



Habenaria geerinckiana (Orchidaceae), an updated description, extended distribution and conservation assessment

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Habenaria geerinckiana (Schaijies) Geerinck (2007: 18) (Orchidaceae, Orchideae, Habenariinae) was first described as *Kryptostoma geerinckiana* Schaijies in Geerinck & Schaijies (1987). Geerinck transferred the name to *Habenaria* when he moved *Kryptostoma* from generic to sectional rank (*Habenaria* sect. *Kryptostoma*) as first proposed by Summerhayes (1960).

Until recently, *H. geerinckiana* was only known from the type specimen collected by Schaijies in Katanga (DR Congo) in 1985. We encountered this species during recent field work in the DR Congo and Zambia. Based on the newly collected material, we are here able to provide a more detailed (English) description, taking the morphological variability in account, particularly that of the leaves as Geerinck commented: “*Le seul spécimen connu ne montre pas de feuilles bien développées mais uniquement des feuilles réduites tout le long de la tige*” (“The only specimen known does not show well-developed leaves but only reduced leaves along the stem”). We also extend its distribution and record this species as new for the flora of Zambia. Based on the new localities, we can compile a conservation status assessment based on IUCN criteria.

Habenaria geerinckiana is similar to *H. tentaculigera* Reichenbach (1867: 101). The major difference is the shape of the spur. In *H. tentaculigera*, it is bent forward at an 90° angle with a sharp, knee-like bend just below the base and then recurved further down (Tab. 42, la Croix & Cribb 1995; https://www.zambiaflora.com/speciesdata/image-display.php?species_id=117110&image_id=1). However, in *H. geerinckiana*, the spur is straight or gently recurved.

Taxonomic Treatment

Habenaria geerinckiana (Schaijies) Geerinck, Taxonomania 20: 18 (2007).

Basionym: *Kryptostoma geerinckiana* Schaijies in Geerinck & Schaijies, Bull. Jard. Bot. Nat. Belg., 57: 483 (1987).

Type:—DR CONGO. Katanga, W of Kolwezi, 23 Nov 1985, Schaijies 2697B (holotype: BR0000008814043!).

Terrestrial herbs 25–40 cm tall. Tubers 3–4 × 1–2 cm, ovoid to ellipsoid, woolly. Leaves 5–10; the lowermost spreading, 2.5–3.0 × 2.0 cm, ovate; the next few suberect, up to 6.0 × 2.5 cm, lanceolate, acute; the upper ones grading into the bracts. Inflorescence 8–13 × 5–6 cm, laxly 4–7-flowered; bracts 10–30 mm long, lanceolate, reaching half the length of the ovary. Flowers green. Pedicel and ovary 15–30 mm long, ± straight. Dorsal sepal 12–15 × 15 mm, ovate, convex, projecting over column, tip recurved; lateral sepals projecting forwards, c. 13 × 4 mm, obliquely lanceolate, adnate to column and base of spur. Petals erect, bilobed, with an undivided basal part of 5–7 mm; posterior lobe 13–15 × 2–3 mm, lanceolate, the margins ciliate, adnate to dorsal sepal; anterior lobe 18–22 × 1 mm, linear, horn-shaped above the dorsal sepal. Lip trilobed, the base adnate to the column for about 5 mm; midlobe 7–10 × 1 mm, linear, reflexed; side lobes 15–20 × 1 mm, linear, curving forwards; spur c. 20 mm long, pendent, slightly recurved, apex slightly swollen. Anther locules c. 2 mm, reclinate, joined by a U-shaped connective c. 3 mm high, 7 mm long; anther canals c. 4 mm, upcurved; stigmatic arms 4–5 mm, clavate, decurved.

Habitat:—Although *Flore d’Afrique Central* (Geerinck, 1992) mentioned the habitat as “galleries forestières”, on the type specimen and in the protologue it is described as “savanne steppique” or “savanna grassland.” The latter fits better with our habitat observations, i.e. watershed plains grassland within a diverse suffrutex community (DR Congo; Fig. 1) and on drier upper slopes of large open dambo (Zambia).



FIGURE 1. Photograph of watershed plains habitat of *Habenaria geerinckiana*, Kolwezi, DRC (by W. McClelland).



FIGURE 2. Photographs of *Habenaria geerinckiana*, Kolwezi, DRC (by W. McClelland).

Conservation status assessment:—*Habenaria geerinckiana* is a restricted species known from only three georeferenced collections representing two extant subpopulations, one in south-western DRC (Kolwezi District) and one in north-western Zambia (Mwinilunga District). Using these locations, the extent of occurrence (EOO) was estimated to be 3931 km² and the area of occupancy (AOO) 3 km², both of which are within the threshold for endangered status under criteria B1 and B2. This was calculated using the web-based Geospatial Conservation Assessment Tool (GeoCAT; Bachman *et al.*, 2011). AOO was calculated based on a user-defined cell size of 1 km², which more accurately reflected the size of the habitat patches available at the three known localities than the IUCN default cell size of 4 km². The watershed plain grassland habitat in Kolwezi

district has declined in extent and quality as a result of mining projects and expanding urbanisation from Kolwezi. It can be inferred that the Kolwezi subpopulation has also declined as a result, both in spatial extent occupied and number of mature individuals. The proposed conservation assessment of this species is EN B1ab(ii,iii,iv,v)+2ab(ii,iii,iv,v).



FIGURE 3. Photograph of the Zambian *H. geerinckiana* specimen (Wightman NcW 118) (reproduced with permission of the Bews Herbarium, NU).

Specimens examined:—DR CONGO. Katanga (Lualaba): west of Kolwezi, 10°47'30"S, 25°17'01"E, 1490 m, 23 Nov 1985 *Schaijes 2697B* (BR0000008814043, photo!, holotype); south-west of Kolwezi, 10°47'11.82"S, 25°17'12.97"E, 1512 m, 22 Nov. 2021, *McClelland*, no specimen collected, images stored on iNaturalist at <https://www.inaturalist.org/observations/108490995>, see also Fig. 2). ZAMBIA. North-Western: Mwinilunga, Muwana, Muchana Dambo, 11°24'12.7"S, 24°40'42.8"E, 1375 m, 10 Jan 2019, *Wightman NcW 118* (K!, NDO!, NU spirit!; Fig.3).

Key for the *Flora Zambesiaca* region (adapted from la Croix & Cribb, 1995).

The key for group D of *Habenaria* (p. 62) should be modified as follows:

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|---|--|--------------------------|
| 1 | Spur more or less straight or gently recurved..... | 83a. <i>geerinckiana</i> |
| | Spur not as above..... | 2 |
| 2 | Dorsal sepal 16–20 mm long; spur bent forward with a knee-like bend just below the base then recurved below flower | 83. <i>tentaculigera</i> |
| | Dorsal sepal 10–12 mm long; spur forming a loop near base and projecting above flower | 82. <i>goetzeana</i> |

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