

## HYACINTHACEAE

### CORRECTION OF A HISTORICAL ERROR IN THE TAXONOMIC DESCRIPTION OF *URGINEA CILIATA*

#### INTRODUCTION

The current interpretation of *Urginea ciliata* (L.f.) Baker is complicated by an unexplained error in Baker's (1875) description of the species. Despite having seen the Thunberg type specimen (*UPS-THUNB8281*), Baker clearly states that the distinct cilia on the leaf margins are black. However, on examination of the type specimen, we found that the cilia are hyaline and not black. This was confirmed by herbarium specimens and living plants in the field and in cultivation. The type description is further inadequate due to the absence of a bulb on the specimen and the incorrect assumption that the two leaves preserved on the specimen represent the entire plant. Subsequent treatments (Schönland 1919; Fourcade 1941; Jessop 1977) place the species in *nomina dubia* and result in confusion in herbaria with *Urginea marginata* (Thunb.) Baker.

#### MATERIALS AND METHODS

The present taxonomic correction is based on a study of herbarium specimens of *Urginea ciliata* and related taxa from relevant herbaria (BOL, GRA, NBG, PRE), of living plants in the field and in cultivation and of archival records housed in the Museum of Evolution, Uppsala University. Representative specimens were compared with a JEOL-JSM 840 scanning electron microscope. Particular attention was paid to the diagnostic cilia found on the leaf margins.

*Urginea ciliata* (L.f.) Baker in Journal of the Linnean Society 13: 218 (1875); Baker: 464 (1897); Schönland: 41 (1919); Fourc.: 103 (1941); Jessop: 315

(1977). Type: Caput Bonae Spei, Thunberg s.n. (*UPS-THUNB8281*, holo.!).

*Ornithogalum ciliatum* L.f.: 199 (1782); Thunb.: 62 (1794); Willd.: 117 (1799); Roem. & Schult.: 528 (1817–1819); Thunb.: 316 (1823); Kunth: 359 (1843).

Plant (100–)250(–300) mm tall. *Bulb* globose, slightly flattened at top, hypogeal, 20–25 mm diam., white turning greenish at apex, scales thick, fleshy, tightly packed; outer tunic transparent on bulb, becoming loose at apices, pale brown, dry, leathery, not neck-forming. *Leaves* 10, the lower six in two whorls of three, ovate, (20–)25(–30) × (15–)17(–19) mm, the upper four in two opposite pairs, three being ovate elliptic, (15–)20(–25) × (7–)10(–15) mm and the uppermost lorate (8–)15(–20) × (3–)4(–5) mm, dark glossy green, firm, leathery, surface smooth, margins densely ciliate, hysteroanthous, prostrate (Figure 4). Desiccated leaves persistent during flowering and dormancy period, brownish, transparent, leathery, marginal cilia obvious (Figure 5). *Inflorescence* erect, 200–260 mm tall, racemose; peduncle and inflorescence axis slender, 1.0–1.5 mm thick, thickest at base, maroon, glossy; fertile part (25–)30–35(–60) × (15–)20 mm with 10–15 flowers; sterile tuft minute, 1 mm long, held at an angle away from the peduncle axis; bracts deltoid, cupped, acute, held at 45° below pedicel, green tinged purplish, 1 × 0.5 mm, basal spur dark purple, 0.5 mm long, apex acute, facing downwards (Figure 6A). *Flowers* scentless; pedicels held at 90° to peduncle in bud, 45° at anthesis and 20° after anthesis, (4–)6 × 0.4 mm, 4–5 mm apart, reddish brown; buds pendulous; perianth patent at anthesis becoming erect after pollination, 12 mm diam., translucent white with light brown keels becoming pale towards apices; lobes spreading,



FIGURE 4.—Leaf arrangement of *Urginea ciliata*, Dold 2383. Scale bar: 10 mm.

equal in length, recurved on either side of keel, fused at base by 0.4 mm, apices with minute stalked papillae, inner lobes broadly ovate with obtuse apices,  $5.6 \times 2.6$  mm, outer lobes ovate with acute apices,  $5.6 \times 1.9$  mm (Figure 6B). *Stamens* spreading; filaments white, 3 mm long; anthers bilobed,  $1 \times 0.2$  mm, green, basifixed. *Ovary* obovoid,  $2 \times 1.5$  mm, tri-locular, yellow-green; style tubular, longitudinally grooved into three sections, 2 mm long, receptive surface glossy, not swollen. *Capsule* ovoid, erect,  $3-7 \times 2.5-5.0$  mm, papery, pale yellow green turning brown (Figure 6C). *Seed* irregularly pyramidal,  $2.0-2.5 \times 2$  mm at base, black, shiny, winged; wings thin, papery; testa reticulate.

