A FIELD REPORT ON HABITAT-FAUNAL RELATIONSHIP IN THE RU CAMPUS

Introduction

Habitat refers to an area or natural environment in which an organism or population normally lives. It is made up of physical factors such as soil, moisture, range of temperature, and availability of light as well as biotic factors such as the availability of food and the presence of predators. Fauna refers to animals, which are part of the animal kingdom. The relationship between habitat or ecosystem and fauna is purely ecological. It depends on the way animals are adapted to their environmental pressures on evolutionary bases. However, the aim of the survey is to estimate the group diversity (GD) of animals in relation to their habitat(s).

Materials and Methods

For collecting field data on habitat-faunal relationship in some selected area of the RU Campus, several groups of students, each consisting of 8 to10 members, were assigned by the Course Tutors. Available habitats in the selected sites included: (1) Grassland, (2) Cropland, (3) Shady land, (4) Bush land and (5) Beside a pond. However, grassland habitat was assigned to this group. The following materials were required for collecting faunal samples from the habitats: sweeping net, plastic containers, hand gloves, forceps, sticks and rope, notebook and polythene bags.

Sampling procedure: For collecting faunal samples from a particular habitat, an area of one metre square (1m × 1m) was encircled at random with the help of four sticks and rope. Then by using a sweeping net, animals of the encircled area were trapped and collected carefully in labelled plastic containers. Sometimes, however, tiny or large animals were picked up by forceps and hands. Faunal samples were replicated four times per habitat.

Observations and Results

For estimating the habitat-faunal relationship, the following physiography and features of the grassland habitat were noted/recorded during the survey: (a) Location (3rd Science Building of the RU Campus), (b) vegetation, (c) soil condition (dry, wet, medium etc), (d) temperature and relative humidity (RH%), (e) sunlight/rainfall and (f) wind velocity etc.

Identification of the collected fauna: Soon after collecting the fauna in plastic containers, the specimens were transported to the practical classroom. Then each animal was identified into their taxa up to Orders, and listed in a tabular form as follows:

Table 1 Number of fauna collected from a grassland habitat of RU Campus

Phyla	Classes	Orders	Genera/ EN	Rep 1	Rep 2	Rep 3	Rep 4	Total
Annelida	Polychaeta	...	Earthworm	2	3	3	-	8
Arthropoda	Insecta	Lepidoptera	Butterfly	3	4	3	1	11
		Coleoptera	Beetle	2	-	3	3	8
		Hymenoptera	Ant/Bee	2	-	3	2	7
		Odonata	Dragonfly	3	-	2	-	5
		Diptera	Housefly	-	-	1	-	1
Mollusca	Grastropoda	Nudibranchia	Snail	3	3	2	2	10
Chordata	Amphibia	Anura	Frog	1	2	1	-	4
Total				16	12	18	8	54

Calculation of group diversity (GD): The GD value for each replication was calculated out by using the following formula:

$$GD = \frac{\text{Number of faunal groups (Orders)}}{\sqrt{\text{Total number of fauna}}}$$

Hypothetical grassland data: There were 7, 4, 8 and 4 faunal groups (Orders) in the replication 1, 2, 3 and 4 respectively, where 16, 12, 18 and 8 animals, respectively were recorded. So, the GD value for replication 1 of the surveyed grassland was:

$$\frac{7}{\sqrt{16}} = 1.75.$$

Using the above formula, the GD values of the remaining replications 2, 3 and 4 were calculated as 1.15, 1.89 and 1.41, respectively, from which the average GD was estimated as follows:

$$\text{Average GD} = \frac{\text{Sum of the GD values from all replications}}{\text{Number of replications}}$$

$$= \frac{1.75 + 1.15 + 1.89 + 1.41}{4}$$

$$= 1.55$$

Discussion

It is obvious from the above result on the habitat-faunal relationship that the grassland exhibited a moderate GD value of 1.55. It is therefore anticipated that the calculated GD value of the present survey was related to the physical as well as biotic factors of the habitat. For example, physiography of the habitats, physical factors of the day, season of the year and time of the survey, all influenced the number of animals caught during the sampling.

Conclusion

The present result clearly demonstrated that the abundance and diversity of animals in a particular habitat are closely related. The grassland had a moderate GD value, indicating a poor faunal diversity in such a habitat during the survey. The remaining habitats, however, might have lower or higher GD values which could have been revealed by other groups of students.

References

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