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On Some Mollusca Fauna from Intanki National Park, Nagaland

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Abstract A field survey was carried out in the Intanki National Park in Nagaland during March 2017, in which 14 species of Mollusca belonging to 11 families were recorded and one species of slug, *Mariaella dussumieri* Gray, 1855 was reported for the first time from Nagaland state of India.

Keywords Mollusca, Intanki, Slug, Nagaland.

Introduction

Amidst the deciduous and tropical rain forest, Intanki National Park is located 45 km away from Dimapur, in Peren district of Nagaland and is the only Protected Area (PA) enjoying the status of a National Park in the state. Malacofaunal diversity of Northeast India have been well documented so far by Kalita (2017) ; Kanjilal (2015) ; Sing et al. (2014) ; Mazumder and Tiwari (2012); Mazumder (2010) ; Sijagumayum et al. (2011) ; Singh and Kachhara (2010) ; Mazumder and Tiwari (2009) ; Gambhir et al. (2008) ; Lokho and Kumar (2008) ; Mitra et al. (2008) ; Gambhir et al. (2007); Kalita and Goswami (2007) ; Sharatkumar and Mohilal (2006) ; Kalita and Goswami (2006); Mitra and Mukherjee (2005) and others. Documentation of Molluscan fauna from Northeast India by Zoological Survey of India have been carried out by several scientists viz. Rao et al. (1995) reported 223 species of land and freshwater Molluscs from Meghalaya. 48 species of land and freshwater Molluscs have been documented by Mookherjee et al. (2000) from Tripura. Rao et al. (2004) reported 127 species of Molluscs from Manipur. Publications on Molluscan fauna of Nagaland are very few and most of them are based on the named and unnamed materials available in the Mollusca Section as well as those received from the North-Eastern Regional Center of ZSI, Shillong for identification.

Faunal diversity studies in Nagaland in general and particularly that of Intanki NP include report of Acharjee et al. (2012) documenting 34 species of fish from Dhansiri River, assessment of Jamir et al. (2015) on the wildlife of Intanki National Park and documentation of charismatic fauna from this Protected Area (PA). Studies conducted by systematic transect survey and camera traps revealed that small sized birds having high density (114.38 per sq km) and ground birds (13.68 per sq km) were estimated to be present in least density in the Intanki National Park. In recent years, 50 species of fishes, 108 species of birds and 42 species of mammals have been recorded from Intanki National Park (Kumar and Kaul 2016). Nevertheless, studies and documentation on lesser known faunal groups viz. herpetofauna, entomofauna and land and freshwater invertebrates are not documented adequately from this PA. This study is part of a baseline documentation on the faunal diversity of Intanki National Park of Nagaland and some observa-

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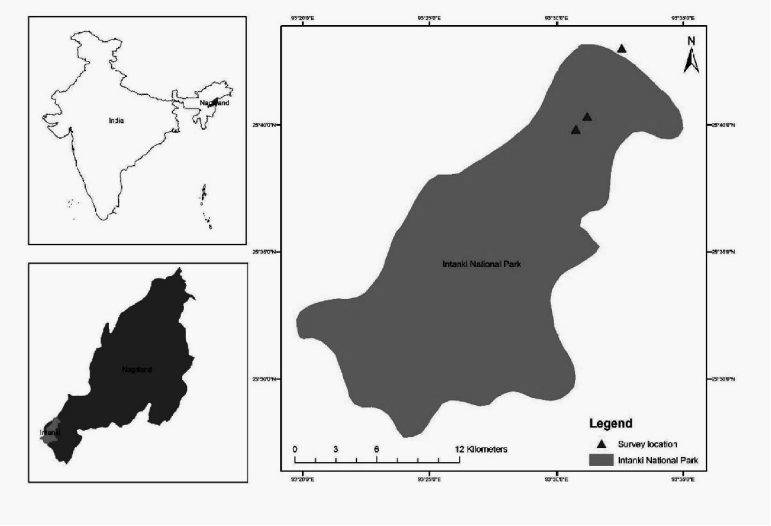

Fig. 1. Map of Intanki National Park.

tions on the Malacofaunal assemblages in the National Park based on the short-term surveys conducted during March 2017 is presented here.