*Urginea ciliata* and *U. marginata* specimens are often confused in herbaria as a result of Baker's incorrect and inadequate type description. Complicating matters fur-

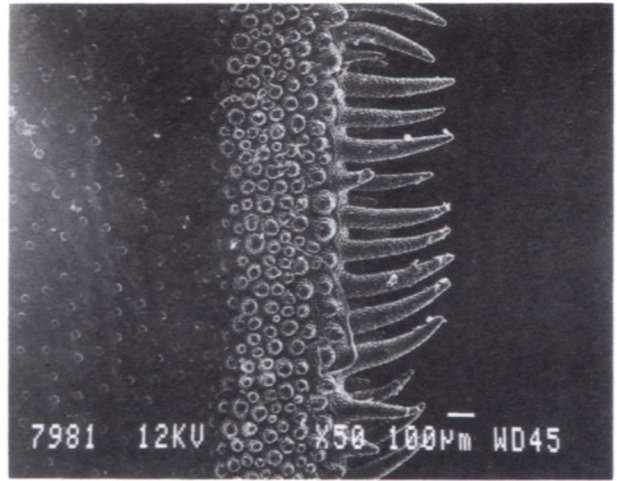


FIGURE 5.—Marginal cilia of *Urginea ciliata*, Dold 2383. Scale bar: 100  $\mu$ m.

ther, Baker (1875) describes the leaf margin of *U. marginata* as obscurely ciliated, however on examination of the type specimen (*UPS-THUNB8393*), herbarium specimens (BOL, GRA, NBG, PRE) and living specimens we observe that the leaf margin is without cilia at all but is minutely verrucose. The two species are easily distinguished by means of the hyaline marginal cilia present on short rigid prostrate leaves of the latter and the thick cartilaginous margins on spreading to erect leaves of the former. In addition *U. ciliata* has a racemose inflorescence with basifixed anthers while *U. marginata* has an umbellate inflorescence and dorsifixed anthers.

Flowering period is from January to February. Flowers open in pairs in the late afternoon and close before dark—they do not open again. The vegetative growing period is from February to October thereafter dormant to January. The plant is leafless at anthesis with basal leaves reappearing at the time of fruit development or soon afterwards. Thunberg's type sheet is a mixed gathering representing both leaves and inflorescence. Although the bulbs are hypogeal, the well preserved but

