

Degradation of Amphibian breeding habitats due to roads construction in Kokrajhar district, Assam, India

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Abstract: Kokrajhar district is located in the western part of Assam of North East India and lies between 89.46'E to 90.38'E longitude and 29.19'N to 26.54'N latitudes. The district contains various lentic habitats like ponds, temporary rain pools, paddy fields, beels etc. which are active breeding grounds for amphibians. The wetlands which are breeding habitats of amphibians are now fragmented and lost due to some roads construction and some anthropogenic activities. Reconstruction of roads repeatedly in every year inside the district causes the destruction of many amphibians breeding habitats. In this paper, destruction of amphibian breeding habitats due to road construction is highlighted for the conservation of amphibian species.

Keywords: Amphibia, Breeding, Habitats, Degradation, Kokrajhar

INTRODUCTION

Amphibians are known as farmer's friend because of their behaviour as biological insecticides. They are ecological indicator. They are cold blooded animal and their skin is very sensitive of environmental pollution both air and water pollution because of biphasic life cycle. They complete their development stages in water. The time taken for a tadpole from egg and to reach metamorphosis varies from weeks to month and depends upon a number of factors. Water quantity and quality are important factors for their breeding. The Global Amphibian Assessment found that 32.5% of Amphibian species were globally threatened (Stuart, et. al, 2004). Habitat loss, alteration and fragmentation of habitat are the primary causes of amphibian population declines and species extinctions worldwide (Dodd & Smith 2003). The habitat used by all amphibian life history stages – egg, larval, juvenile and adult stages must be protected (Taylor et al. 2006).

Kokrajhar district is located in the western part of Assam of North East India and lies between 89.46'E to 90.38'E longitude and 29.19'N to 26.54'N latitudes. Kokrajhar district is located on the north bank of river Brahmaputra. The district contains various lentic habitats like ponds, temporary rain pools, paddy fields, beels etc. which are active breeding grounds for amphibians.

The population of the district is now 886, 999 in 2011 that is 280 people per sq. km. (Official records of Kokrajhar district Census, 2011). The increasing population of the district day by day and socio – economic scenario changes brings human encroachment in the wetland areas by constructing road, buildings etc. The wetlands which are breeding habitats of amphibians are now fragmented and lost. Construction of four lanes National Highway- 31 through the district causes the destruction of many amphibians breeding sites. Such habitat destruction will bring threats for many amphibian species like declining population, diversity and species extinction etc.

In this paper, destruction of amphibian breeding habitats due to road construction and destruction due to some anthropogenic activities are highlight for the conservation of amphibian species.

MATERIAL AND METHOD

Uperodon globulosus, commonly called balloon frog, is a native species of India and Bangladesh. In India it is found in northern India and North East India. This species was available recorded from Kokrajhar district (Narzary & Bordoloi, 2012). The species was identified by the local people due to its loud crocking during rainy days in summer. Its loud crocking is heard from temporary pools near road sides, paddy fields and wetland areas during rainy days of Apri to August. Due to its loud voice and easy to identify, we are taking the species as a sample species for our study and investigate its availability and current status of its crocking from different parts of the Kokrajhar District.

Various lentic habitats within the geographical limits of the Kokrajhar district were surveyed (from 2015-19) to identify suitable breeding habitats of *Uperodon globulosus* during summer season to know current status of it. Information about crocking and availability of species were collected by self observation and also collected by through interview of local people.

RESULTS AND DISCUSSION

Amphibians breeding habitats:

As our study report, temporary rain pools near road side are mostly preferred by *Uperodon globulosus*. But due to road reconstruction they lost their breeding ground. The four lane construction of National Highway- No.31 affects the breeding ground of this species. Local people inform that after construction of four lanes National Highway they do not hear the croaking of this balloon frog. We also did not heard the loud croaking and not seen the frog from the villages nearby the National Highway. Places we surveyed were Kasugaon, serfanguri, Ramfalbil, Pathgaon, Aalangi, Karigaon from 2015-19.