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Materials and Methods

The Intanki National Park derives its name from the Intanki River flowing through the Northern part of the PA and Western border. It is located on the banks of Dhansiri River and Intanki River and forms a large contiguous patch of forest with Dhansiri Reserve Forest of Karbi Anglong in Assam and being in the down flow region of the Dhansiri River, it can be assumed that the same species also exit in Intanki National Park (Kumar and Kaul 2016). The park was established in the year 1993 and was also declared as an Elephant Reserve in 2005. The park encompasses an area of 202.02 km^2 and divided into Tourist zone, Buffer zone and Core zone. The Molluscan survey and collections in Intanki River was done from 22nd March to 25th March 2017 through random sampling. The specimens were handpicked and were photographed (Cannon power shot S × 60HS). Data viz. habitat, number of examples and morphometric characters of the specimen were recorded. The collection localities were recorded with the help of a hand-held GPS (Garmin 72 H, Garmin Inc). The collected specimens were identified with the help of keys (Mitra et al. 2004 and Rao 1989) and after nomenclature were deposited in the National Zoological Collections in the Mollusca section of Zoological Survey of India, Kolkata. Details of study locations of Intanki National Park, Nagaland and shows that map of Intanki National Park (Table 1 and Fig. 1).

Results

A total of 14 species of Mollusca belonging to 11

Table 1. Details of study locations of Intanki National Park, Nagaland.

Site	Latitude	Longitude
Site 1	25°43′3′′ N	93°32′35′′ E
Site 2	25°40′21′′ N	93°31′13′′ E
Site 3	25°39′50′′ N	93°30′46′′ E

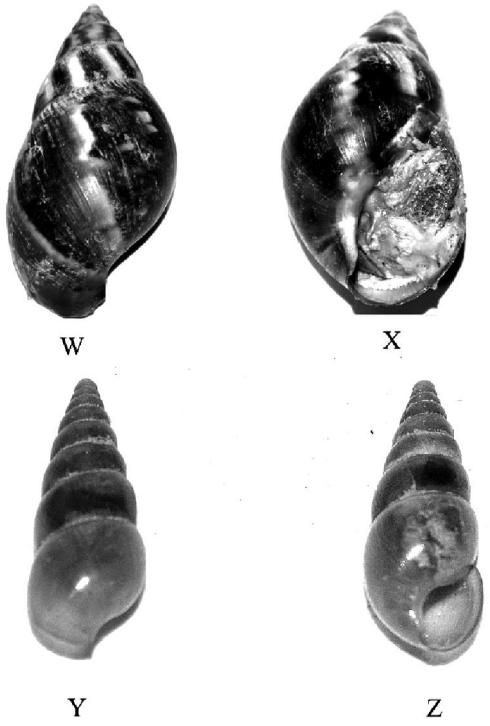

Fig. 2. Fig W & X: Dorsal & ventral view of *Lissaachatina fulica*. Fig Y & Z: Dorsal & ventral view of *Glessula* sp.

families were collected from the survey field visit, of which 11 species were freshwater Mollusca and three species belonging to land snails. Among them, one species *Mariaella dussumieri* Gray, 1855 is reported for the first time from Nagaland. Although none of the Mollusca found or recorded in Intanki National Park are included in the schedules of the Wildlife (Protection) Act, 1972, among the 14 species, 10 species are listed under least concern (LC) category of IUCN Red List Criteria (ver 3.1).

The systematic list is as follows :

Land Molluscs
Phylum : Mollusca
Class : Gastropoda
Order : Stylommatophora
Family : Achnatinidae
Scientific name
1. *Lissachatina fulica* (Ferussac, 1821)
Family : Ariophantidae
2. *Mariaella dussumieri* Gray, 1855
Family : Subulinidae
3. *Glessula* sp.

