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Utricularia breviscapa C. Wright ex Griseb. (Lentibulariaceae) documented for the first time in Suriname

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Abstract. The submerged aquatic carnivorous plant *Utricularia breviscapa* is noted in Para District, 40 km south from Paramaribo, Suriname. This species was found in a swamp with predominantly *Eleocharis* sp. *Utricularia breviscapa* was already documented from Guyana and French Guiana, and the new record is the first from Suriname and provides more information on the distribution of this species. A range extension of 354 km from the nearest previously known occurrence is noted for *U. breviscapa*.

Key words. Aquatic macrophytes; new country record; carnivorous plants; bladderwort family.

Macrophytes are an important component in aquatic ecosystems, as they are often the main primary producers and they add significantly to biodiversity (Pereira et al. 2012). The survival of the aquatic macrophytes is dependent on the physical and chemical component of the water source they live in (Pereira et al. 2012). The family Lentibulariaceae, distributed worldwide, presently consists of about 325 accepted species (Müller et al. 2006). With more than 214 known species, the genus *Utricularia* is the largest in this family (Taylor 1989, Müller et al. 2006). According to Taylor (1989), *Utricularia* displays 3 different types of growth forms, namely: (1) as aquatic species, without any rhizoids or root like organs, including the rheophytes, (2) as terrestrial species with rhizoids and stolons in the soil, and (3) as facultative epiphytic species, similar to terrestrial forms, albeit on substrates other than soil, such as branches or moss-covered trunks of trees.

In the 3 Guianas (Suriname, Guyana and French Guiana), 55 species of Lentibulariaceae are present (Funk et al. 2007), and among these species, 48 are species of *Utricularia*, with 31% aquatic, 61% terrestrial and 8% epiphytic. Presently, 29 species of *Utricularia* are known from Suriname (Funk et al. 2007), which are mostly found in white-sand savannas and wetlands. *Utricularia breviscapa* C. Wright ex Griseb. Cat. Pl. Cub.(Grisebach 1866: 161) is a small submerged herb found in shallow or deep, slow moving water of wetlands that are, more or less at sea level to 1000 m. This species occurs in Brazil, Cuba, Antilles, Venezuela, Colombia, Ecuador, Bolivia, Paraguay and Argentina (Taylor 1989). We document the first record of *U. breviscapa* for Suriname and give an overview of the known distribution of this species for the three Guianas, namely French Guiana, Suriname and Guyana (Fig. 1).

During a field study of macrophytes and related water quality measurements made between 2008 and 2013, 115 plots of 2 × 2 m were established in the northern coastal region of Suriname. Specimens were collected in a swamp (05.5180° N, –055.1773° W) located along a paved road in a swamp neighbouring Coropina Creek, Para District, 40 km south of Paramaribo). Some collected specimens were preserved in 70% ethanol; others were mounted and subsequently processed to serve as dry herbarium specimens and deposited at the National Herbarium of Suriname (BBS), an institute at the Anton de Kom University of Suriname (AdeKUS) (*Jairam-Doerga, UVS 18242*, BBS). The specimens were collected under a permit issued by the Nature Conservation division of the Ministry of Physical Planning, Land and Forest Management, Suriname.

The morphological characters used in the identification of *U. breviscapa* are based on Taylor (1989), and the herbaria collections of U and CAY (herbarium acronyms follow Thiers 2016) were consulted for species identification.

The distribution map was made using Qgis version 2.18.4 Las Palmas 24 .02.2017.

Utricularia breviscapa is a small to medium-sized submerged plant that lives in still or slow flowing water. Stems are filiform, which can grow up to 25 cm long. Numerous filiform leaves are grouped into 3 principal filiform segments at the base of the stem and several traps can be present on the stem on a single plant. The erect inflorescence can grow up to 10 cm and is situated on a whorl of 5 spongy floats (star-shaped). Chasmogamous flowers are yellow with a reddish brown spot on the lower lip. Cleistogamous flowers are solitary and smaller than the chasmogamous flowers. The habit of *U. breviscapa* is shown in Figure 2A. Figure 2B gives a detailed overview of the star shape floats, filiform leaves and traps, while Figure 2C shows the inflorescence of one of the specimens observed. Key characters for identification are based on Taylor (1989).

