

Nineteen Macrophytic new reports for the Keibul Lamjao National Park, Loktak Lake, Manipur, India

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Abstract

Macrophytes of the six study sites of Keibul Lamjao National Park, Loktak Lake, Manipur, namely: (1) Keibul, (2) Nongmaikhong, (3) Kumbi, (4) Khordak, (5) Sargam and (6) Toyaching has been investigated, for the flora of floating *Phumdi* mat vegetation. The newly reported 19 species of plants [*Clinopodium umbrosum* (M. Bieberstein) C. Koch, *Capparis sabiifolia* Hooker f. & Thomson, *Cyperus platystylis* R. Brown, *Eleocharis congesta* D. Don, *Eleusine indica* (Linnaeus) Gaertner, *Fimbristylis tetragona* R. Brown, *Floscopa scandens* Loureiro, *Hygroryza aristata* Nees, *Mariscus sieberianus* Nees, *Melothria leuocarpa* (Blume) Cogniaux, *Phragmites communis* Trinius, *Pogonatherum rufobarbatum* Griffith, *Pogostemon hirsutus* Benth, *Saccolipsis interrupta* (Willdenow) Stapf, *Sagittaria guayanensis* Humboldt, Bonpland & Kunth, *Scleria levis* Retzius, *Setaria pumila* (Poir) Roemer & Schultes, *Spiranthes sinensis* (Persoon) Ames, and *Uria lagopus* DC. were recorded from the KLNP for the first time.

Key Words: Keibul Lamjao National Park, Macrophytes, New reports

INTRODUCTION

Keibul Lamjao National Park (KLNP), Loktak Lake, Manipur in Northeast India supports aquatic and wetland vegetation and is unique being a Ramsar site of international importance and the development of floating mats (*phumdi*), which represents a heterogeneous mass of soil vegetation and organic matter in different stages of decay. Wetlands are the areas of marsh, fen, peat land, whether nature or artificial, permanent with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters (Article 1.1 of Ramsar Convention). Loktak lake as a Ramsar site (26, 6000 ha; 24°26'N 93°49'E, added to the Montreux Record, 16 June 1993. Ramsar Site No. 463). Keibul Lamjao National Park (KLNP) is the only floating National Park in the World (Fig. 1). The Park is located in the South Western corner of Loktak Lake. The Park covers an area of 40 km². It has distinct geographical zones: *Phumdi* (floating mat) area i.e. floating portion covering about 29 km², water body area of about 9 km² surrounding the floating portion, Landmass (2 km²) comprising of hillocks namely Chingmei, Toya and Pabot. *Phumdis* are formed by combination of soil vegetation and organic matter in different stages of decay. The thickness is up to 2 m and remains floating due to buoyancy and low density with about 1/5th part of the thickness remains above the water level.

The Park supports rich macrophytic wetland vegetation. The Park *phumdi* is very rich in plant diversity. About 48 species of plants have been recorded in the park by Singh &

singh (1994), 145 species by Shamjai (2002), Deb (1961) listed 125 species, Singh (2002) recorded ethnobotanical uses of 24 plants on the *phumdies* of Lokatak Lake. Some floating plants are the primary plants involved in the formation of *phumdi*. It had the association of plants species from different groups and families. These plants are very useful as food (wild edible), fuel, medicine, fodder, fencing and for many other purpose. Thickness of the *phumdi* varies in different parts of the lake. The major plant species growing in the park are very important for shelter and food of the *Rucervus eldii eldii* – the endangered Manipur Brow antlered deer. Some specific macrophytes growing in the Park and naturally associated with the *phumdies* are very important for socio-economic problems for day to day life.

METHODOLOGY

Several surveys have been conducted seasonally i.e. the months of February, May, September and November during 2010 to 2011. Plants were identified using available published literature including Devi (2007), Saratchandra (1977), Shamungou (1992, 2000), Shyamjai (2002), Sinha (1987 a, b, 1996), Singh (2002), Singh (1991), Singh & Singh (1994), Trisal & Manihar (2004), Clarke (1889), Kaith (1932, 1936), Deb (1956, 1957, 1961 a, b,). The authenticity of the plant was repeatedly verified by contacting various individuals. In case of contradictory information, efforts were made to get the correct uses.

