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Invasive Aquatic Plants of Luetshokha Lake, Samtengang, Bhutan

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Abstract

During a recent visit to the Luetshokha lake in Samtengang, Wangduephodrang district, *Brasenia schreberi*, *Pontederia crassipes*, and *Nymphaea* cf. *nouchali* were recorded. These species are invasive and may hasten the drying up of the lake.

Keywords: *Brasenia schreberi*, invasive plants, lake, *Nymphaea* cf. *nouchali. Pontederia crassipes*

Introduction

The Luetshokha lake at Samtengang in Wangdue District is surrounded by farming communities and is located beside the Samtengang Central (HS) Secondary School. During a recent trip to Samtengang in Wangduephodrang district, the authors found aquatic plant with flat leaves floating on the surface of the Luetshokha lake dominating almost the entire surface of the lake. The species was identified as *Brasenia schreberi* J.F. Gmel., which is an invasive aquatic plant (Figure 1). While it was noted that a number of observations were made in the past through reports (UNDP, 2021), the species seemed to lack scientific records. Other invasive species such as *Pontederia crassipes* Mart. and *Nymphaea* sp. were also observed.

Brasenia schreberi J.F. Gmel.

Brasenia belongs to the family Cabombaceae, consisting of one species, *Brasenia schreberi* (WCSP, 2021), which grows mostly in rivers, streams, lakes and ponds. The undersurface of the leaf has distinctive gelatinous coating. It is an aquatic perennial herb with leaves strongly monomorphic, alternate and oval shaped born on long petioles. The leaf blade is elliptic measuring 35 to 136 mm. Flowers have 3 petals and 3 sepals (tepals), 18 to 36 stamens, and flowers in July-August. It is widely distributed in North America, the West Indies, Australia, Africa, Venezuela, Guyana, China, Korea, Primorye, South America and Indian sub-continent (IUCN, 2016).

Associate species

Along with *Brasenia schreberi,* there are also other aquatic plants occurring in the lake. Invasive plants such as *Pontederia crassipes* and *Nymphaea* cf. *nouchali* var. caerulea. were noted. While the control of *P. crassipes* in the lake had been a challenge over the last decade, *Nym-*

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phaea seems to have been introduced recently only, perhaps in 2021, as it was not observed in earlier trips (pers. comm. D.B. Gurung). Other prominent aquatic plant associates include *Potamogeton distinctus, Utricularia* cf. *vulgaris*, *Eleocharis palustris*, and *Cyperus rotundus*.

Challenges

While the *Pontederia crassipes* is a floating plant and is easier to control, *Utricularia* cf. *vulgaris* is a submerged plant which is difficult to observe and control. Similar to the *Brasenia schreberi*, *Nymphaea* cf. *nouchali* roots on ground submerged by water. Therefore, these plants are difficult to uproot and control. The rate of seed production and seed germination of these species are also very high and these invasive species take just a couple of years to spread in the new area. The rapid growth and colonization result in decreasing water level of lakes (Leira and Cantonati, 2008). While a number of cleaning campaigns seem to have been conducted in the past to restore the lake (RGOB, 2020; UNDP, 2021), it is a challenge to control the invasive species unless eradication measures are taken. Shrinking water level is another problem and rainwater harvesting from the rooftops of surrounding school buildings might help divert rain water to the lake to replenish the depleting water level (Pem, 2021). If the water level in the lake is deep enough, submerged invasive species might be drowned and eradicated.

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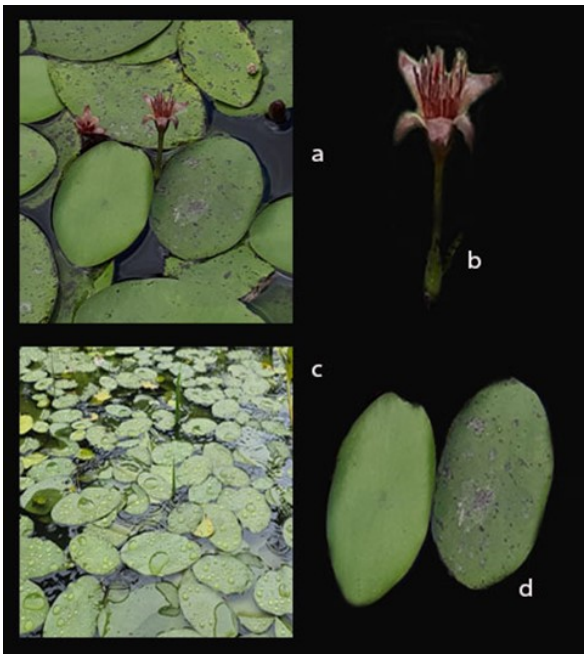

Figure 1: *Brasenia schreberi* J.F. Gmel.: a. Flower with leaves, b. flower separated, c. leaves floating on surface of the lake, d. leaves separated.

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