A comparison of the habitat of the specimen found in Suriname and the specimen found in Guyana shows some significant differences. Specimens in Suriname were found in an herbaceous swamp with a clay substrate while the specimens

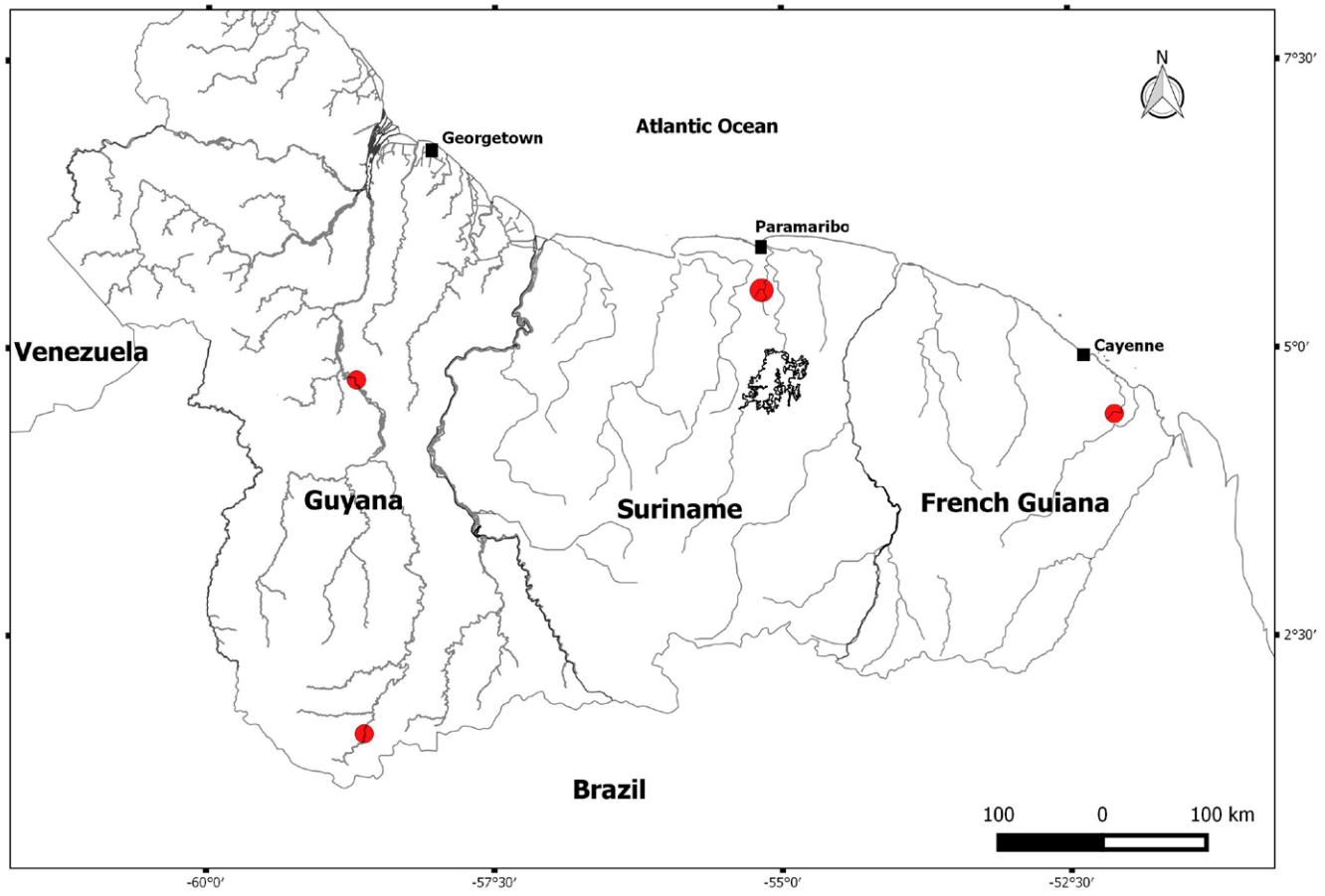

Figure 1. Location of *U. breviscapa* collected in Suriname and an overview of *U. breviscapa* collections in the Guianas.