Fresh water Molluscs

Phylum : Mollusca
Class : Gastropoda
Order : Sorbeoconcha
Family : Paludomidae
4. *Paludomus conica* Gray, 1834
Family : Thiaridae
5. *Melanoidestuber culata* (Muller, 1774)
Order : Architaenioglossa
Family : Ampullariidae
6. *Pila globosa* (Swainson, 1822)
Order : Hygrophila
Family : Lymnaeidae
7. *Lymnaea luteola* f. *ovalis* Gray, 1822
8. *Lymnaea succinea* (*acuminata*) Lamarck, 1822
Order : Sorbeoconcha

Fig. 3. *Mariaella dussumieri.*

Family : Pachychilidae
9. *Brotiacostula* Brandt, 1974
Order : Hygrophila
Family : Planorbidae
10. *Indoplanorbis exustus* (Deshayes, 1834)
Order : Unionoida
Family : Unionidae
11. *Parreysia favidens* var *assamensis* Preston, 1912
Order : Architaenioglossa
Family : Viviparidae
12. *Angulyagra* sp.
13. *Angulyagramicro chaetophora* (Annandale, 1921)
14. *Bellamya bengalensis* f. *typica* (Annandale, 1921)

IUCN Red list status of Mollusca of Intanki National Park, Nagaland is shown in Table 2.

Table 2. IUCN Red list status of Mollusca of Intanki National Park, Nagaland. Common and rare status is based on the field observations of number of individuals seen/collected.

Sl. No.	Scientific name	IUCN status	Common/Rare status
1	*Lissaachatina fulica* (Ferussac)	NE	R
2	*Mariaella dussumieri* Gray	NE	R
3	*Glessula* sp.	–	R
4	*Pila globosa* (Swainson)	LC	R
5	*Lymnaea luteola* f. ovalis Gray	LC	R
6	*Lymnaea succinea* (acuminata) Lamarck	LC	R
7	*Brotiacostula* Brandt	LC	C
8	*Indoplanorbis exustus* (Deshayes)	LC	R
9	*Paludomus conica* Gray	LC	C
10	*Melanoidestuberculata* (Muller)	LC	R
11	*Parreysiafavidens* var *assamensis* Preston	LC	C
12	*Angulyagra* sp.	–	R
13	*Angulyagra microchatetophora* (Annandale)	LC	C
14	*Bellamyabengalensis* f. *typica* (Annandale 1921)	LC	R

Discussion

The Northeast (NE) India is placed in the transition zone between Indian, Indo-Malayan and Indo-Chinese biogeographic regions, hence very rich in biodiversity and endemicity. Intanki National Park of Nagaland is a highly critical habitat connecting the fragmented and isolated patches of forests in the states of Nagaland and Assam. It comprises the lowland forest in the undulating low hills and plains with moist deciduous riverine forests and mixed forests in the hills. The area is very rich in biodiversity. Focus have so far mainly given to the mega species of the National Park hence studies on insect, Mollusca and other invertebrate group are not much. Malacofaunal study includes report of Mitra et al. (2006) documenting 21 species of freshwater Mollusca under 16 genera and 9 families from Nagaland. Nevertheless, they have not adequately focused on complete diversity study and it is unknown as to how many among them are reported from Intanki National Park of Nagaland. In the present study, 14 species of Mollusca have been reported from the National Park and a species of air-breathing land slug *Mariaella dussumieri* Gray, 1855 is reported for the first time from Nagaland, India (Figs. 2 and 3). Earlier, it was reported from Assam, Meghalaya, Kerala, Goa, Karnataka and Maharashtra. *Lissaachatina fulica* (Ferussac, 1821), an invasive alien species has invaded into the National Park which is a serious pest and has the ability to transmit both human and plant pathogens. Considering the lack of information from such an important landscape of NE India, this survey is perhaps first of its kind to document Malacofaunal diversity in the one and the only PA of Nagaland. However, since the study conducted was for a short duration and therefore further long-term studies need to be carried out to document complete Molluscan faunal diversity from Nagaland state.

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