reticulate fibres, persisting as loose neck. *Stem* reaching to ground level or up to 100 mm above ground, erect but strongly

inflexed above uppermost leaf sheath, unbranched or with one short branch, glabrous below, becoming velvety near spike; cataphylls and leaf sheaths glabrous. Leaves 3 or 4, oblong to lanceolate, slightly twisted distally, blade suberect at  $\pm 30^{\circ}$ ,  $40-100(-150) \times (5-)10-18$ mm, thinly velvety, lightly pleated, midrib and margins slightly thickened, margins hyaline, minutely hairy; seedling leaves linear-lanceolate and coiled, hairy. Spike 3-7-flowered, arching horizontally, secund; bracts green with brown tips, outer ovate, 20-30 mm long, margins narrowly hyaline, thinly and minutely velvety, especially distally, apical margins markedly ciliate, truncate or emarginate-apiculate, inner bracts about as long as outer, forked for 5-8 mm, with broad hyaline margins in lower half. Flowers zygomorphic, pale grey-green or flushed with greyish lilac, lower lateral tepals with yellowish green median blotches and purple streaks, with sweet, spicy scent; perianth tube obliquely funnel-shaped, narrow part hollow to base, containing nectar, 18-23 mm long; tepals unequal, narrowly lanceolate, margins crispulate, dorsal suberect, recurving distally, 32–38 × 6.5– 8.0 mm, upper laterals narrower, joined to lower tepals for 5–7 mm forming lip, lower tepals  $25-30 \times 4-5$  mm. Stamens unilateral; filaments suberect, 12–16 mm long; anthers 7-8 mm long, whitish. Ovary glabrous; style dividing opposite middle third of anthers, style branches 4-6 mm long. Capsules subglobose, 8-9 mm long. Seeds unknown. Flowering time: late May to early June, fruiting in August to September (Figure 3).

Distribution and ecology: a local endemic of southern Namaqualand, between Nuwerus and Bitterfontein, where it occurs on granite hills on gentle slopes and valley bottoms in gravelly ground in open, succulent karroid shrubland, sometimes between granite outcrops but never wedged in rock crevices (Figure 2).

Discussion: Babiana virescens accords with section Teretifolieae in its apically forked inner floral bracts but is unusual in its well-developed aerial stem, since most members of the section have the stem reaching only shortly above the ground or completely subterranean. The bilabiate flowers stand out in having particularly narrow, ± linear tepals, the dorsal 32–38 × 6.5–8.0 mm and the remaining tepals 4–5 mm wide. Although quite large, the greenish flowers are not conspicuous but have a characteristic spicy-acrid, chemical odour that is common in the genus. The flowers close at night and cease to produce fragrance, lasting four or five days when not pollinated.

This new species may be most closely allied to *Babiana torta* G.J.Lewis and *B. namaquensis* Baker on account of the slightly coiled leaves and early flowering but it is easily distinguished from them by its greenish flowers with particularly narrow tepals and by the subglabrous or very short-hairy leaves and the aerial stem up to 100 mm high. The slightly thickened leaf margins are most evident in herbarium specimens, drying whitish or pale. Both blue-flowered *B. torta* and pale mauveto white-flowered *B. namaquensis* have distinctly hairy leaves without conspicuous margins and typically occur in rock outcrops, granite in the former but often limestone in the latter, with their corms wedged in crevices. *Babiana torta* typically occurs in granite rock outcrops, whereas *B. virescens* always occurs in open ground and

