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Yukie KATO, Makoto MOCHIDA and Hirokazu KOIKE: The Northernmost Locality of
Utricularia caerulea L. (Lentibulariaceae) in Japan

北限産地のホザキノミミカキグサ (加藤ゆき恵, 持田誠, 小池宏和)

Utricularia caerulea L. (Hozakino-mimikakigusa: Blue Bladderwort) is an annual insectivorous plant growing in oligotrophic wetlands. It is distributed from Madagascar, through western India to Japan, New Guinea and NE Australia (Kadono 1993, Taylor 1995). *Utricularia caerulea* has been recorded throughout Japan from Hokkaido to Okinawa but recently it is very rare in Okinawa (Komiya and Shibata 2000). *Utricularia caerulea* is distinguished from a similar species *U. uliginosa* Vahl. (Murasaki-mimikakigusa), by having peltate bracts and scales on the scapes, incurved spurs and sepals covered with papillae (Kadono 1993, Tamura 1981: Fig. 1). We discovered *U. caerulea* in the bog at Bibai city, Sorachi Subprefecture, central Hokkaido in 2002. This has proved to be the northernmost habitat so far discovered.

Utricularia caerulea is distributed mainly in southern part of Asia. In eastern Asia, *U. caerulea* is recorded in China (Li 1990), Korea (Lee 1996) and Japan. But there have been no records of *U. caerulea* in Russia (Steinberg 2000). The northernmost locality in China is Shandong Province (Li 1990). Hokkaido is located to north of Shandong Province and Korean Peninsula, so Hokkaido is the northernmost locality of *U. caerulea*.

Native habitats of *U. caerulea* have been decreasing in many prefectures in Japan. Five localities were recorded in Ishikari and Sorachi Subprefectures, in Hokkaido (Komiya and Shibata 1980, Toyama 1983, Toyama and Katsumata 1999: Fig.2) but the bogs where it grew have since disappeared following land development (Toyama and Katsumata 1999, Komiya and Shibata 2000). *Utricularia caerulea* was recorded only

from Tsukigata town (Ishikari Subprefecture) in Hokkaido in recent years (Toyama and Katsumata 1999) and is therefore listed in the Hokkaido Red List as 'Rare' (Hokkaido 2001). In this way Tsukigata has been known as the northernmost record until now (Komiya 2004).

Bibai city is located on the east of Tsukigata town, and the Ishikari River runs between these two towns (Fig. 2). Hoshino (1939) reported a flora of the Bibai peatland, but *U. caerulea* was not listed in the flora. The habitat of *U. caerulea* in Bibai is situated at about 1 km north and about 15 km east of the habitat in Tsukigata. Therefore the bog in Bibai is the northernmost habitat for this species at present. The plants grow in small, shallow and muddy hollows and comprise a very small population in the Bibai bog.

The plants are very small. Scape erect, solitary, about 10cm long, with a few peltate scales. There are 2-3 flowers on each scape. Surfaces of the sepals and pericarp are covered with papillae (Fig. 1). Both flowers and fruits were observed on September 11, 2002.

Papillae on pericarps are not mentioned in previous publications. But all specimens with fruits in SAPS (Herbarium of the Hokkaido University Museum) and SAPT (Herbarium of Botanic Garden, Hokkaido University) have papillae on pericarps. As *U. caerulea* is a very widespread and extremely variable species (Taylor 1989), so it might be better to investigate this feature with larger number of specimens to identify its distribution within *U. caerulea*.

The environmental conditions around bogs providing the northernmost habitats of *Utricularia caerulea* seem to become more serious recently (Tsujii and Tachibana 2003, Tachibana 2003). Conservation and restoration of the bog vegetation is thus highly necessary. The specimen is kept in SAPT.

***Utricularia caerulea* L., Sp. Pl.18 (1753).**

Utricularia racemosa Wall. ex Walp. in Meyen, Observ. Bot. Nov. Acta 19: 401 (1843); Komiya, Syst. Stud. Lent. 49 (1972).

Specimen examined: Hokkaido, Sorachi Subprefecture, Bibai city, Bibai bog (北海道空知支庁美唄市美唄湿原), September 11, 2002, H. Koike, Y. Kato, M. Mochida & Y. Fujimura (Koike 02-0093, SAPT); Fukushima Pref., Shirakawa-cho (福島県白河町谷地), September 23, 1940, T. Saito (Sugawara-collection 20082, SAPT); Kazusa (Chiba Pref.), Mobara-cho (上総茂原町), July 29, 1910 (K. Miura s. n., SAPS); *ibid.*, July 14, 1911 (K. Miura s. n., SAPS).

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2002年に、北海道空知支庁美唄市の湿原においてホザキノミミカキグサを採集した。これまでに国内で報告されている分布の北限は石狩支庁樺戸郡月形町であるが、新産地は月形町の自生地から北に1km、東に15km離れていることから、現在自生が確認されている分布域の中では最北限となる。本種の生育環境は悪化していると考えられ、本種の生育地を含めた高位泥炭地(ミズゴケ湿原)植生の保全や復元が必要である。

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Fig. 1 *Utricularia caerulea* L. from the Bibai bog (Koike 02-0093, SAPT).

a: Whole plant. b: Flower with incurved spur. c: Part of infructescence. Sepals and pericarps covered with papillae. d: Scales on the scape. Scale bar indicates 1 mm for c and d.

Fig. 2 Distribution of *Utricularia caerulea* L. in Hokkaido.



