



**‘Study of Amphibian Diversity in Dhemaji  
District of Assam, India’**

**A**

**Project Report Submitted  
to**

**Department of Zoology (PG)  
Silapathar Science College,  
Dhemaji, Assam**



**In partial fulfilment of the requirements for the  
degree of Masters of Science**

**By**

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**JULY, 2022**

*Dedicated to my family and  
teachers*

dated. 07-12-2021, hereby declare that the subject matter of the dissertation entitled "**Study of Amphibian Diversity in Dhemaji District of Assam, India**" is the record of work done by me. The dissertation is being submitted to Silapathar Science College for the degree of Master of Science in the Department of Zoology (PG) and not been submitted to any other institute for obtaining any degree.

Place: Silapathar Science College

Date: 23 July, 2022

Swapna Borah  
[SWAPNA BORAH]

## DECLARATION

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I **Swapna Borah**, bearing Roll No. **202820024017**, Registration No. **451828220** dated: 07-12-2021, hereby declare that the subject matter of the dissertation entitled "**Study of Amphibian Diversity in Dhemaji District of Assam, India**" is the record of work done by me. The dissertation is being submitted to Silapathar Science College for the degree of Master of Science in the Department of Zoology (PG) and not been submitted to any other institute for obtaining any degree.

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Silapathar Science College  
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Dr. PARIMAL CHANDRA RAY  
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## CERTIFICATE

Certified that the dissertation entitled "**Study of Amphibian Diversity in Dhemaji District of Assam, India**" for the award of Master of Science degree (as final semester practical project) is the outcome of a bonafide research work. This work has not been submitted previously for the obtaining any other degree of this or any other institution. I recommended that the project work may be placed before the examiners for consideration of award of the degree.

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[SWAPNA BORAH]

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## ABSTRACT

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Amphibians are facing extinctions worldwide as a result of numerous factors. Habitat alteration has long been implicated in the loss of biodiversity and hence, amphibians play an important role in ecosystem functioning and are used as bio-indicator for any alteration in climate and its associated habitat. Diversity assessment of amphibians in Dhemaji district, Assam, India was studied during the monsoon season in the month of late May 2022 to early June 2022. Visual encounter survey, Point count survey, Opportunistic search Road transect survey methods were adopted for conducting survey. During the present study, 18 species under 12 genera and 06 families were reported. Among the reported families, the family Dicroglossidae had highest percent contribution of species (50%) followed by Ranidae and Rhacophoridae (17% each), Pyxicephalidae (6%) and Bufonidae, Myrobatrachidae (5% each). The Generic diversity was found to be high in Dicroglossidae (n=05) followed by Ranidae (n=03), Bufonidae, Pyxicephalidae, Myrobatrachidae and Rhacophoridae (n=1 each). During the survey the species of amphibians were reported from various microhabitat types like agricultural land, near vegetation and in pond ecosystem. Among these habitat preferences the highest sighting records of species were contributed by pond ecosystem (44%) and rest 28% contributed by both agricultural land and near vegetation areas. The species being preferring the pond ecosystem were mostly belonging to the family Dicroglossidae like *Minervarya teraiensis*, *M. pierrie*, *M. syhadrensis*, *Hoplobatrachus tigerinus*, *Euphlyctis adolfi*, *E. cyanophlyctis*, *Limnonectes* sp. and *Fejervarya limnocharis*. Amphibians are moisture loving creatures. Therefore, the species diversity is expected to be high in moist places. This could be well established by the data that the amphibians preferred the habitat with high moisture and more microhabitat of the region that was indicated from present study where the higher diversity records were confirmed from pond ecosystem. This study had generated the baseline data for the amphibian diversity in Dhemaji district of Assam, India. Though it was the preliminary study but, further study is also required to explore the diversity of amphibians in the study area to understand their habitat, population estimation and also to find out the severity of the threats on amphibians. These threats may be causal for the severe depletion of amphibian populations in various protected landscapes within Assam state.

**Keywords:** Amphibians, Diversity, Microhabitat, Dhemaji, Assam.



Amphibians are ecto-thermic, tetrapod vertebrates of the class Amphibia. All living amphibians belong to the group Lissamphibia. They inhabit a wide variety of habitats, with most species living within terrestrial, fossorial, arboreal or freshwater aquatic ecosystems. Thus, amphibians typically start out as larvae living in water, but some species have developed behavioural adaptations to bypass this. The young generally undergo metamorphosis from larva with gills to an adult air-breathing form with lungs. Amphibians use their skin as a secondary respiratory surface and some small terrestrial salamanders and frogs lack lungs and rely entirely on their skin. They are superficially similar to reptiles like lizards but, along with mammals and birds, reptiles are amniotes and do not require water bodies in which to breed. With their complex reproductive needs and permeable skins, amphibians are often ecological indicators; in recent decades there has been a dramatic decline in amphibian populations for many species around the globe.

The diversified topography, geographic location, high rainfall and humidity have likely to be supported to the survival of numerous species of amphibians in the Western Ghats and the Eastern Himalayas (Andrews et al., 2005). Approximately, over a 8,230 species of amphibians are recorded in the world (Frost, 2014), out of which 472 species of amphibians are recorded from India as per Indian amphibians organization (Gosavi et al., 2022).