The present paper deals with the macrophytes associated with the *phumdies* of six study sites of KLNP namely (1) Keibul, (2) Nongmaikhong, (3) Kumbi, (4) Khordak, (5) Sargam and (6) Toyaching (Fig. 1). All the collected plants were processed into mounted herbarium sheets following Jain & Rao (1977) and matched at CAL and ASSAM. Identification of the plants was done referring to authentic books, journal with the help of Botanical Survey of India, Kolkata and Eastern Circle, Shillong. The identified specimens are deposited in the Manipur University Museum of Plants (MUMP), Department of Life Sciences, Manipur University.

RESULTS AND DISCUSSION

Macrophytes of KNLP were studied at various categories by eminent researchers including Shyamjai (2002), Sinha (1987 a, b, 1996), Singh (2002), Singh (1991), Singh & Singh (1994), Trisal & Manihar (2004). However, during the two years period, 2010 to 2011, the seasonal collections of macrophytes helped us to record 19 species of plants for the first time from KNLP. These newly reported plants are coming under 9 families (Poaceae-6, Cyperaceae-5, Lamiaceae-2 and 1 each in Fabaceae, Orchidaceae, Alismataceae, Cucurbitaceae, Commelinaceae and Capparaceae), which were found to be distributed in the six study sites of KLNP (Table 1) and photographs are shown in Plate I. The newly reported plants might be due to unexplored condition or because of the new arrival to the floating mat vegetation.

Table 1. New reports to the macrophytes of KLNP, Loktak Lake, Manipur, Northeast India.

Plant name	Family	Exsiccatae (Herbarium)
<i>Clinopodium umbrosum</i> (M. Bieberstein) C. Koch	Lamiaceae	Haripriya-000563 (MU)
<i>Capparis sabiifolia</i> Hooker f. & Thomson	Capparaceae	Haripriya-000543 (MU)
<i>Cyperus platystylis</i> R. Brown	Cyperaceae	Haripriya-000540 (MU)
<i>Eleocharis congesta</i> D. Don	Cyperaceae	Haripriya-000588 (MU)
<i>Eleusine indica</i> (Linnaeus) Gaertner	Poaceae	Haripriya-000572 (MU)