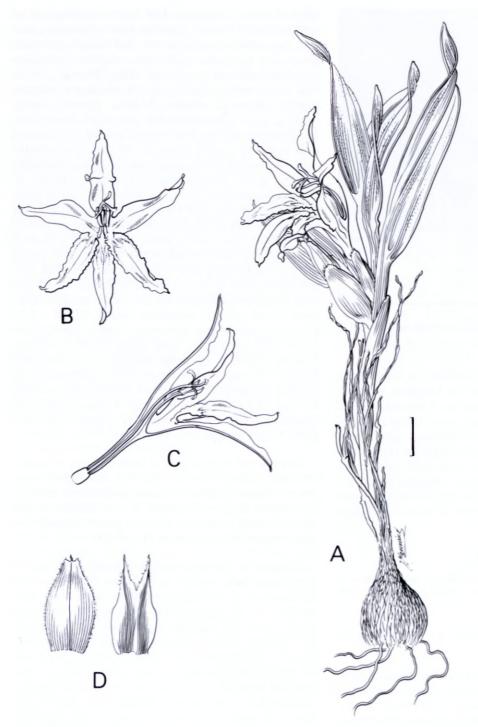


FIGURE 3.—Babiana virescens, Manning 3093 (NBG): A, whole plant. B, C, flower: B, front view, C, side view. D, outer (left) and inner (right) floral bracts. Scale bar: 10 mm. Artist: John Manning.

relatively deep, loamy gravel. Both species have been collected within a few kilometres of each other east of Bitterfontein, confirming their status as distinct species.

Babiana virescens shares grey-green flowers having unusually narrow tepals with B. gariepensis Goldblatt & J.C.Manning, a poorly known species from northern Namaqualand. This species is acaulescent, has leaves without evidently thickened margins, and flowers with a perianth tube 20–24 mm long, slender below, curving outward and wider in upper 7 mm, and a dorsal tepal  $28-32 \times \pm 5$  mm. Additional material in flower is needed to better understand this apparently rare Richtersveld endemic that is currently known from three sites, Koeskop in the Richtersveld National Park in the north, Cornellsberg, and from Grasvlakte in the southern Richtersveld. The larger dorsal tepal,  $32-38 \times 7-8$  mm,

and aerial stem readily distinguish *B. virescens* from *B. gariepensis*.

Babiana virescens appears to have first been collected in May 1993 by Cape Town botanist Dee Snijman. The collection was referred to *B. torta*, at the time poorly documented (Lewis 1959) but now known to be a relatively common, early flowering species of southern and central Namaqualand (Goldblatt & Manning 2007), which typically has pale blue flowers with broad tepals. Our first collection of *B. virescens* (Goldblatt & Porter 12145) was also referred to *B. torta* in our monograph of the genus, leading us to describe the leaves of that species as variously hairy to almost hairless. With these specimens removed from *B. torta*, the leaves of that species are now known to be uniformly softly hairy.

## Additional specimens examined

WESTERN CAPE.—3018 (Kamiesberg): Kliprand road close to turnoff from Bitterfontein, (-CD), gentle slope, 19 May 1993, Snijman 1304 (NBG). 3118 (Vanrhynsdorp): 3 km south of Nuwerus, road to Vredendal, granitic soil in valley bottom, (-AB), 2 September 2002 (fruiting), Goldblatt & Porter 12145 (MO, NBG), [flowered Portland, USA, December 2005, Goldblatt & Porter 12145A (MO), 16 September 2006 (fruiting), Goldblatt & Porter 12853 (MO)].

The two new species may be accommodated in the key to section *Teretifolia* of *Babiana* in Goldblatt & Manning (2007: 12, 13) as follows:

- 2a Stem aerial; flowers cream-coloured to pale yellow with brown to dull purple centre; leaves lanceolate to ovate; perianth tube 15-25 mm long; ovary hairy . . . . . . . . B. pygmaea
- 2b Stem subterranean; flowers blue or violet; leaves linear; perianth tube > 25 mm long; ovary hairless:

- 32a Flowers pale greyish green; leaf margins thickened... *B. virescens* 32b Flowers pale blue, mauve or whitish; leaf margins usually unthickened:

