CHAPTER-II

REVIEW OF LITERATURE

2.1 Chiropterological studies in India: During pre independence

E. Geoffroy, a French naturalist provided the scientific description of *Megaderma lyra* from Madras (Geoffroy, 1810) and this is possibly the first report on the bat fauna of India. Thereafter mammalogists like Thomas Hardwicke and J. E. Gray described some new bat taxa from India including *Hipposideros fulvus* from Madras, *Pipistrellus coromandra* from Pondicherry, *Rhinopoma hardwickii* from India (no exact locality), *Taphozous longimanus* from Calcutta etc. (Hardwicke, 1825; Gray, 1831, 1838). Brian Houghton Hodgson, an eminent British naturalist who served in India for a considerable period described *Plecotus homochrous* and *Megaderma schistacea* from Darjeeling district (Hodgson 1847a, 1847b). Some of the noteworthy subsequent work on bat fauna of India include that of
Edward Blyth, curator of the museum of Asiatic Society of Bengal, Calcutta who described *Rhinolophus lepidus* from Calcutta (Blyth, 1844) and *R. mitratus* from Bihar (Blyth, 1844), *Scotomanes ornatus* from Khasi hills (Blyth, 1951b) and *Pteropus melanotus* from Nicobar Islands (Blyth, 1963) Etc. In the following period, George Edward Dobson, another British naturalist cum army surgeon described *Myotis annectus* from Naga Hills, *M. longipes* from Kashmir, *Eptesicus pachyotis* from Khasi hills and *Miniopterus pusillus* from Nicobar Island (Dobson 1871, 1872, 1874, 1976). He also published a monograph on Asiatic Chiroptera and a catalogue of bat present in the collection of the Indian Museum, Calcutta (Dobson, 1876). The last significant work on Indian bats during the nineteenth century is that of R.C. Wrougton, an Indian Forest Service Officer who gave a detailed account of the bats of Konkan region (Wroughton, 1899).

At the beginning of the 20th century, Gerrit Smith Miller, Curator of mammal in the United State National Museum published an exhaustive compendium named “The families and genera of bats” (Miller, 1907) which covers all the families and genera of known Indian bats at that time. During the Mammal Survey organized by Bombay Natural History Society from 1912-1920 in different parts of India, Pakistan, Myanmar and Sri Lanka, about 25000 specimens were collected. The scientific results of this series of systematic survey was subsequently reported by experienced mammalogists in British Museum like R.C. Wroughton, K.V. Ryley, O. Thomas, J.P. Mills, H. M. Lindsay, M. A. C. Hinton, and T. B. Fry, T. C. S. Morrison-Scott etc. from 1912 to 1929.
2.2 Post independence period (1950-2018)

During the post-independence period, a number of studies were conducted on taxonomy and distribution of Indian bats. J. R. Ellerman and T. Morrison-Scott of the British Museum came up with “Checklist of Palaearetic and Indian Mammals 1758 to 1946” including all known information on Indian bats known at that time (Ellerman & Morrison-Scott, 1951). H. Khajuria and co-workers of the Zoological Survey of India made significant contributions to the field of taxonomy and geographical distribution of Indian bats (Khajuria, 1953, 1965, 1978, 1980; 1982; Khajuria et al., 1977; Khajuria & Ghose, 1970). He is also credited with the description of *Hipposideros durgadasi* from central India (Khajuria, 1970). A rare and endemic fruit bat *Latidens salimalii* was described by K. Thonglongya, a Thai zoologist (Thonglongyla, 1972). Some other scientists of Zoological Survey of India like Y. Chaturvedi also contributed to the taxonomy and zoogeography of Indian bats (Chaturvedi, 1964, 1969, 1980; Soota & Chaturvedi, 1980). H. R. Bhat of National institute of Virology, Pune also made several contributions to the studies of Indian bats. He recorded two species namely *Eonycteris spelaea* and *Sphaerias blanfordi* within the geographical limit of India (Bhat, 1967, 1968, 1974).