The North-East India with its varied physiographic zones harbours a rich and diversified amphibian fauna. It is interesting to note that all the three orders of Class Amphibia namely Anura, Gymnophiona and Caudata are represented in this region. The region with its eight sister states (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim and Tripura) is one of the hotspot for amphibian biodiversity. Elaborative studies on Anurans of NorthEast India was first published by Chanda (1994) and reported 54 species of toads and frogs. Dutta (1997) reported 69 species of Amphibia (67 anurans, 1 gymnophiona, 1 caudata) from this region. As per BCPP (C.A.M.P) report (1998), 72 species of amphibia (69 anurans, 2 gymnophiona, 1 caudata) are occurring in N.E. India. Chanda (2002) in his handbook of India reported 64 species of amphibia (60 anurans, 3 gymnophiona, 1 caudata) from this region.

The State of Assam is the centre of attention as an area of global importance, due to its rich biodiversity, representing a unique physiographic makeup characterized by hills,

plateau and flood plains. The hills are extensions of the Himalayan range, and of Recent (Tertiary) formation. The plains namely, Brahmaputra and Barak, are of tectonic origin, and house large quantities of sediments, from Tertiary times to present. Despite being known as part of the twin biodiversity hot spots, namely the Eastern Himalaya and Indo-Burma, the amphibian fauna of Assam remain poorly known, and most of the records are that of undivided Assam of India's pre-independent period (that is prior to 1947, when most of the states of north-eastern India were under Assam state). The present conservation status of the regions amphibian species remain unknown (including *Gegeneophis fulleri*, *Rhacophorus tuberculatus*, etc.). In recent years, some of areas have been inventoried (see Choudhury et al., 2001, Das., 2008, Das et al., 2009), and new species have been described (Dutta et al., 2000, Das et al., 2004, Bordoloi et al., 2007, Sengupta et al., 2008).

Many workers and scientists worked on the amphibian diversity and their habitat preference such as (Abraham et al., 2001, Dahanukar et al., 2005). Similar important works on amphibian were reported by Meren et al., (2003) and Ningombam et al., (2007) from the NorthEast India. These works have amply documented the diversity and microhabitats of amphibian species.

In the present study I have surveyed in and around the areas in Dhemaji district of Assam. The survey sites were mostly artificial pond, natural pond, different microhabitats viz., leaf litter and bamboo human residential area, aricultural fields, terrestrial Land and water bodies. On the basis of presnt survey data gathered and prepared in the form of checklist of Amphibians of the Dhemaji district of Assam, India.

Thus, to establish the needful outcome from this short term project work, I had worked out on below mentioned specific objectives:

1. *To conduct rapid species diversity assessment survey in Dhemaji district of Assam.*
2. *To quantify the micro-habitat preferences of amphibian species in Dhemaji district of Assam.*

The diversified topography, geographic location, high rainfall and humidity have likely to be supported to the survival of numerous species of amphibians in the Western Ghats and the Eastern Himalayas (Andrews et al., 2005).

The North East India, comprising of the states of Assam, Arunachal Pradesh, Meghalaya, Manipur, Mizoram, Nagaland, Tripura and Sikkim have been considered as a distinct bio geographic zone within the Indian Subcontinent. Boulenger (1890) made the first systematic study on the amphibians of the region. In his publication of Fauna of British India, he reported 32 species from North east India. Boulenger (1919) described three new Batrachian species from the Garo Hills, Assam. Smith (1929) surveyed amphibians and reptiles from the upper reaches of the Brahmaputra. Romer (1949) described *Rana leptoglossa*, *Bufomelano stictus* and *Kaloula pulchra* as well as described herpetological observations in the state of Assam and West Bengal. Bhaduri and Saha (1980) reported range extension of the narrow mouthed frogs *Uperodon globulosus* to Kamrup District, Assam. Dutta (1997) reported a total of 69 amphibian species comprising of 67 anurans, 1 Gymnophiona and 1 caudata from North East India.

A new range extension of *Haplobatrachus crassus* was reported from Assam and Arunachal Pradesh by Bordoloi and Borah (1999). Sengupta et al., (2000) provided a report on the herpetological survey of Garbhanga Reserve Forest in Assam and reported 15 amphibian species belonging to 6 families. Choudhury et al., (2001) surveyed Kamrup district of Assam for its faunal diversity and reported 20 amphibian species which included a caecilian species *Ichthyophis garoensis* and also recorded *Philautus garo* from the state for the first time. A report on poorly known endemic amphibians of North East India was provided by Ahmed (2001), Ahmed and Dutta, (2001). Chanda (2002) published a handbook on Indian amphibians where he reported 64 species from North East India. Mathew and Sen (2005) studied the Fejervarya of Northeast India.

Das et al., (2004) described a new species of Microhylid frog, *Kaloula assamensis* from the states of Assam and Arunachal Pradesh. Bordoloi et al., (2007) reviewed the genus *Rhacophorus* (Family: Rhacophoridae) having red webbed forms and they described a new species under the genus, *Rhacophorus suffry* from Sibsagar district, Assam. Borthakur et al., (2007) reported the four *Fejervarya* species in Assam, *Fejervarya teraiensis*, *F. nepalensis*,

*F. pierrei* and *F. syhadrensis*. Hussain et al., (2007) reported the occurrence of *Rana humeralis* in the states of Assam and Arunachal Pradesh and also provided notes on the species morphometry, distribution and natural history.

Bortamuli and Bordoloi (2007) reported 25 amphibian species from Sivasagar district of Assam. Sengupta et al., (2008) described a new torrent species, *Amolops assamensis* from Assam. Das (2008) surveyed the herpetofauna of the Barail Wild life Sanctuary of Assam and reported 23 amphibian species from the study area and adjacent area.