#### RANGE EXTENSION

## Babiana ambigua (Roem. & Schult.) G.J.Lewis

The range of Babiana ambigua is largely coastal, extending from near Lambert's Bay in the north to Riversdale in the southeast (Goldblatt & Manning 2007). Populations also occur inland on the Gifberg, the Cold Bokkeveld and the Olifants River Mountains. Wherever it has been collected, the species occurs on coarse sand or sandy granitic gravel. A new collection from sandy ground at the top of Botterkloof Pass extends the range of the species to some 150 km north of the Cold Bokkeveld and 50 km inland from the Gifberg. The record is surprising as B. ambigua does not, according to available records, occur in the Cedarberg, which lies between Botterkloof and the next nearest populations of the species to the south. This is the first record of B. ambigua from Northern Cape. The vegetation in the localized area of coarse sandy soil at the top of Botterkloof Pass is dominated by clumps of Willdenowia (Restionaceae) and includes several annual species of Scrophulariaceae. The otherwise largely coastal and lowland sandveld species, Gladiolus speciosus and B. ringens have also been found at this site, the latter a sight record supported by a photograph (Manning & Goldblatt 1997: 91).

# Additional specimen

NORTHERN CAPE.—3119 (Calvinia): top of Botterkloof Pass, sandy ground, (-AD), 31 August 2006 (fruiting), *Goldblatt & Porter 12731* (MO, NBG).

# NEW NAMES FOR BABIANA LONGIFLORA AND B. THUNBERGII

After examining the draft checklist of Iridaceae at the Royal Botanic Gardens, Kew website, World Checklist of selected plants families (Govaerts pers. comm.), we have learned that the southwestern Cape species *Babiana longiflora* Goldblatt & J.C.Manning (2004) is a homo-

nym for *B. longiflora* (L.f.) Steud. We propose the new name *B. tubaeformis* for this rare plant. Also, there is a valid and legitimate earlier synonym, *Antholyza hirsuta* Lam. (1783), for *B. thunbergii* Ker Gawl. (1804), a common species of coastal sands of western South Africa. We provide a new combination *B. hirsuta* and present a more complete synonymy for this species than that given in our revision of the genus (Goldblatt & Manning 2007).

Babiana tubaeformis Goldblatt & J.C.Manning, nom. nov., pro B. longiflora Goldblatt & J.C.Manning in Bothalia 34: 94 (2004), nom. illeg. non B. longiflora (L.f.) Steud.: 686 (1840) (= Tritonia cooperi subsp. cooperi).

Babiana hirsuta (Lam.) Goldblatt & J.C. Manning, comb. nov.

Antholyza hirsuta Lam., Encyclopedie methodique, Botanique, vol. 1: 201 (1783). Gladiolus sulcatus Lam.: 119 (1791), nom. illeg. superfl. pro A. hirsuta Lam. Gladiolus mollis Vahl: 119 (1805), as a new name for Antholyza hirsuta Lam. Type: without locality or collector, 'antholyza hirsuta. encycl.' (Herb. Lamarck, P, holo.!).

Babiana thunbergii Ker Gawl.: 233 (1804), as a new name for Antholyza plicata L.f.: 96 (1782). Anaclanthe plicata (L.f.) N.E.Br.: 269 (1932).

Anaclanthe namaquensis N.E.Br.: 269 (1932). Antholyza namaquensis (N.E.Br.) Goldblatt: 444 (1971).

#### NOMENCLATURE: WHO IS THE AUTHOR OF BABIANA?

The genus Babiana was formally described in August 1802 in Curtis's Botanical Magazine by John Gawler, now known to the botanical community as John Ker Gawler (Gawler subsequently changed his name to Bellenden Ker). The article that accompanied a painting of Babiana plicata Ker Gawl. (now B. fragrans (Jacq.) Steud.) included formal Latin and English descriptions of Babiana and the single species, Babiana plicata (itself a replacement name for Gladiolus plicatus Thunb. non L.). Babiana plicata is thus the type species of the genus. Ker Gawler (1802a) believed he was the author of this southern African genus, which now includes some 90 species (Goldblatt & Manning 2007), and so did contemporary and later authorities, notably Steudel (1840), Klatt (1882) and Baker (1877, 1892, 1896). Both Klatt and Baker were specialists in the systematics of Iridaceae. Lewis (1959), who revised Babiana almost 50 years ago, also treated the genus as having been described by Ker Gawler in August 1802.

