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Habitat and microhabitat analysis of *Mabuya multifasciata* in Darrang District of Assam

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Abstract
Darrang district is characterized by the unique habitat sites for reptiles. A study plan was designed by survey method for studying the habitat and microhabitat used by this species in different time slot. 2011-2015 were the study period. Observation and survey were made to study the habitat preference. The study shown a ubiquitous use of habitat selection by the species.

Keywords: habitat, microhabitat, *Mabuya multifasciata*

Introduction

Skinks are the most abundantly found animal in various location. Here we planned a detail study method for this species"s habitat and microhabitat use. The habitat selection of skink is one of the least understood ecological processes (Krebs,2001) [5] due to the complexity of factors involved in it (Fortin *et al*.,2008), that would influence the species assemblages.

The suitability of a particular habitat is supposed to be governed by numerous variables operating at different spatial and temporal scales. Choice of habitat depends on factors such as temperature gradients, food and acquisition and self protection from the predators (Huey,1991; Downes,2001) [4, 2]. In a habitat. microhabitat selection by the species is the further specialization according to the needs of the animals (Compton *et al*.,2002).

Study Area and Methods

Darrang is one of the 33 districts of Assam. It has a rich biodiversity. It is situated in the north bank of the river Brahmaputra. It is situated in 20°9 ′and 26°95′ Latitude and 91°45′ and 92°22′ longitude in the northern hemisphere.

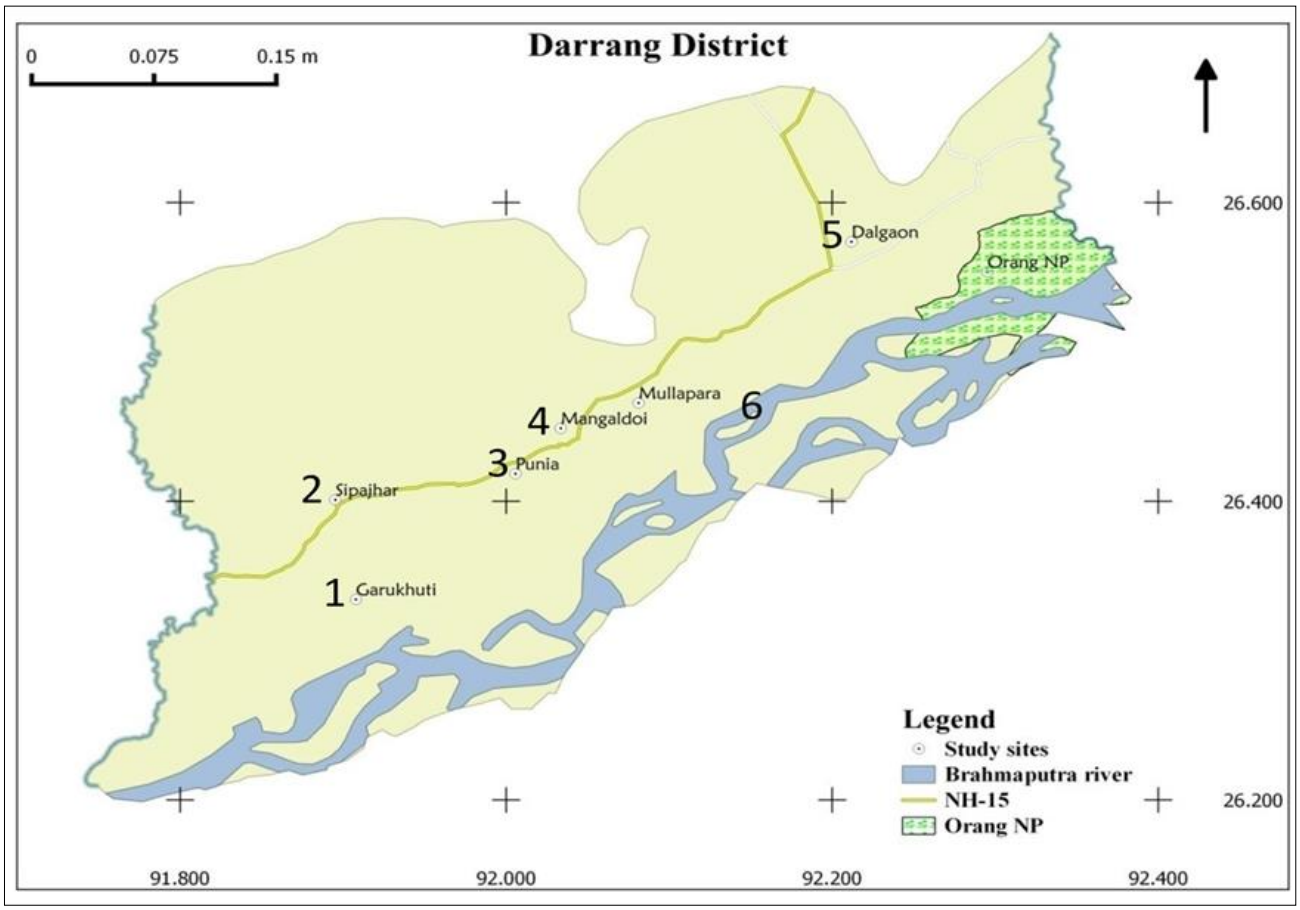

Fig 1

Table 1: Study sites and their geographical co-ordinates in Darrang District

Sl No.	Study sites	Geographical co-ordinates
1	Garukhuti	N 26°20′8.1″ E 91°54′36.08
2	Sipajhar	N 26°24′3.54″ E 91°53′42.72″
3	Punia	N 26°24′53.38″ E 92°0′44.95
4	Mangaldoi	N 26°26′59.37″ E 92°02′03.56″
5	Dalgaoun	N 26°34′27.41 E 92° 12′ 43.17″
6	Mullapara	N 26° 28 ′1.92 E 92 ° 04 ′54.09″