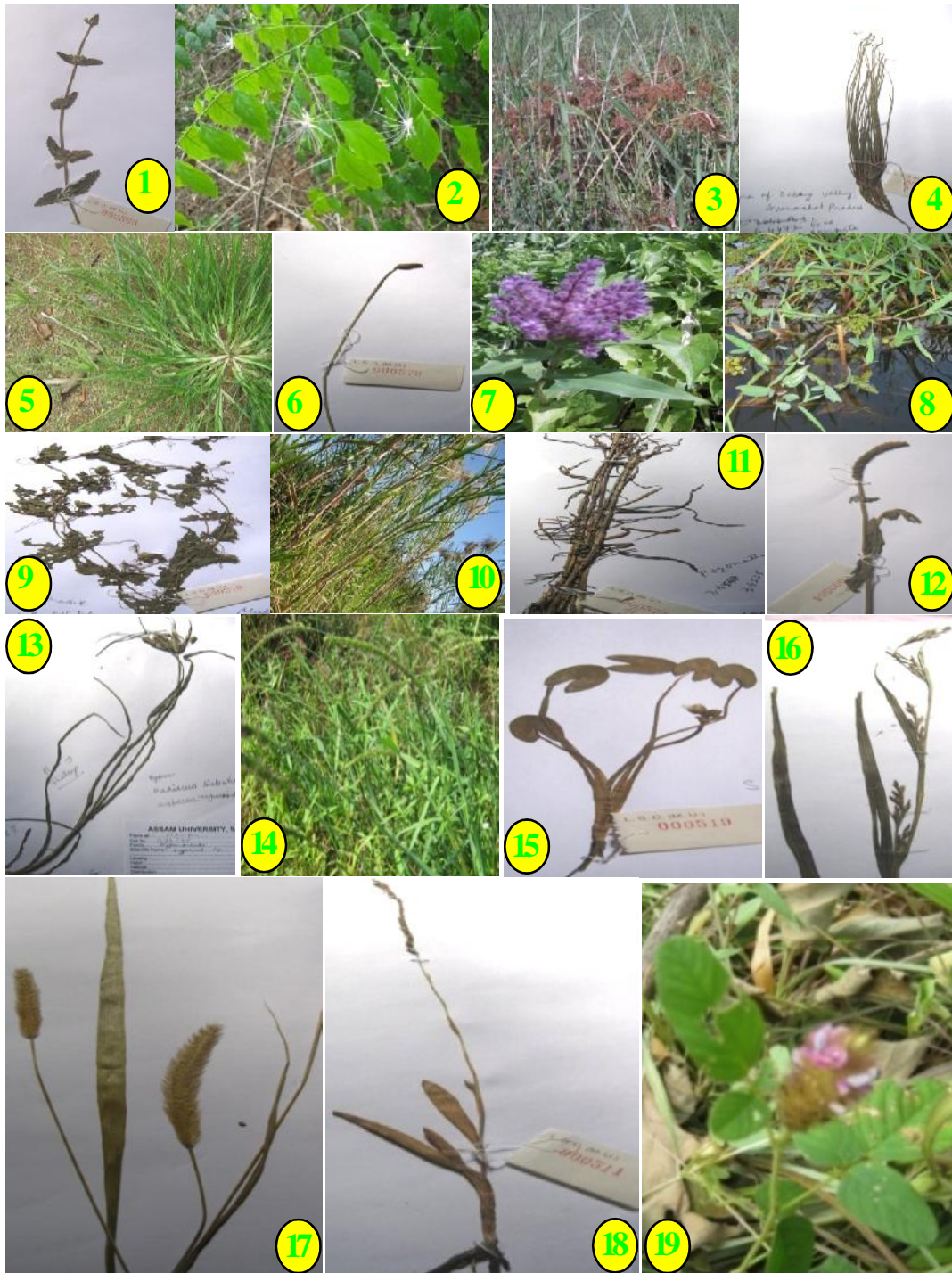


PLATE I: Fig. 1. *Clonopodium umbrosum*; Fig. 2. *Capparis acutifolia*; Fig. 3. *Cyperus platystylis*; Fig. 4. *Eleocharis congesta*; Fig. 5. *Eleusine indica*; Fig. 6. *Fimbristylis tetragona*; Fig. 7. *Floscopa scandens*; Fig. 8. *Hygroryza aristata*; Fig. 9. *Melothria leucocarpa*; Fig. 10. *Phragmites communis*; Fig. 11. *Pogonatherum rufo-barbatum*; Fig. 12. *Pogostemon hirsutus*; Fig. 13. *Mariscus sieberianus*; Fig. 14. *Saccolipsis interrupta*; Fig. 15. *Sagittaria guayanensis*; Fig. 16. *Scleria lavis*; Fig. 17. *Setaria*

Plant name	Family	Exsiccatae (Herbarium)
<i>Fimbristylis tetragona</i> R. Brown	Cyperaceae	Haripriya-000579 (MU)
<i>Floscopa scandens</i> Loureiro	Commelinaceae	Haripriya-000513 (MU)
<i>Hygroryza aristata</i> Nees	Poaceae	Haripriya-000559 (MU)
<i>Mariscus sieberianus</i> Nees	Cyperaceae	Haripriya-000545 (MU)
<i>Melothria leucocarpa</i> (Blume) Cogniaux	Cucurbitaceae	Haripriya-000570 (MU)
<i>Phragmites communies</i> Trinius	Poaceae	Haripriya-000520 (MU)
<i>Pogonatherum rufo-barbatum</i> Griffith,	Poaceae	Haripriya-000573 (MU)
<i>Pogostemon hirsutus</i> Bentham	Lamiaceae	Haripriya-000504 (MU)
<i>Saccolipsis interrupta</i> (Willdenow) Stapf	Poaceae	Haripriya-000535 (MU)
<i>Sagittaria guayanensis</i> Humboldt, Bonpland & Kunth	Alismataceae	Haripriya-000519 (MU)
<i>Scleria levis</i> Retzius	Cyperaceae	Haripriya-000510 (MU)
<i>Setaria pumila</i> (Poirlet) Roemer & Schultes	Poaceae	Haripriya-000517 (MU)
<i>Spiranthes sinensis</i> (Persoon) Ames	Orchidaceae	Haripriya-000511 (MU)
<i>Uraria lagopus</i> DC.	Fabaceae	Haripriya-000503 (MU)

CONCLUSION

KNLP is a small area of International importance, because of its being the habitat of endemic and endangered *Sangai* (*Rucervus eldii eldii*) and other wild animals, but also endemic floating macrophytes, representing a floating mat flora of wetland. The macrophytes reported here are also consumed by *Sangai* and at the same time these macrophytes are also collected by local people for their daily needs and as medicinal requirements. Therefore, it needs a proper care and attention to protect them from over exploitation.

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