Dandy (1969) proposed the conservation of *Babiana* against *Beverna* Adans. (1763) and the Committee for Spermatophyta (McVaugh 1971) recommended its conservation. *Babiana* thus appeared in the list of conserved generic names in the subsequent *International Code of Botanical Nomenclature* (Stafleu *et al.* 1972: 290) as *Babiana* Ker Gawl. (1802a). Then, in the list of conserved generic names in the Sydney Code (Voss *et al.* 1983: 330), the genus suddenly appears as *Babiana* Ker Gawl. ex Sims (1801).

The reason appears to be as follows. In an article in *Curtis's Botanical Magazine*, plate 539 (November 1801), Ker Gawler provided a formal account of the pre-

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viously and validly published Ixia conica Salisb. This is followed by a short narrative about the Cape (i.e. western South African) species of Iridaceae written by Sims, the editor of the magazine and author of the article. After first discussing the history of I. conica and its possible synonyms, Sims proceeded to comment on the current state of the taxonomy of Jussieu's natural order [family] Irides (sic). Sims then related the difficulty of circumscribing genera in the family because of the conflicting patterns of variation in perianth tube length and shape and the symmetry of the flower (our paraphrasing). Sims continued: 'so that, notwithstanding the pains he has taken, our friend Mr. Gawler, has not been as yet able to reduce the genus [Ixia] to its proper standard, and is best able for the present only to divide it into several sections, distinguished from each other by characteristical marks, with notices of such as appear to him most likely to become the foundation of future separate genera. With these observations we hope soon to have an opportunity of treating our botanical readers'. [We note here that Ker Gawler subsequently described Tritonia (1802b), Anomatheca (1804) (now a synonym of the conserved Freesia Klatt), Geissorhiza (1804), and Hesperantha (1804), the last three genera in Konig & Sims's Annals of Botany, all based on species until then included in Gladiolus and Ixia.]

Continuing, Sims (1801) wrote: 'In the mean time, there is one division, the species composing which are at the present dispersed in the three genera of Ixia, Gladiolus, and Antholyzai, so very distinct at first sight from the rest, by their smooth sheathing petioles, terminated in general by a plicate and villose leaf, with their bulbs situated unusually deep in the earth, that Mr. Gawler has with the greatest propriety united these into a separate genus, with the name of Babiana'. Sims goes on to list the species that the genus 'will contain' [when it has been described and combinations made is evidently intended here] in the above three genera that belong in Babiana. Sims here clearly ascribed the genus name Babiana to Ker Gawler and provided a diagnosis that is clearly credited to the investigations of Ker Gawler ('so very distinct . . . . that Mr. Gawler has . . . ' ) and may be either a direct quote or a paraphrase. Thus, if this article is accepted as the valid place of publication, Babiana must be attributed to Ker Gawler alone under article 46.2 of the International Code of Botanical Nomenclature (McNeill et al. 2006). Foster (1979: 167) evidently accepted this interpretation by the listing of Babiana Ker Gawler (1801) in Index Nominum Genericorum.

In August 1802, just nine months after Sims's comments about the taxonomy of *Ixia*, Ker Gawler (1802a) formally described *Babiana* in *Curtis's Botanical Magazine*. There is no mention of the November 1801 article in which Sims informed the readers of the same magazine about the imminent publication of a new genus *Babiana*. Clearly neither Ker Gawler nor Sims considered the name to have been published, as implied by the phrase 'This genus will contain . . .' We thus argue that Sims (1801) merely mentioned *Babiana* in anticipation of its future acceptance and therefore did not validly publish it under Article 34.1(b) of the Code (McNeill *et al.* 2006).

Because "The Code does not provide for conservation of a name against . . . an 'isonym', the same name with the same type but with a different place and date of valid publication and perhaps with a different authorship . . . than is given in the relevant entry in App. II, III, or IV" (Art. 14.4 Note 1), we can and should change the citation of *Babiana* Ker Gawl. ex Sims (1801) in the Sydney Code and subsequent Codes to *Babiana* Ker Gawl. (1802).

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