Ahmed et al., (2009) published a photographic guide on the amphibians and reptiles of northeast India. Sengupta et al., (2010) studied the amphibian diversity in protected landscape of Assam. Cheria et al., (2014) studied the amphibian diversity of the wetlands of Bongaigaon district of Assam and reported 12 species.

At a global scale study suggested by Toral et al. (2002) found that species composition of amphibian assemblages changed markedly at the pasture–forest edge but that richness was comparable in pasture and forest. The difference in the distribution of such species diversity has also been reported by Sengupta et al. (2010) across different protected areas in Assam.

Even, it appears that the effects of habitat alteration on amphibians depend on the nature of the disturbance, the microhabitats that are disturbed, and the metric used to assess changes in amphibian communities (e.g., richness vs. species composition). As such, a more refined understanding of the relationship between anthropogenic habitat alteration and amphibian diversity based on more case studies would be useful for management and conservation of this group.

In the present context of the available literature and the lack of proper documentation from the Dhemajī district of Assam I had conducted present survey to enumerate the species diversity from the selected district to understand the diversity and habitat preferences of amphibian species.

**Survey Area:**

Dhemaji is a district in the Assam State of India. Dhemaji district occupies an area of 3,237 square kilometres (1,250 sq mi). The study was carried out from March to June month in 2022. Studies were mainly done by visits to villages of Dhemaji district and to nearby localities with natural and agricultural landscapes. Survey was conducted during rainy and dry season both in day and night. Situated in the foothills of the lower Himalayas it is relatively a small town. Being in a confluence of rivers with the mighty Brahmaputra river flanking the district and its numerous tributaries running through the district, the region is perennially affected by floods. It exhibits a difference in temperature, rainfall, wind etc. The climate of the district is per-humid characterized by high rainfall, mild summer, winter and falls under cool to warm per humid thermic-agro ecological subzone. The annual rainfall of the district ranges from 2,600 mm to 3,200 mm. Rainfall generally begins from April and continuous till the end of September. The relative humidity varies from 90 to 73 percent. The temperature varies between 39.9°C in summer and 5.9°C in winter.

In the present study area there were large number of temporary and permanent lentic water bodies and wetlands are present, that are the main habitat for large number of amphibian species as well many different species also. Agricultural land, forest, grasslands are situated around the study sites (below photos showing the survey sites). We selected various survey sites within the district from the perspective of contrasting habitat characteristics that differ in amphibian species and their micro-habitat preference also.

**Method:**

Present study was carried out through use of various sampling methods viz., Visual encounter survey, Point count survey, Opportunistic search Road transect survey, etc. as per following method of Pankaj et al., (2021). The survey was performed once a week in all possible habitats and microhabitats. The timing of the survey is in between 7.00 pm to 11.00 pm in night. Anuran amphibian species were recorded by direct sighting method. This searching is made for frogs and toads using torch lights during night. On every amphibian sighting, information on species, habitats, microhabitats and altitude were recorded.

Specimens were photographed at the site and were not collected as we lack the permit to collect and preserve them.



**Photographs showing survey sites (top –pond, middle - natural pool, down-paddy field)**

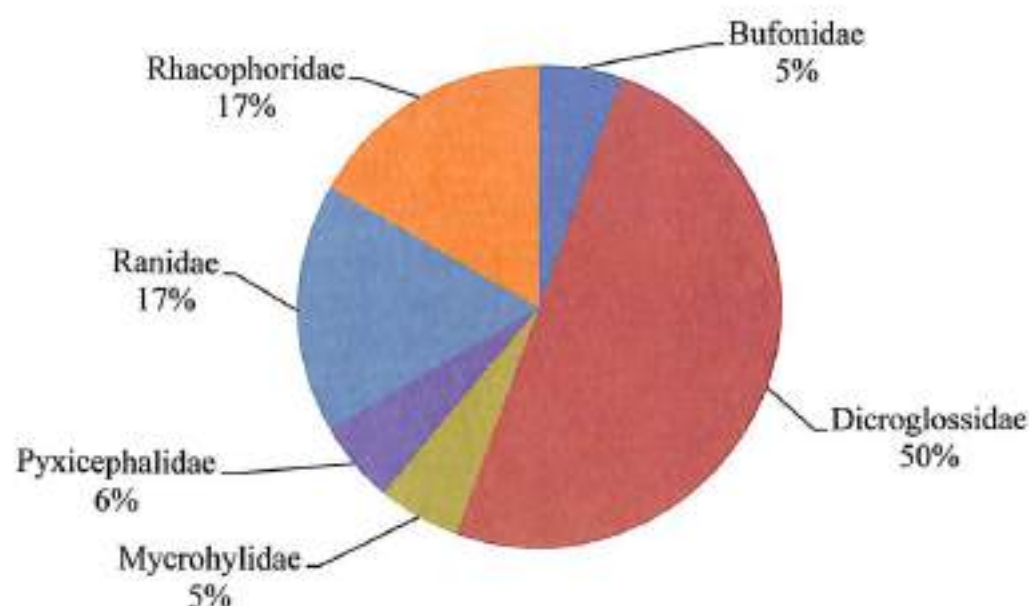
#### **Identification:**

The identification of amphibian specimens photographed done by using various identification keys and publications available online as well as through online database of – [www.amphibianweb](http://www.amphibianweb) , [www.Indianbiodiversity.org](http://www.Indianbiodiversity.org) and photographic guide book of Ahmed et al., (2009), Das (2008), Pankaj et al., (2021).