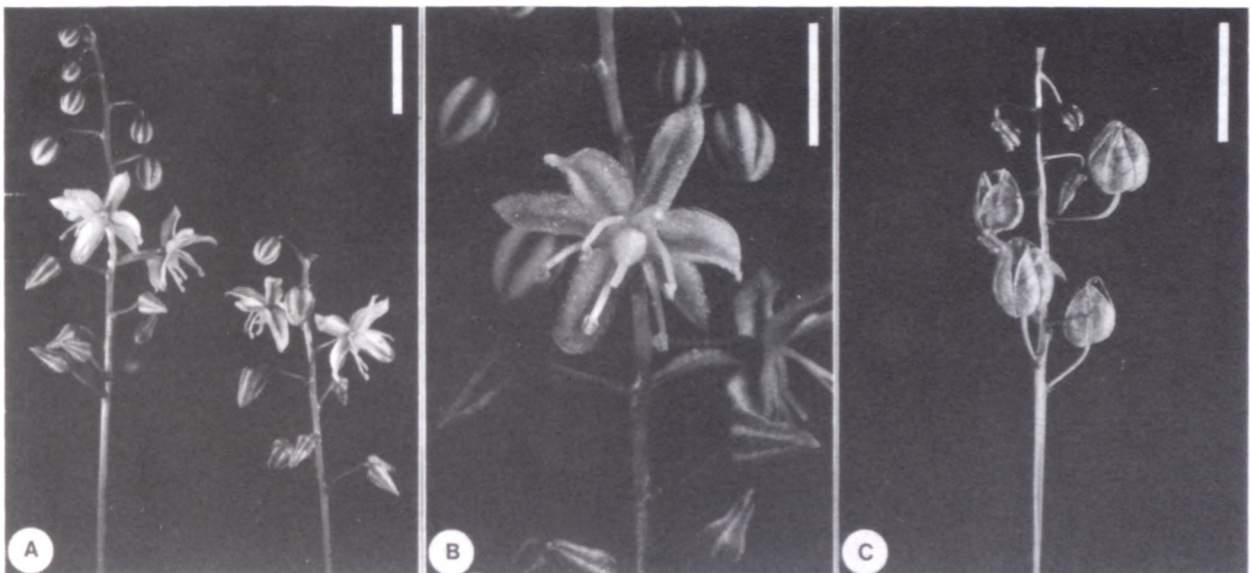


FIGURE 6.—*Urginea ciliata*, Dold 2383. A, inflorescence; B, perianth; C, capsules. Scale bars: A, C, 10 mm; B, 5 mm.

desiccated leaves are persistent and the diagnostic cilia can be seen on specimens collected over the dormant period, enabling identification.

#### Distribution and habitat

*Urginea ciliata* is essentially an Eastern Cape species with the majority of collections from the Port Elizabeth and Joubertina Districts. One isolated record from Riversdale reflects a disjunction in distribution (Figure 7). This may be a result of sporadic collections due to its cryptic habit and localised habitat. *U. ciliata* appears to be uncommon and restricted to low grassy fynbos where it is often associated with quartzite outcrops of the Table Mountain Group (Cape Supergroup Peninsula Formation). Populations of up to 40 plants are densely congested between rocks in very shallow sand and gravel soils and are extremely localised. Altitudes from 110 m to 670 m have been recorded.

It has been established that there can be no question as to the validity of the Thunberg type material, as the younger Linnaeus had access to the Thunberg herbarium and he and Thunberg worked in close collaboration on his material in Uppsala (*vide* UPS-THUNB archival records). Furthermore, there is no material of *Ornithogalum ciliatum* L.f. in the Linnaeus herbarium that may have resulted in a mistaken type designation. It is clearly Baker's error, although it is not known why it was caused.

Baker repeated the error of his earlier type description in *Flora capensis* (1897) and applied it as a diagnostic key character. *U. ciliata* was subsequently interpreted as having only two leaves with black cilia on the margins. As a result later collections were erroneously placed in *U. marginata* or not placed at all. Schönland (1919) attributed to the specimen *Cruden 355* from Redhouse, the manuscript name *U. crudeni* (*ined.*) and placed the specimen in a type cover (GRA herbarium practice). He does, however, note that the specimen is closely allied to *U. ciliata*, but was probably misled by Baker's description.

In 1927, Marloth received a specimen from Riversdale, *Muir 4126*, with a note from the collector suggesting that it may be a new species of *Urginea* closely related to *U. ciliata*, but there is no indication of Marloth's opinion. Jessop (1977) discussed *Cruden 355* and *Muir 4126* under *Drimia marginata* (Thunb.) Jessop, *comb. nov.* and remarked that the specimens differ from that species by virtue of the ciliate margins. He was undecided as to the status of the two specimens. He referred to *Ornithogalum ciliatum* L.f. and *Urginea ciliata* under *nomina dubia* despite having seen the Thunberg type (UPS-THUNB8281).

Vouchers: *Cruden 355* (GRA, PRE); *Dold 2383* (GRA, UPS); *Fourcade 2930* (BOL), *3569* (BOL); *Muir 4126* (PRE).

#### Specimens examined

WESTERN CAPE.—3421 (Riversdale): flats around Riversdale, (–AB), *Muir 4126* (PRE).

