

# Ecology of *Bombylius* major species *Systoechus solitus* in Pattan region of District Baramulla, Kashmir

Yattoo Yasir Irfan

Department of Zoology, Government Vidarbha Institute of science & Humanities, Amravati, India  
Email: Yasirirfanyattoo@gmail.com

**Abstract:** The paper reviews briefly the presently available information on bee-flies and their role in the pollination of flowers. Field work concentrated on factors affecting frequencies of bee-flies. The results indicate that the significance of bee-flies in pollination is commonly undervalued. The activity of the bee-flies depends strongly on weather conditions. Low flight activity was recorded in shade and preferred open habitats. The highest appearance was found in the month of August

**Keywords—** Diptera , Bombyliidae , appearance, pollination

## I. INTRODUCTION

Insects play a critical role in ecosystem function. Insects cycle nutrients, pollinate plants, disperse seeds, maintain soil structure and fertility, control populations of other organisms and are themselves a major food source for other taxa Majer (1987). There is a vast diversity of insects in India. Roonwal (1989) has estimated that insects constitute 2/3 of the total fauna in India and comprise nearly 1, 00, 000 species, of which about half remain yet to be studied.

Bee-flies are easily recognized from a combination of a stout furry body, long proboscis, wings with a clear black stripe along the leading edge, and their hovering flight. They are true flies, but get their name from a superficial resemblance to bumblebees. Though it is well known that bee-flies (Bombyliidae, Diptera) visit flowers and collect nectar, information on their significance for pollination is still scanty as compared to other insect groups such as bees, butterflies or moths. Apart from the pioneering studies of KNOLL(1921) investigations on the physiological abilities of bee-flies such as colour or form perception are largely lacking. Also little is known about their life and reproduction biology. Bee flies as an insect group living entirely on nectar and thus on flowers, having well-marked properties in flower recognition (colour and scent perception) may have played a more significant role in the co-evolution of flowers and insects.

In the present study an attempt is made to summarize the available information on bee-flies and their seasonal occurrence, flight times, daytime activity, correlation of activity with external factors and their role and significance in the pollination of flowers.

## I. MATERIALS AND METHODS

## Study area

Pattan is located at 34°17' North and 74°57' East at an elevation of 1553 metres nearly in the centre of valley. The area is composed of hillocks that support and balance the ecology and environment. The area is mostly covered by karewa beds. Trees like Chinar, Poplar, Willow, Nettle, Elm, Mulberry and Mesquite are common to this area. Apple trees, paddy and maize cultivation are rich source of cultivation of this area. These trees are great asset to this area as they add to aesthetic charm, fight vehicular pollution, act as green lungs and do carbon sequestration.

## Sampling

The study was carried out from July to September 2022. The species was mainly found in local gardens. Random sampling were undertaken to record the patterns of bee-flies community assemblages in both floral and characteristic vegetation zones

## II. RESULTS AND DISCUSSION

In the present study a single species of bee-flies *Systoechus solitus* Walker, 1849 was recorded. The species was found visible from the month of June onwards. The highest appearance was found in the month of August. The species was found active only in sunshine, and are rarely seen before late morning. The species is a frequent visitor to gardens. The species was directly related to the availability of flowering plants and temperature. It was recorded that the appearance increased with the increase in temperature and flowering stages of plants. Maximum number of insects appear during the rainy season and minimum during the winter season have been observed by Tewari & Kaushal (2007). The decrease in insect abundance has been attributed to the absence of flowering stages of the plants. Similar association appears to exist in the present study, as shown by the absence of flowering stage of the plants concomitant with a decline in the hymenopteran species during winter (Frith & Frith 1985). In general, vegetation is the main substrate for founding social bee-flies. Therefore, rich vegetation in the Pattan region appears to favour bee-fly diversity, in addition, diversified feeding habitats and their ability to adopt in changing environmental conditions and availability of wide range of hosts might be other factors responsible for their abundance in the area of Pattan.



Figure 2. *Systoechus solitus*.

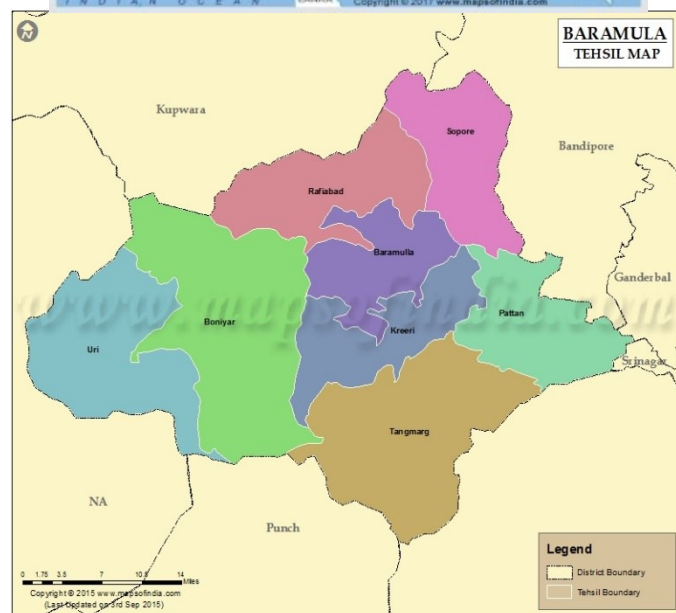


Figure 1. Location of study site.

REFERENCES

- [1] Majer JD. (1987). The conservation and study of invertebrates in remnants of native vegetation., In: Saunders DA, Arnold GW, Burbridge AA, and Hopkins AJM (eds). Nature Conservation: The Role of Remnants of Native Vegetation. Surrey Beatty and Sons, Sydney. 333-335.
- [2] Roonwal ML. (1989). The importance of insect taxonomy in India. Hexapoda, 1: 1-2.
- [3] KNOLL F. (1921). *Bombylius fuliginosus* und die Farbe der Blumen. Abh. K. and K. Zool. Bot Ges. 12: 17-19
- [4] Tewari M, and Kaushal BR. (2007). Density, diversity and herbivory of aboveground insects in a grassland community of central Himalayan Terai region, Tropical Ecol. 48(1): 71-78.
- [5] Frith CB, and Frith DW. (1985). Seasonality of insect abundance in an Australian upland tropical rainforest. Austr J Ecol. 10: 237-248.

III. CONCLUSION

Although the number of the species of bee-fly were minimum in the present study, further studies involving observations throughout the year would be necessary in order to get comprehensive information. However, the present study forms a good basis to take up necessary precaution and measures to conserve the insect diversity in the area.

Figure 1. Location of study site.