**Community composition:**

During the present investigation, 18 species under 12 genera and 06 families were reported (Table 1). Among the reported families, the family Dicroglossidae had highest percent contribution of species (50%) followed by Ranidae and Rhacophoridae (17% each), Pyxicephalidae (6%) and Bufonidae, Mycrohylidae (5% each) (figure 1). The reports of the present study of 18 species can be an added remark on the presence of the species in this part of Assam. As, there were many studies that were conducted in Northeast that also had significantly reported quite low to high numbers of species during their studies like- of Smith (1929) reported 07 species of frogs from Eastern Himalaya, Sankar and Sanyal., (1985) reported 14 species from Namdapha National Park, Arunachal Pradesh, Bordoloi et al., (2001) reported 40 species from Arunachal Pradesh, Bordoloi et al., (2002) reported 30 species from Dihang Dibang Biosphere Reserve, Arunachal Pradesh, Sengupta et al., (2010) reported 57 species from different protected areas of Assam- Nameri-Pakke, Dihing-Patkai and Nambor-Doigurung-Garampani landscapes.



**Figure 1.** Family wise distribution of species



**Table 1.** Showing the details on family, IUCN status and habitat preferences of amphibians recorded during the survey from Dhemaji district of Assam.

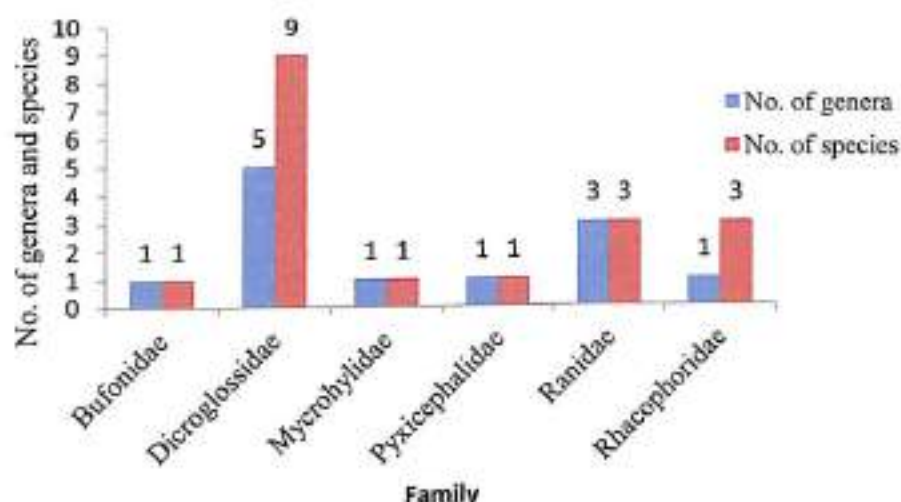
| Sl.No.                        | Encountered species                                 | IUCN status   | Habitat preference |
|-------------------------------|---|---------------|--------------------|
| <b>Family: Bufonidae</b>      |   |               |                    |
| 1.                            | <i>Duttaphrynus melanostictus</i> (Schneider, 1799) | Least concern | Agricultural land  |
| <b>Family: Dicroglossidae</b> |   |               |                    |
| 2.                            | <i>Minervarya teraiensis</i> (Dubois, 1984)         | Least concern | Pond ecosystem     |
| 3.                            | <i>Minervarya pierrei</i> (Dubois, 1975)            | Least concern | Pond ecosystem     |
| 4.                            | <i>Hoplobatrachus tigerinus</i> (Daudin, 1803)      | Least concern | Pond ecosystem     |
| 5.                            | <i>Euphlyctis Adolphi</i> (Gunther, 1860)           | Least concern | Pond ecosystem     |
| 6.                            | <i>Hoplobatrachus litoralis</i> (Hasan et al. 2012) | Not evaluated | Agricultural land  |
| 7.                            | <i>Minervarya syhadrensis</i> (Annandale, 1919)     | Least concern | Pond ecosystem     |
| 8.                            | <i>Limnonectes</i> sp.                              | Least concern | Pond ecosystem     |
| 9.                            | <i>Euphlyctis cyanophlyctis</i> (Schneider, 1799)   | Least concern | Pond ecosystem     |
| 10.                           | <i>Fejervarya limnocharis</i> (Gravenhorst, 1829)   | Least concern | Pond ecosystem     |
| <b>Family: Myrohylidae</b>    |   |               |                    |
| 11.                           | <i>Microhyla berdmorei</i> (Blyth, 1856)            | Least concern | Vegetation         |
| <b>Family: Pyxicephalidae</b> |   |               |                    |
| 12.                           | <i>Strongylopus grayii</i> (Smith, 1849)            | Least concern | Agricultural land  |
| <b>Family: Ranidae</b>        |   |               |                    |
| 13.                           | <i>Humerana humeralis</i> (Boulenger, 1887)         | Least concern | Agricultural land  |
| 14.                           | <i>Hydrphylax leptoglossa</i> (Cope, 1868)          | Least concern | Agricultural land  |
| 15.                           | <i>Hylarana erythraea</i> (Schlegel, 1837)          | Least concern | Vegetation         |
| <b>Family: Rhacophoridae</b>  |   |               |                    |
| 16.                           | <i>Polypedates leucomystax</i> (Gravenhorst, 1829)  | Least concern | Vegetation         |
| 17.                           | <i>Polypedates himalayensis</i> (Annandale, 1912)   | Least concern | Vegetation         |
| 18.                           | <i>Polypedates maculatus</i> (Gray, 1830)           | Least concern | Vegetation         |

#### Generic and species diversity:

The Generic diversity was found to be high in Dicroglossidae (n=05) followed by Ranidae (n=03), Bufonidae, Pyxicephalidae, Myrohylidae and Rhacophoridae (n=1 each) (Figure 2).