Observation and habitat analysis

Survey

To access the various habitat parameters of *Mabuya multifasciata* in field various individuals of the sites had been encountered. The sites were observed by walking. Whenever the species was sighted, it was noted down with the GPS location. The following methods were displayed.

a. Visual encounter survey (VES)

Because it did not create much disturbance to the species, VES method was used for the survey (Flint & Harris,2005) [3]. Randomized VES was used to study the habitat for *Mabuya multifasciata*.

b. Extensive study

The broad sampling method which was used by taking 100 sq feet area is applicable to the species that are widely dispersed, large bodied or both. Patch sampling is applied when looking for specific target individual of *Mabuya multifasciata* as suspected to be confined to specific microhabitats within a larger habitat (Jaeger, 1994).

Collection of secondary data

Questionnaire was made to the local people mainly based on whether they spotted the individual with activity and frequency of sighting.

Result

Table 2: Habitat and microhabitat types and location of sighting of *Mabuya multifasciata*

Area name	Habitat type	Soil pH	Microhabitat type	Individual sighting	Temperature (°C)	Microhabitat Description
Garukhuti N 26°20′8.1″ E 91°54′36.08″	Shrubs and small trees	6.53 ± 0.92	Ground strata	M = 9 F =11 J = 3 23	26.7 ± 4.41	*Colocasia* spp
			Barks	M = 13 F = 10 J = 5 28	26.16 ± 2.24	*Acacia spp*, *Bombyx* spp, *Terminalia arjuna*
			Fallen leaf	M = 3 F = 8 J =3 14	24.39 ± 1.22	*Bombyx* spp, *Terminalia arjuna*
			Total	65		
Mangaldoi N 26°26′59.37″ E 92°02′03.56″	Backyar d home garden forest	6.21± 0.77	Ground strata	M = 11 F = 13 24	26.38 ± 2.16	*Colocasia* spp, *Acacia* spp, *Poaceae* spp
			Barks	M = 7 F = 5 J = 3 15	28.71 ± 1.54	*Zizyphus* spp, *Rubiaceae* spp, *Phyllanthus* spp, *Psidium* spp
			Fallen leaf	M = 5 F =10 J = 5 20	25.43 ± 1.31	*Terminalia arjuna*, *Shorea robusta*, *Bombyx* spp
			Rocky cervices	M = 7 F =10 17	29.36 ± 1.42	Walls, floor, Bricks etc
			Total	76		
Sipajhar N 26°24′3.54″ E 91°53′42.72″	Paddy field, dry straws	6.7 ± 0.34	Ground strata	M = 29 F = 31 J = 15 75	32 ± 4.41	*Oryza sativa*
Punia N 26°24′53.38″ E 92°0′44.95″	Small trees	6.32 ± 1.32	Ground strata	M = 8 F =11 J = 5 24	28.63 ± 2.38	*Alopecurus* spp, *Spinacia oleracea*, *Areceae* spp, *Poaceae* spp, *Acacia* spp
			Bark	M = 6 F = 9 J = 8 23	30.11 ± 1.65	*Bombyx* spp

			Fallen leaf	19	27.46 ± 1.34	*Bombyx* spp Etc
			Total	66		
Dalgaoun N 26°34′27.41″ E 92° 12′43.17″	Deforested open area	6.31 ± 0.34	Under the rocks on damp places	M = 8 F =12 J = 2 22	24.33 ± 1.48	Damp soil
			Logs	M = 15 F = 15 J = 6 36	28.5 ± 0.51	*Bombyx* spp, *Terminalia arjuna*, *Shorea robusta*
			Total	58		
Hauli Mohanpur Area (Mullapara) N 26° 28′1.92″ E 92 °04′54.09″	Small grassland	6.48 ± 0.78	Groundstrata	M = 16 F = 19 J = 10 45	31.5 ± 0.5	*Poaeceae* spp etc
				Total = 385		

Mabuya multifasciata showed habitat preference for barks of trees and small trees. It was found maximum in the height range of 1.5 to 7m on the barks of arjuna, saal, nahar trees during the study period. The temperature range of the barks of the trees was around 25°C -27°C. The fallen leaf of the trees also makes another favourite microhabitat of this particular species as it was recorded in a big number from this microhabitat. The fallen leaf of big and small trees makes this favourite place for this skink species. The temperature of this microhabitat was recorded in around 24 °C to 27°C (Table 2). The shrubs are the common habitat of this species. The ground strata, barks and fallen leaf of *Acacia* spp, *Bombyx* spp, *Colocasia* spp *Terminalia arjuna* makes the microhabitat of this species (Table 4.2). The temperature range of the damp area under the rocks varies around 22°C which also forms a microhabitat for this species. The rock cervices also form a favourable microhabitat for this specis. The temperature range of this habitat was recorded around 31°C. Logs of trees are also microhabitat of this species. The ground strata of paddy and crash crop fields are another microhabitat type of this species. A total number of 75 individuals were recorded from this place. Temperature was recorded around 32°C.

Discussion

The topography and climatic variable of the Darrang district of Assam has extended an excelent habitat for hosting the ubiquitous presence of the skink *Mabuya multifasciata.* which have been observed during the study period of 2011-2015.

The Sipajhar area of the present study showed the presence of higher number of individuals which includes the paddy field as its habitat. However, in Dalgaon region 22 individuals were recorded from damp places under the rock from deforested open area, 36 were recorded from logs. In Hauli Mohanpur area 45 individuals were recorded from the ground strata of small grasslands. In addition, this species has been found to occur in various microhabitats.

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