Habitat destruction due to roads construction or encroachment:

After taking interview of local peoples, we come to know that some frogs and their habitats were destructed due to anthropogenic activities. These were

1. Taking interview of local people it was come to know that road construction never ended in Kokrajhar district. Certain roads were constructed repeatedly every year. Such repeated construction cause disturbance for amphibians which selected temporary pools near road side as habitat for their breeding.
2. Construction of four lanes National Highway-31 through the district is not completed in last 15 years. Many low land areas near road side which were amphibian breeding habitats were fragmented due to Highway construction.
3. Many canals and wetlands nearby roads are fragmented for construction of commercial buildings and markets.

According to official records of P.W.D., Kokrajhar, there are 1092.344 km roads (Highways plus village roads and other public roads) in the district. Many areas of these roads have down land or pools in both sides which are flooded with rain water in rainy season. Breeding activity of amphibian is governed by rainfall (Roy et al. 2004). It was found that most of the amphibians prefer rain pools near road side.

It is very unfortunate that due to construction of four lanes National Highway-31 which is about 65 km, many pools and flooded low land areas have been fragmented from the last more than 15 years. Amphibians have lost their breeding grounds for more than 15 years. This is a serious threat for amphibian species which breed in that area. Not only this, from last 10-15 years, many public or village roads were reconstructed and such construction of roads were not completed in a year. Such roads construction for many years not only effects our economic, it disturbs many animals living near road side like frogs, snakes, lizards, insects etc. For example

Details of projects sanctioned for BTAD during the last three years and the current year under NLCPR, (Rs. in Lakh)

Sl. No.	Name of Project	Date of sanction	Approved cost	Amount realised	Amount utilized
1	Upgradation of NT road through Ramphalbil Bazar to all village roads with conversion of SPT bridges into RCC bridge(International Border Areas)	27-06-2011	764.18	269.71	-
2	Upgradation of Road from NH-31 (C) via Serfanguri, Nepalpara, Athiabari, Eargaon, Thaigiriguri and No.2 Hazarikapara to Kapuragaon	14-12-2011	759.7	269.79	-
3	Conversion of SPT Bridge No. 10/1, 12/3, 14/2 and 16/1 into RCC Bridge on metd. Kokrajhar Bahalpur road	23-09-2013	698.94	251.35	-
4	College of Nursing road at Kokrajhar	17-05-2011	1427.21	517.79	-

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There is no well planning system in road construction in Kokrajhar district. Certain roads are constructed for several years and in certain area, same roads are reconstructed every year. Local people are also not conscious about it. People are not aware about such road construction not only effects our economic, it leads with the ecosystem destruction. We need development, better roads and communication. But if there is no planning or no well planned time-table in roads construction then it not only hamper our socio-economic scenario, it causes large destruction of our ecosystem. Destruction of natural ecosystem cannot be refilled.

This paper only highlight such scenario to aware the people to solve such issues and to save our valuable natural properties through saving amphibians habitats.

REFERENCES:

- Dodd, C.K. and L.L. Smith, 2003. Habitat destruction and alteration. Pages 94-112 in R.D. Semlitsch, editor. Amphibian conservation. Smithsonian Institution Press, Washington, D.C.
- Narzary, J. and S. Bordoloi, 2012. A study on certain common pond breeding Anurans and their tadpoles in a pond of western Assam, India. *I.J.A.B.R.*, 2(2): 342-348.
- Roy, D., A. Choudhury and B. Borah, 2004. Role of weather condition on the daily appearance and advertisement call initiation time of *Polypedates leucomystax* during breeding season. *Zoos' Print J.*, 19(3): 1408-1410.
- Stuart, S.N., J.S. Chanson, N.A. Cox, B.E. Young, A.S.L. Rodrigues, D.L. Fischman and R.W. Waller, 2004. Status and trends of amphibian declines and extinction worldwide. *Science* 306:1783-1786.
- Taylor, B.E., D.E. Scott and J.W. Gibbons, 2006. Catastrophic reproductive failure, terrestrial survival and persistence of the marbled salamander. *Conservation Biology* 20: 792-801.