Whereas, the species diversity among the family was again found to be high with 09 number of species in Dicroglossidae followed by Ranidae and Rhacophoridae with 03 species each, Bufonidae, Pyxicephalidae and Myrohylidae with 01 species each (figure 2).

The reported presence of generic and species diversity in present study is similar to that of the studies carried out in Northeast India by Chetia et al., (2014), Sengupta et al., (2010), Ahmed and Dutta., (2001).



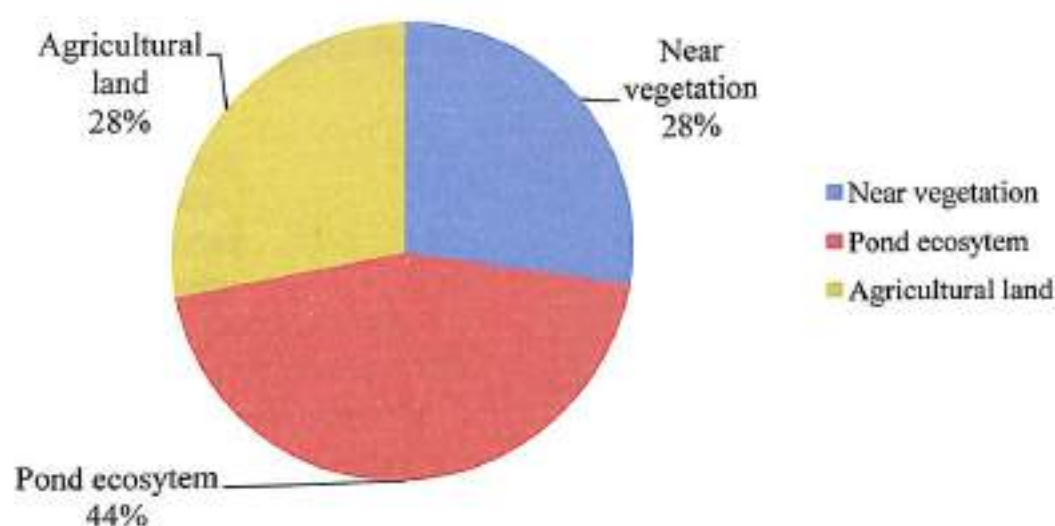
**Figure 2.** Comparative distribution of generic and species diversity of amphibians under different families.

#### Microhabitat preferences pattern:

During the survey the reported species of amphibians were reported from various microhabitat types' like- agricultural land, near vegetation and in pond ecosystem. Among these habitat preferences the highest sighting of species were contributed by pond ecosystem (44%) and rest 28% contributed by both agricultural land and near vegetation areas (figure 3).

The species being preferring the pond ecosystem were mostly belonging to the family Dicroglossidae like- *Minrevaria teraiensis*, *M. pierrie*, *M. syhadrensis*, *Hoplobatrachus tigerinus*, *Euphlyctis adolfi*, *E. cyanophlyctis*, *Limnonectes sp.* and *Fejervarya limnocharis*.

The other species preferring the agricultural and near vegetation habitats mostly belong to other recorded families in present study. And the species which preferred both this agricultural land (*Duttaphrynus melanostictis*, *Hoplobatrachus litoralis*, *Strongylopus grayii*, *Humerana humeralis* and *Hydrphylax leptoglossa*) and near vegetation habitats (*Microhyla berdmorei*, *Hylarana erythraea*, *Polypedates leucomystax*, *P. himalayensis* and *P. maculates*) (Table 1).



**Figure 3.** Microhabitat preferences reported by species of amphibians in present study.

Amphibians are moisture loving creatures. Therefore the species diversity is expected to be high in moist places. This could be well established by the data that the amphibians preferred the habitat with high moisture and more microhabitat of the region that was indicated from present study where the higher diversity records were confirmed from pond ecosystem. The preference by amphibians to utilize various forms of microhabitat is due to their niche separation and the environmental parameters that govern them to stay within those specific habitats. The importance of environmental conditions like- rainfall, temperature and altitudinal gradients (Andrew et al., 2005, Sajjan et al., 2017) micro-habitats loss (Sengupta et al., 2010).

Some studies had related that the presence of the species in variety of microhabitats (Pankaj et al., 2021, Gregory et al. 2014, Sengupta et al., 2010). According to Pankaj et al., (2021), the *Duttaphrynus melanostictus*, *Fejervarya limnocharis* and *Hoplobatrachus crassus* were found mainly in agricultural fields and sub urban areas and recorded in less number. The food availability and habitat suitability was the prime factor for their occurrence in those fields (Pankaj et al., 2021).



