

3. Results and Discussion

During the study period a total of 223 no of specimens from Cachar district and a total of 201 no of specimens from Barpeta district belonging to family Arctiidae and Geometriidae were found (Table 1 a & b). Among those specimens 22 genera of arctiidae (amongst which 3 genera are unidentified) and 37 genera of geometriidae family (amongst which 5 genera are unidentified) were found from Cachar and 24 genera of Arctiidae (amongst which 3 genera are unidentified) and 30 genera of Geometriidae (amongst which 3 genera are unidentified) were found from Barpeta district. This study indicated that the diversity index, species richness and evenness of Arctiidae moth fauna were 3.104, 6.955 and 0.6557 and Geometriidae moth fauna were 3.433, 7.902, 0.8153 respectively in Cachar district (Table 2). The diversity index, species richness and evenness of Arctiidae moth fauna were 3.027, 6.981, 0.6065 and Geometriidae moth fauna were 3.207, 7.37, and 0.7247 respectively in Barpeta district. The Fig.1, Fig2 and Fig3 shows the comparative diversity index, evenness and species richness of Arctiidae and Geometriidae moth family of Cachar and Barpeta district respectively.

The biodiversity (diversity index, species richness and evenness) of moth fauna in Cachar district is more than Barpeta district as Barpeta is a flood plain area so Cachar has rich vegetation than Barpeta district as vegetation plays an important role for the existence of insect fauna in a community as it provides the main source of food etc.

4. Acknowledgement

Sincere thanks are due to the department of Ecology and Environment Science, Assam University, Silchar giving the opportunity to study on moth diversity. The authors are highly grateful to the D.F. O of Silchar and Barpeta district for permission to use the research base in forest and adjoining areas of both the districts. Special thanks also to the staffs of various ranges of forest department who helped during the survey period in various ways.

References

[1] Axmacher, J.C., Holtmann, G., Scheuermann, L., Brehm, G., Müller-Hohenstein, K. & Fiedler, K. (2004) Diversity of geometrid moths (Lepidoptera: Geometridae) along an Afrotropical elevational rainforest transect. *Diversity and Distributions*, **10**, 293–302.

[2] Beck, J., Schulze, C.H., Linsenmair, K.E. & Fiedler, K. (2002) From forest to farmland: diversity of geometrid moths along two habitat gradients on Borneo. *Journal of Tropical Ecology*, **17**, 33–51.

[3] Bell, T. R. D. and F. B. Scot, 1937. Fauna of British India including Ceylon and Burma. Moths. Vol. V. Sphingidae. Taylor and Francis Ltd. London. Bell, T. R. D., 1919. The common butterflies of the plains of India (including those met within the hill stations of the Bombay Presidency). *J. Bomb. Nat. Hist. Soc.*, 26(2): 438-487; 26(3): 750-764; 26(4): 941-954.

[4] Bingham, C. T., 1905. The Fauna of British-India

including Ceylon and Burma. Butterflies. Vols. I and II. Taylor and Francis Ltd. London. Bingham, C. T., 1907. The Fauna of British-India including Ceylon and Burma. Butterflies. Vols. I and II. Taylor and Francis Ltd. London. *Biogeography* 33: 108-120.

[5] Brehm, G., Homeier, J. & Fiedler, K. (2003a) Beta diversity of geometrid moths (Lepidoptera: Geometridae) in an Andean montane rainforest. *Diversity and Distributions*, **9**, 351–366.

[6] Brehm, G., Süssenbach, D. & Fiedler, K. (2003b) Unique elevational diversity patterns of geometrid moths in an Andean montane rainforest. *Ecography*, **26**, 356–366.

[7] Daniel, F., 1965. Österreichische Entomologische Iran-Afghanistan-Expeditionen Beiträge zur Lepidopteren fauna. *Zeits. Wein. Ent. Ges.*, 50 (9-10): 121-145.

[8] De Niceville, L. and G. F. L. Marshall, 1886. The Butterflies of India, Burma and Ceylon. Vol. II. Calcutta Central Press Co. Ltd., Calcutta India.

[9] Dennis, R. L. H. 1993. Butterflies and Climate Change. *Ecological assembly rules: perspectives, advances, retreats*. Cambridge University Press, London, UK *Ecology* 22: 155-166.

[10] Elbert, G., 1969. Afghanistan bombyces and sphinges. (Sphingidae: Lepidoptera). *Lich. Mus. Tierh. Dresden*, 12(5): 37-63. Entomological Society. London: Academic Press.

[11] Hampson, G. F., 1894. The fauna of British India including Ceylon and Burma. Moths. Vols. I-V, London.

[12] Harrington, R. and Stork, N. E. (Eds) 1995. Insects in a Changing Environment. 17th Symposium of the Royal Entomological Society.

[13] Heppner, J.B. 1991. Faunal regions and the diversity of Lepidoptera. *Tropical Lepidoptera* 2: 1-85.

[14] Holloway, J.D. & Intachat, J. (2003) Aspects of the diversity of Geometridae (Lepidoptera) in Pasoh Forest Reserve. *Pasoh: ecology of a lowland rain forest in Southeast Asia* (ed. by T. Okuda, N. Manokaran, Y. Matsumoto, K. Niyama, S.C. Thomas and P.S. Ashton), pp. 292–313. Springer, Tokyo.

[15] Holloway, J.D. 2001. The moths of Borneo: family Arctiidae, subfamily Lithosiinae. *Malayan Nat. J.* 55: 279-486.