EASTERN CAPE.—3323 (Willowmore): rocky hills north of Joubertina, (–DD), *Fourcade 2930* (BOL); Wagenbooms River at Joubertina, (–DD), *Fourcade 3569* (BOL). 3324 (Steytlerville): between

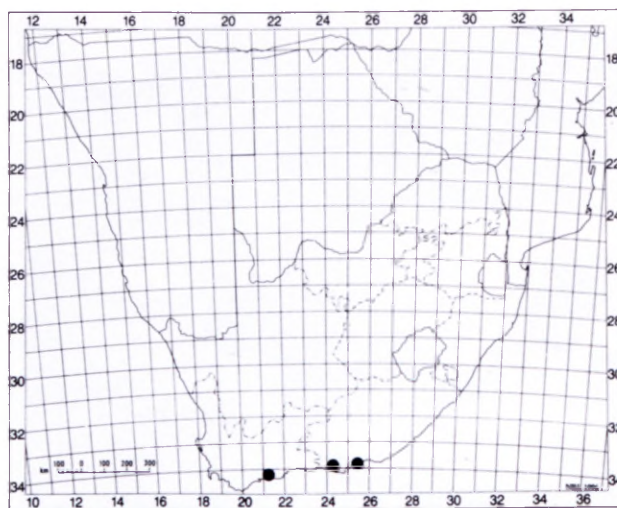


FIGURE 7.—Known distribution of *Urginea ciliata*.

Kareedouw and Assegai Bosch, (–CD), *Fourcade s.n.* (BOL). 3325 (Port Elizabeth): flats around Baakens River Valley, (–DC), *Cruden 355* (GRA, PRE), *Paterson 976*, (GRA); Bridgemead, Parsons Vlei, (–DC), *Dold 2383* (GRA, UPS), *Olivier 3489b* (GRA), *Yates 400* (GRA).

Without precise locality: *Caput Bonae Spei*, Thunberg *s.n.* (UPS).

#### ACKNOWLEDGEMENTS

We would like to thank the curators of BOL, PRE and NBG for loans of their material and Dr M.C. Olivier and Mrs M. Yates for locating *Urginea ciliata* populations. Thanks to Mr E. Kruger for photographs.

#### REFERENCES

- BAKER, J.G. 1875. Revision of the genera and species of Scilleae and Chlorogaleae. *Journal of the Linnean Society* 13: 209–292.
- BAKER, J.G. 1897. Liliaceae. In W.T. Thistelton-Dyer, *Flora capensis* 6: 464, 465. Reeve, London.
- FOURCADE, H.G. 1941. Checklist of the flowering plants of the divisions of George, Knysna, Humansdorp and Uniondale. *Memoirs of the Botanical Survey of South Africa* No. 20: 103.
- JESSOP, J.P. 1977. Studies in the bulbous Liliaceae in South Africa: 7. The taxonomy of *Drimia* and certain allied genera. *Journal of South African Botany* 43: 265–319.
- KUNTH, C.S. 1843. *Enumeratio plantarum* 4: 359. Cotta, Stuttgart.
- LINNAEUS, C. *filius*. 1782 ('1781'). *Supplementum plantarum*. Orphanotropheus, Braunschweig.
- ROEMER, J.J. & SCHULTES, J.A. 1817–1819. *Systema vegetabilium* 7: 528. Cotta, Stuttgart.
- SCHÖNLAND, S. 1919. Phanerogamic flora of the divisions of Uitenhage and Port Elizabeth. *Memoirs of the Botanical Survey of South Africa* No. 1: 41.
- THUNBERG, C.P. 1794. *Prodromus plantarum capensium*. Edman, Uppsala.
- THUNBERG, C.P. 1823. *Flora capensis*, edn Schultes. Cotta, Stuttgart.
- WILLDENOW, C.L. 1799. *Species plantarum* 2: 117. Nauk, Berlin.

A.P. DOLD\* and R. MOBERG\*\*

\* Selmar Schonland Herbarium, Department of Botany, Rhodes University, P.O.Box 94, 6140 Grahamstown, South Africa. e-mail: botd@rhubot.ru.ac.za

\*\* Museum of Evolution, Botany Section (Fytoteket), Uppsala University, Villavägen 6, SE-752 36, Uppsala, Sweden.

e-mail: Roland.Moberg@fyto.uu.se

MS. received: 1999-05-17.