## **Description of Amphibian Species recorded in present study:**

### **Species 1. Indian bullfrog(*Hoplobatrachus tigerinus*)**

#### **Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Hoplobatrachus*

Species: *tigerinus*



**Distinguishing Characters:** It is commonly known as Indian bullfrog. The head is slightly longer than wide, in older specimens it is wider; snout pointed, projecting, canthus obtuse; loreal oblique, slightly concave; inter orbital space much narrower than the upper eyelid.

**Distribution:** Native to mainland Myanmar, Bangladesh, India, Pakistan, Afghanistan, and Nepal, as well as possibly Bhutan and China, although its presence is uncertain.

**Habitat:** *Hoplobatrachus tigerinus* is typically found in freshwater environments, especially wetlands, such as paddy fields. It is not generally found in other ecosystems, such as forests and coastal areas.

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### **Species 2. Asian common toad (*Duttaphrynus melanostictus*):**

#### **Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Duttaphrynus*

Species: *melanostictus*



**Distinguishing Characters:** The top of the head has several bony ridges, along the edge of the snout (canthal ridge), in front of the eye (preorbital), above the eye (supraorbital), behind the eye (postorbital), and a short one between the eye and ear (orbitotympanic). The snout is short and blunt, and the space between the eyes is broader than the upper eyelid width.

**Distribution:** Occurs widely from Northern Pakistan through Nepal, Bangladesh, India .

**Habitat:** They live mostly in disturbed lowland habitats, from upper beaches and river banks to human-dominated agricultural and urban areas. They are uncommon in closed forests.

**Species 3. Bhamo frog (*Humarana humeralis*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Humarana*

Species: *humeralis*



**Distinguishing Characters:** Elongated head and pointed snout; tympanum is distinct, flat and circular. Fingers are long and free; first and second fingers are equal; fingers free, tips dilated into pear shaped disc; toes are almost complete webbed, toe tips are dilated into pear shaped discs. On the dorsal side, snout, between eyes, sides of the head and anterior part of the back are smooth. But posterior part is little granular.

**Distribution:** Northern Myanmar, Eastern Nepal and Bangladesh, Assam .

**Habitat:** It utilizes various habitats like water logged area, wet grassland, sometime on bare land, open land, even climbing trees. The species is common in water logged vegetation and on moist leaf litter.

**Species 4. Gray's stream frog (*Strongylopus grayii*):**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Strongylopus*

Species: *grayii*



**Distinguishing Characters:** Gray's stream frog is a fairly small species of frog in the family Pyxicephalidae. It is a ground dweller, living mainly in vegetation such as sedges, generally brown, slenderly built and agile, with long, practically un-webbed toes.

**Distribution:** The species occurs in Lesotho, South Africa, Eswatini, India. It is a common species.

**Habitat:** Gray's stream frog is locally common where conditions are favourable, such as among grassy or scrubby vegetation around streams and dams, or where there is seasonal water such as roadside ponds.

**Source of Photograph:** <https://www.google.com/search?q=strongylopus+grayii+calphotos.berkeley.edu&thm>



**Species 5. Bangladesh Skittering frog (*Euphlyctis adolfi*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Euphlyctis*

Species: *adolphi*



**Distinguishing characters:** A medium sized aquatic frog with dark olive - brown or blackish with green patches. Under side is white. A white band along the sides and along the rear surface of the thighs. White vertebral line on the back not very common in this species.

**Distribution:** Throughout Bangladesh to Mizoram, Northeastern India and Nepal below 2,500 m elevation; Western Punjab, Pakistan; likely to extend into Rakhine state, Myanmar.

**Habitat :** This species have a habit of floating in open water. When its floats in the water its limbs on the level with the body. It can float very effortlessly even in deep water.

**Species 6. Terai Wart Frog (*Minrevarya teraiensis*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Minrevarya*

Species: *teraiensis*



**Distinguishing Characters:** Pointed snout; nostril is placed at the middle between eye and snout tip. Fingers free with obtusely pointed tips, first finger longer than second; toes half webbed. Dorsum is grey in colour sometime speckled with red, green, some have a thin line on dorsum while some have a broad line from snout to vent and some are without any line. A 'V' shaped band present between eyes, lips with dark vertical bars Ventral side white, in some throat molted with black; W-shaped black pattern on the throat of males.

**Distribution:** Eastern Nepal below 400 m; and in adjacent Sikkim and Northeastern India (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, and Tripura) into adjacent Southeastern and Central Bangladesh.

**Habitat:** Habitant of waterlogged grassland, marshes and agricultural field, males call from the water edges.

**Species 7. Bangladesh Coastal Bullfrog (*Hoplobatrachus litoralis*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Hoplobatrachus*

Species: *litoralis*



**Distinguishing Characters:** *Hoplobatrachus litoralis* is a large frog with a snout-vent length in males of 81.3 - 102.1 mm and of 83.2 - 121.3 mm in females. The head is pointy and longer than it is wide. The tongue tip is forked. There are small bulbous warts on both the dorsal and lateral sides. The fingers are free with rounded fingertips.

**Distribution:** *H. litoralis* is distributed from the Southeastern coast of Bangladesh to Northeast India. It was first recorded in Cox's Bazar in Bangladesh.

**Habitat:** *H. litoralis* is found in coastal marshes, ponds, and wetlands, as well as river edges. They have thus far been found in moist, vegetated habitats. Cox's Bazar is the upper region of the Teknaf-Ukhia peninsula of Bangladesh, which is characterized by hill streams, estuaries adjacent to mountains, and forest.