J. E. Hill, an eminent mammalogist of the British Museum was instrumental in the understanding of Southeast Asian bats, including India. Some of his prominent work on taxonomy and biogeography of bats of India include (Hill, 1961, 1963a, 1963b, 1965, 1967, 1971, 1974, 1976, 1983, 1987; Hill & Harrison, 1987; Hill et al., 1986). Several ZSI mammalogist of that time also contributed significantly towards taxonomy, and general biology of Indian bats
since the 50s (for e.g. Sinha, 1969, 1970, 1973, 1976a, b, 1977, 1980, 1990a, b, 1994, 1999; Sinha & Chakraborty, 1971; Chakroborty, 1977, 1983.). P. K. Das of Viswa-Bharati, Santiniketan was another significant worker of that time on taxonomy, geographical distribution and biology of Indian bats (Das, 1986a, 1986b, 1990a, 1990b; Das, 2003; Das & Agrawal, 1973). In the late nineties, Paul Bates and David L. Harrison of Harrison Zoological Museum published a detailed account of the bats of India and neighboring countries. In that account, the authors accorded detailed taxonomic treatment and provided information on distribution, ecology, biology of the 117 species found in the region which till date continues to be the most exhaustive taxonomic treatise of the bat fauna of the Indian subcontinent (Bates and Harrison, 1997). Recently, C. Srinivauslu of Osmania University and his co-workers provided a revised set of identification keys to the 128 species of bats occurring in South Asia including about 120 species from India. (Srinivasulu et al., 2010).


2.3 Past studies on bat fauna from united Assam

Studies on the diversity and distributional aspects of the bat fauna of Assam state are far and few. Even during the British period, most of the small mammalian surveys in the erstwhile Assam were made outside the present political boundary of Assam State, i.e., Khasi Hills (Meghalaya), Lushai Hills (Mizoram) and the Daffla and Mishimi Hills (Arunachal Pradesh). During the Mammal Survey conducted by Bombay Natural History Society (1911–1923), however, some areas of eastern and western Assam were surveyed. The report of the above survey recorded 15 species of bats from the current political boundary of the state (Hinton & Lindsay 1926).

Post-independence (1947 – 2018) study of bats in Assam

In the subsequent period also, little information was generated on diversity and distribution of the bat fauna of Assam except for Kurup (1968) and Sinha (1999), the former dealing with the mammalian fauna of Assam as a whole and the latter providing a consolidated account of the bats of northeastern India. In their monographic work, Bates & Harrison (1997) reports twenty-eight species of bats from Assam although a few species therein are of doubtful occurrence. Ali (2009) conducted a study on the eco-biology of Indian Flying Fox in Assam. Population trend of Flying Fox has also been reported in a roosting site of western Assam (Ali, 2010). Rahman and Choudhury (2017) reported six species namely Pteropus giganteus, Cynopterus sphinx, Eonycteris spelaea, Megaderma lyra,
Scotophilus heathii and Pipistrellus coromandra from Kachar District of western Assam. Based on secondary information, Talukdar and Choudhury (2017) also reported twenty six species of bats from Patharia Hills Reserve Forest in southern Assam, some species are of questionable occurrence though. Except for a mention of Taphozous longimanous from Narikuchi village just outside the study area (Sinha, 1999), no report on the bat diversity from Baksa district exist till recently. With the initiation of the present study, preliminary report indicated the presence of twelve species of bat in Baksa district (Boro et al., 2014). Additionally, several species like Saccolaimus saccoliamus, Myotis horsfieldi, Tylonycteris fulvida and Pipistrellus ceylonicus etc. have been added to the bat fauna of Assam which raise the bat inventory of the state to 34 species (Boro et al., 2013; Boro & Saikia, 2015; Boro et al.2018). The first three of these above species have been reported from the present study area.