CHAPTER - I

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India is one of the 13 biodiversity rich countries of the world (Mittermeier and Werner, 1990). Two regions in India have rich concentration of amphibian fauna, the Western Ghats and the Eastern Himalayan Region. This area is considered as a part of two of the world’s major Biodiversity Hotspots – Indo-Burma and Himalayan regions (Mittermeier et al., 2004), despite this, our current knowledge on the amphibian diversity and distribution in this region is considerably poor (Pawar et al., 2007). This is the only region of the country where all the three living orders of Amphibia are found.

Unique in many ways these creatures on earth which was originated about 250 millions years ago are facing grave threats to their existence. Amphibians have declined dramatically in many areas of the world. These declines seem to have worsened over the past 25 years and amphibians are now more threatened than either mammals or birds (Beebee et al, 2005)

A recent assessment of the entire group found that nearly one third (32.5%) of the world’s amphibian species are threatened representing 1,856 species (Stuart et al., 2004). Habitat destruction, environmental contaminants, outbreak of diseases like cytridiomycosis caused by cytrid fungus, UV-B
irradiation, introduced species, exploitation, and climate change are some of 
the factors that contribute to the apparent global decline of amphibians. The 
most important factor leading to amphibian population declines is no doubt 
habitat destruction. As per Stuart et al. (2004) the “rapidly declining” species 
belong to the 4 families namely Bufonidae, Leptodactylidae, Hylidae (tree 
frogs) and Ranidae (true frogs).

Currently there are 6,664 (amphibiaweb org, accessed on May 2, 
2010) species of amphibians occurring in all continents except Antarctica. 
The total number of species reported from India is 305. Ahmed et al. (2009) 
has published a checklist of 105 species belonging to 10 families and 38 
genera of amphibia from North East India. Biodiversity studies of amphibia 
suggest that a great number of new taxa remain to be discovered in this group 
(Glaw and Kohler, 1998).

Description of existing biodiversity is one of the main goals of 
conservation biology (Veith et al., 2001) Especially in the tropics very little 
is known about the real number of amphibian species. Amphibia of most part 
of the North East India have been poorly studied until now. In the last decade 
many new species have been described from this high amphibian biodiversity 
rich area of the world. (Dutta et al., 2000; Das et al., 2004; Bordoloi, 
Bortamuli and Ohler, 2007; Methew and Sen, 2007; Sengupta et al., 2008;
Important publications from the different states of North East India namely 32 species from Nagaland by Ao et al. (2003), 24 species by Pawar (2001) from Mizoram and 20 species by Choudhury et al. (2001) from Assam, 25 species by Nigombam et al. (2007) from Manipur, 23 species by Das et al. (2009) from Cachar district, Assam reveals that extensive survey in the inaccessible areas will lead to many more important species and new discoveries previously unknown to science. So far 52 species of amphibians have been recorded from Assam. Detailed exploratory surveys have become very urgent in view of rapid deterioration of amphibian habitats.

In view of the above scenario documentation of more species by detailed exploration and study of life cycle has become essential. The present work was taken up in the Sivasagar district of Assam. The aim of the present work was to make a through survey of the amphibian fauna of Sivasagar district along with recording preliminary ecological data of the breeding habitat of the species selected for normal developmental study. Extensive survey in all the water bodies of Charaideo subdivision yielded better result.

It has been found that most taxonomic and phylogenetic works were based on the adult stages. Recently many workers have published their work on tadpoles of various species. Adult anurans of Indian Sub-continent are...
relatively well known but studies on their tadpoles are yet to be completed. Although description of the tadpoles of the Indian anurans dates back to almost a century (Ferguson 1904, Annandale & Rao 1918, Boulenger 1920) we still have scanty information, that is limited to less than 25% of anurans found in the country (Saidapur, 2001). In total, 118 species of amphibians known from India now have known tadpoles, representing 44.5% of the 265 known Indian amphibian species (Das and Dutta, 2007). Knowledge of the eggs, tadpoles, spawning behaviour, general ecology and normal development of the majority of the amphibians found in North East India still await complete investigation. The present investigation is an attempt to describe in detail the normal table of development of the following anuran species along with tadpole morphology, spawning behaviour and general ecological condition of the breeding habitat.

1. *Hylarana humeralis* (Boulenger, 1887)

2. *Hylarana leptoglossa* (Cope, 1868)

3. *Fejervarya nepalensis* (Dubois, 1975)

4. *Fejervarya teraiensis* (Dubois, 1984)

The present study on these four anuran species will be an important contribution in the field of eco biological investigation of Amphibia.
In the present investigation extensive survey was carried out in the Charaideo subdivision of Sivasagar district and a total of 19 species of amphibians could be recorded. As a result the species recorded from Sivasagar district has been raised to 24. Discovery of a new species *Rhacophorus suffry* (Bordoloi, Bortamuli and Ohler, 2007) from this area proves that coordinated effort is required for documentation of fauna in all the accessible and in accessible amphibian habitats of North East India.