**Photograph Source:** <https://www.google.com/url?sa=i&url=https%3A%2F%2Findiabiodiversity.org>

**Species 8. Rice field frog (*Fejervarya limnocharis*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Fejervarya*

Species: *limnocharis*



**Distinguishing Characters:** *F. limnocharis* is a species of frog South East Asia. It is known under many common names, including Boie's wart frog, rice field frog, and Asian grass frog. Snout pointed, projecting beyond mouth. Canthus obtuse, loreal oblique, more or less concave.

**Distribution:** A species inhabiting parts of South East Asia and Indo-china.

**Habitat:** Habitats such as rice paddies, forest clearings, parks, gardens and oil palm plantations.

**Photograph Source :** <https://www.google.com/search?q=fejervarya+limnocharis+india+biodiversity&tbm=isch>



**Species 9. Indian skipper frog (*Euphlyctis cyanophlyctis*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Euphlyctis*

Species: *cyanophlyctis*



**Distinguishing Characters:** Fingers are long and pointed; first finger and second finger are equal; toe tips are dilated, toe completely webbed, a small digit like inner metatarsal tubercle is present. Dorsal skin smooth or granulated, in some with tubercles, lateral line is present; a strong supratympanic fold is visible. Greyish or olive green above, with dark patches; limbs with dark large spots, not barred.

**Distribution:** India, Afghanistan, Bhutan, Nepal and Pakistan.

**Habitat:** This frog is aquatic in nature. Found at the edges of ponds and stream and usually prefer still water on which they can float.

**Species 10. Berdmores Chorus Frog (*Microhyla berdmorei*):**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Microhyla*

Species: *berdmorei*



**Distinguishing Characters:** *Microhyla berdmorei* (common names: Berdmore's chorus frog, Berdmore's narrow-mouthed frog, Burmese microhylid frog, large pygmy frog, Pegu rice frog) is a species of narrow-mouthed frog.

**Distribution:** Frog found in India, Bangladesh, southernmost China, Mainland Southeast Asia as well as Borneo and Sumatra. Frogs from Bangladesh probably represent an unnamed species.

**Habitat:** *M. berdmorei* inhabits various types of moist evergreen forest. It is generally associated with hilly regions and often found near streams. Breeding mainly takes place in still pools.

**Photograph Source:** [https://en.wikipedia.org/wiki/Microhyla\\_berdmorei](https://en.wikipedia.org/wiki/Microhyla_berdmorei)

**Species 11. Copes frog (*Hydrophylax leptoglossa*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Hydrophylax*

Species: *leptoglossa*



**Distinguishing Characters:** Head as long as broad and obtusely pointed snout. Tympanum is distinct, flat and circular. Fingers are long and free; first finger is longer than the second; toes moderately webbed; both finger and toe tips are dilated into pear shaped disc. The skin is strongly granulated; throat, chest, belly, thigh and tibia are smooth.

**Distribution:** Assam, Mizoram, Tripura, and Meghalaya (India) and Bangladesh (Mymensingh, Dhaka, Barisal, Chittagong, and Sylhet divisions) to mainland Myanmar (Ayeyarwady, Bago, Chin, Kachin, Kayin, Kayah, Rakhine, Sagaing, Shan, and Yangon), peninsular Myanmar (Mon and Tanintharyi), and adjacent western Thailand (Kanchanaburi, Thong Pa, and Tak provinces).

**Habitat:** Inhabits swamps with thick vegetation; males call from thick vegetation near water body or vegetation mounds of submerged field. The species hibernates from November to February in Bangladesh.

**Photograph Source :** <https://indiabiodiversity.org/species/show/280976>

**Species 12. Common tree frog (*Polypedates leucomystax*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Polypedates*

Species: *leucomystax*



**Distinguishing Characters:** *P. leucomystax* can reach approximately a snout-vent length of 3.7–5.0 centimetres (1.5–2.0 in) in males, of 5.7–7.5 millimetres (0.22–0.30 in) in females. Body of these rather small shrub frogs is moderately slender, ovoid, slightly flattened above, with sharply pointed tail.

**Distribution:** *P. leucomystax* is widely distributed throughout South and Southeast Asia.

**Habitat:** It thrives in both wetlands and forests. In urban settings, *P. leucomystax* can be found in garden, ponds, roads.



**Species 13. Himalayan tree frog (*Polypedates himalayensis*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Rhacophoridae

Genus: *Polypedates*

Species: *himalayensis*



**Distinguishing characters:** Limbs and digits with oblique cross bars. Dorsal surface mostly smooth with strong granulation around vent; a dorso-lateral sharp supra tympanic fold extend from posterior eye to armpit present.

**Distribution:** NorthEast India and West Bengal.

**Habitat:** On bushes, Males call from leaf litter, foam nest amongst leaf litter.

**Photograph Source:** <https://en.m.wikipedia.org>

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**Species 14. Corrugated frog (*Limnonectes laticeps*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Limnonectes*

Species: *laticeps*



**Distinguishing characters:** The body is stout, the hind legs thick and muscular, the snout rounded and the eyes medium in size. The dorsal surface is orange-brown or medium brown with darker mottling, and the underside is pale. Its skin is distinctly corrugated.

**Distribution:** Found in Brunei, India, Indonesia, Malaysia, Myanmar, Thailand, Bangladesh, and Bhutan.

**Habitat:** Its natural habitats are subtropical or tropical moist lowland forests, subtropical or tropical moist montane forests, rivers, and intermittent rivers.