[16] Mani, M. S., 1986. Butterflies of the Himalaya. Oxford and IBH Co., New Delhi, India, 181 p.

[17] Margalef, R., 1958. Temporal succession and spatial heterogeneity in phytoplankton. In: *Perspectives in Marine biology*, Buzzati-Traverso (ed.), Univ. Calif. Press, Berkeley, pp. 323-347.

[18] Pielou, E. C., 1966. The measurement of diversity in different types of biological collections. *J. Theoret. Biol.*, 13: 131-144.

[19] Rosenberg, David, Danks, H.V. and Lehmkuhi, Dennis. M.C. (1986) importance of insects in Environmental Impact Assessment. *Environmental Management*, 10 (5) pp. 773-783.

[20] Shannon, C. E. and W. Wiener, 1949. The mathematical theory of communication. Urbana, University of Illinois Press, 177 p.

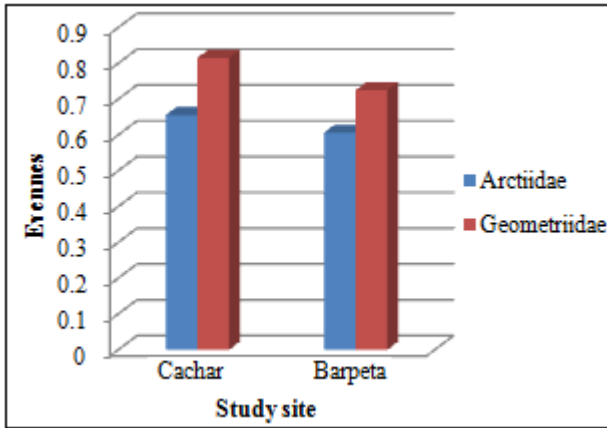


Figure 2: Graph showing Evenness of Arctiidae and Geometriidae moth fauna of Cachar and Barpeta district.

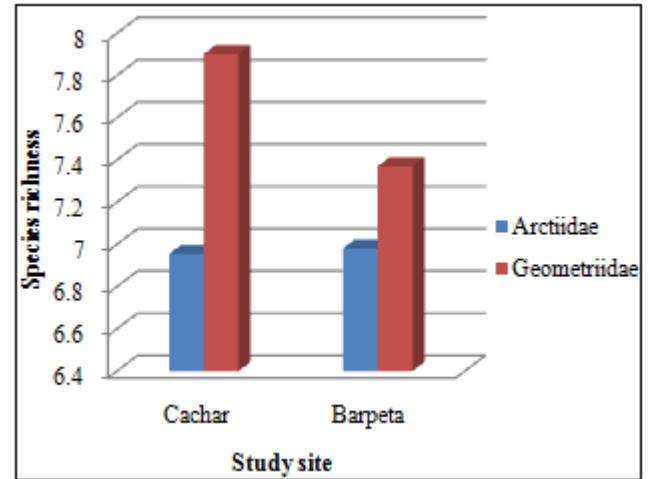
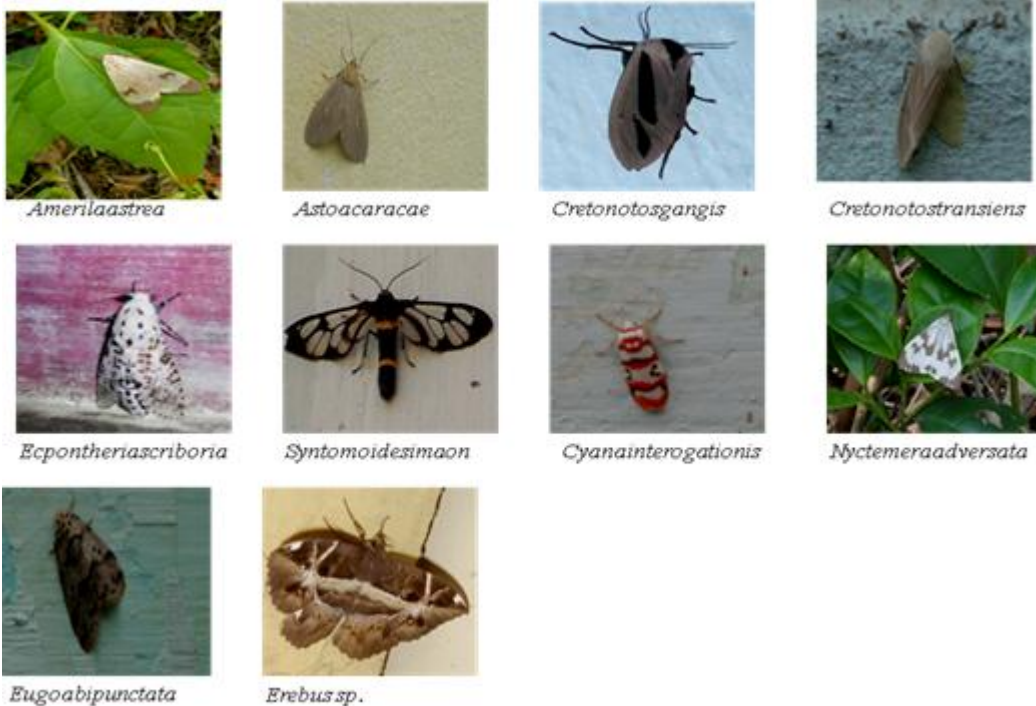


Figure 3: Graph showing Species richness of Arctiidae and Geometriidae moth fauna of Cachar and Barpeta district.

Arctiidae moths



Geometrid moth





Dyspteris arbovaria



Emerald sp.