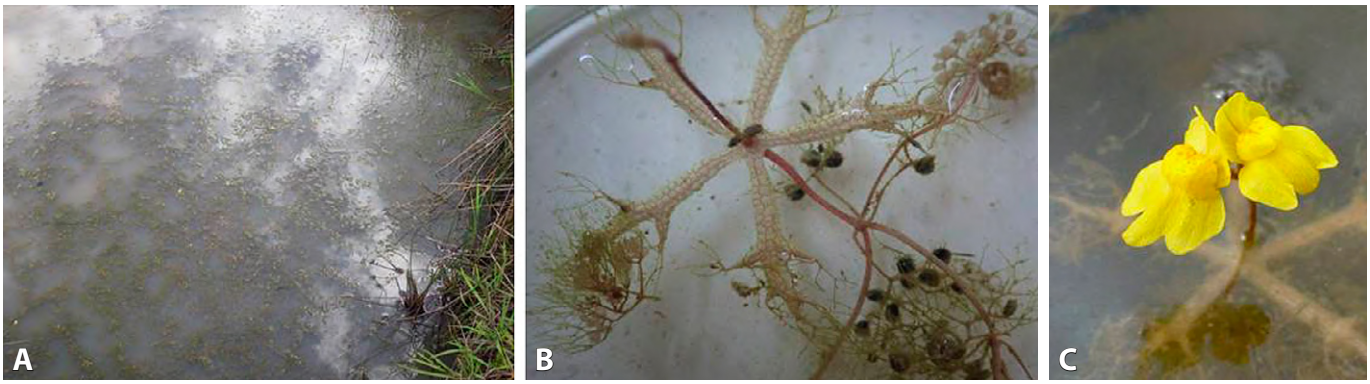

Figure 2. *Utricularia breviscapa.* **A.** Habit. **B.** Floating modified leaves. **C.** Flowers.

from Guyana were found in a savanna pool with a white-sand substrate. Waters with white sand are generally low in dissolved nutrients such as nitrate, ammonia and phosphate (Haripersad-Makhanlal & Ouboter 1993). This, however, does not inhibit the growth of *U. breviscapa*, since this is compensated with the capture and digestion of small organisms (Taylor 1989).

Here we record *U. breviscapa* for the first time from Suriname. The closest location where this species was previously documented is the Kaw River region, French Guiana, [Hoff # 8018 (CAY), 1999], where it was found in open prairie. Other records from Guyana exist in online databases: M. Jansen-Jacobs #1460 (U), 1989; P. Maas #7355 (U), 1988; and Cook #77 (F), 1957.

Apart from the single new record, *U. breviscapa* was not found in any of the other plots or at other sites visited. However, P. Teunissen (pers. comm. 2015) did observe this species approximately 2 km away from the plot site .

Utricularia breviscapa dominated more than 70% of the plot where it was found. The swamp is situated along the Coropina Creek (Fig. 1). This area is part of the Old Coastal Plains freshwater marsh and swamp scrub vegetation. The vegetation around the plot is dominated by *Eleocharis* sp., which grows up to 1 m tall.

The new record of *U. breviscapa* in northern Suriname extends the range of this species approximately 354 km west from the closest known location in French Guiana. The newly discovered occurrence of *U. breviscapa* in Para District,

approximately 40 km from Paramaribo, shows that despite its close proximity to Suriname's capital and largest city, this species was not noted in earlier lists of aquatic plants of the country. As stated by Werkhoven & Peeters (1993), more investigation is needed of aquatic plants, their ecology, and their habitat in Suriname. Although the author has worked in western Suriname, and thus closer to Guyana, *U. breviscapa* was not noted in that region. Although the perceived distributional gap between Guyana, French Guiana and Paramaribo might be due to under sampling of this species, more research is definitely needed to understand its true distribution in Suriname. A comparison of specimens from the 3 Guianas would be worthwhile.

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