**Photograph Source :** <https://en.wikipedia.org/wiki/Limnonectes>

**Species 15: Small Cricket Frog (*Minervarya syhadrensis*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Dicroglossidae

Genus: *Minervarya*

Species: *syhadrensis*



**Distinguishing characters:** Spindle shaped body. Head is with equal length and width and snout is pointed. Fingers are free and with rounded tips, first finger is as long as the second; toes are more than half webbed. Dorsum is smooth, with few tubercles while ventral surface is uniformly smooth. Dorsally brownish in colour speckled with reddish marbling.

**Distribution:** Long-legged cricket frogs are widely distributed over much of Central Northern India and Western Peninsular India, Bangladesh, Southern Nepal, from lower Punjab to Sindh in Pakistan, and found at elevations below 2,000 metres (6,600 ft).

**Habitat:** Very common in paddy field and shallow waterlogged areas with grasses and other vegetation. Male calls from the edge of water, hiding under grasses or from moist leaf litter.

**Species 16 .Common Green Frog (*Hylarana erythraea*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Ranidae

Genus: *Hylarana*

Species: *erythraea*



**Distinguishing characters :** Male *H. erythraea* grow to a snout-vent length of 30–45 mm (1.2–1.8 in) and females to 50–75 mm (2.0–3.0 in). Tadpoles are up to 36 mm (1.4 in) in length. They have smooth skin that is bright green above and on sides. Tympanum is distinct.

**Distribution:** *H. erythraea* occurs in Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Singapore, Thailand, and Vietnam. Introduced populations are found on Sulawesi and the Philippines. The similar frogs from Northeastern India and adjacent regions, formerly included here, are now separated as *H. tytleri*.

**Habitat:** Its natural habitats are subtropical or tropical moist lowland forests, subtropical or tropical moist montane forests, freshwater lakes, intermittent freshwater lakes, freshwater marshes, intermittent freshwater marshes, rural gardens, heavily degraded former forest, irrigated land, seasonally flooded agricultural land, and introduced vegetation.

**Photograph Source:** [www.thainationalparks.com/species/common-green-frog](http://www.thainationalparks.com/species/common-green-frog)



**Species 17. Pierres wart frog (*Minervarya pierrei*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Ranidae

Genus: *Minervarya*

Species: *pierrei*



**Distinguishing characters:** Head and pointed snout. The tympanum is circular. Fingers are free and obtusely pointed with rounded tips; toes half webbed. Dorsal skin is rough and with elongated tubercles. Dorsal colour is brownish gray, with few irregular oblong spots and frequently with a broad yellow to reddish mid dorsal line; hindlimbs weakly barred. The vocal sac of the males is dark laterally.

**Distribution:** Assam (widely distributed), Arunachal Pradesh, Meghalaya, Nagaland, Manipur, Sikkim, Haryana and Uttarkhand in India.

**Habitat:** Low land forests, grasslands and open areas such as wet paddy and pastures. Retreat in moist and shady places.

**Species 18. Indian tree frog (*Polypedates maculatus*)**

**Taxonomic position:**

Kingdom: Animalia

Phylum: Chordata

Class: Amphibia

Order: Anura

Family: Ranidae

Genus: *Polypedates*

Species: *maculatus*



**Distinguishing characters:** These frogs measure about 7–8 cm in body length. They are mostly brownish, yellowish, greyish, or whitish above, with darker spots or markings, rarely with an hourglass-shaped figure on the back of the head and the front of the back. The skin is smooth above, and granulated on the belly and under the thighs; a fold extends from the eye to the shoulder.

**Distribution:** It is widespread throughout Bhutan, India, Nepal, and Sri Lanka, as well as Western and Southern Bangladesh to Chittagong District; its range might also extend into nearby China and Myanmar.

**Habitat:** Found on damp ground covered by undergrowths or leaf litter in the open areas of forests, without crown canopy but surrounded by trees, paddy fields.

**Photograph Source:** <https://indiabiodiversity.org/species/show/238353>

This rapid assessment of species diversity survey of amphibians in Dhemaji district concludes that most of the reported species in this study belongs to IUCN least concern category.

Most of the reported species here in this study were in habiting various types of microhabitat viz., agricultural land, vegetation and pond ecosystem.

Amphibians being very susceptible to micro-environmental conditions and can be a bio-indicators of an unhealthy ecosystem. Even the species diversity and abundance of amphibians are highly correlated with the rainfall, temperature and altitudinal gradients (Andrew et al., 2005, Sajjan et al., 2017), micro-habitats loss (Sengupta et al., 2010).

In Northeast India the rapid urbanisation and loss of forest is expanding at a rapid rate leading to the loss of probable habitats for many endemic and threatened species of flora and fauna. Thus, the understanding and enumeration of ecosystem health by assessing the amphibian species can be better tool for conservation of habitat and associated species.

Thus, though this current study couldn't generated much of numerical datasets but, a long term future studies can be carried out to understand more species specific research on the amphibian species in Dhemaji district of Assam.

The observations of this study showed the amphibian diversity and richness in and around the study area. This study had generated the baseline data for the amphibian diversity in Dhemaji district of Assam, India. It is the preliminary study on the amphibian faunal diversity of this district but, further study is also required for explore the diversity of anurans in the study area by addition of new amphibians species, habitat study, population estimation, and impact of microhabitat disturbances on community composition and also to find out the severity of the threats to diversity, and also to propose several conservation strategies in the study area.

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