Ann. Entomol., 40(2): 121-127 (2022)
DocID: https://connectjournals.com/01462.2022.40.121 ISSN 0970-3721

SPECIES DIVERSITY OF GENUS *XYLOCOPA* (LARGE CARPENTER BEE) (INSECTA: HYMENOPTERA: APOIDEA) AND THEIR FLORAL RESOURCES IN DISTRICT DEHRADUN UTTARAKHAND, INDIA

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KEY WORDS
Diversity
Floral resources
Hymenoptera
Large carpenter bee
Xylocopa

ABSTRACT The genus *Xylocopa* Latreille, 1802, is represented by more than 750 species worldwide, including a total of 45 species from India, of which 18 species are present in the Indian Himalayas. During current studies, five species of Genus *Xylocopa*, that is, *Xylocopa tenuiscapa*, *Xylocopa fenestrata*, *Xylocopa nasalis*, *Xylocopa dejeanii*, and *Xylocopa pubescens* were recorded from district Dehradun, Uttarakhand, India during 2020–2022. The species *X. pubescens* has been reported from the state of Uttarakhand for the 1st time.

How to cite this article: Sharma, S., Sharma, G., Joshi, N. 2022. Species diversity of genus *Xylocopa* (large carpenter bee) (insecta: hymenoptera: *Apoidea*) and their floral resources in district Dehradun, Uttarakhand, India. *Ann. Entomol.* **40**, 121–127.

INTRODUCTION

The species of the genus *Xylocopa* is known as giant carpenter bees that belong to the tribe Xylocopini of the subfamily Xylocopinae and family Apidae. Recently, the giant carpenter bees are grouped in a single genus, *Xylocopa*, which comprises about 750 species worldwide (Michener, 2007) and 45 species of *Xylocopa* reported from India (Gupta and Yanega, 2003). The giant carpenter bees are distributed in tropical and subtropical habitats worldwide and occasionally in temperate areas. These bees are large and robust pollinators of native crops and plants in agriculture (Raju and Rao, 2006). As per their name, carpenter bees dig or construct their nest in the wood on soft and hollow plants like Bamboo, while some species build nests on hardwood and timbers. This study is based on the diversity of giant carpenter bees in District Dehradun and their foraging behavior concerning the region's habitats and food preferences. These bees commonly occur in the hilly area as "Bhaur," "Bhanvra," or "Kala-Bhoond." The foraging activities of insects, especially the hungry ones, are

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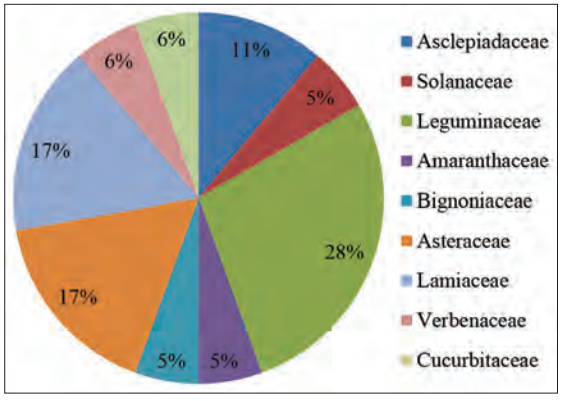

Figure 4: Diversity of plant families of the study area.

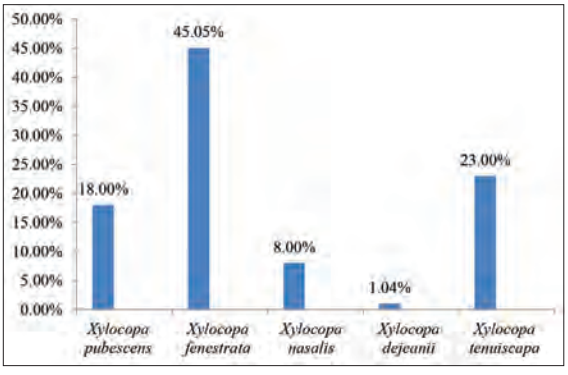

Figure 5: Relative abundance (%) of different species of Xylocopa genus recorded.

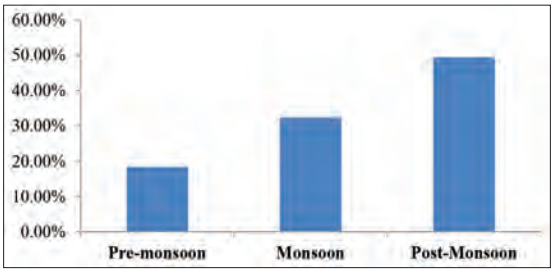

Figure 6: Relative abundance (%) of Xylocopa sp. during different seasons.

pupal stage. While before the arrival of the monsoon season, the diversity was recorded in fewer numbers (Figure 6).

The Carpenter bees and plants both are mutualistic species. As a result, *Xylocopa* are essential for maintaining the genetic diversity of many terrestrial ecosystems; in return, plants provide them shelter and food. Hence, their conservation is required for a healthy and sustainable ecosystem.

CONCLUSION

The use of chemical pesticides and herbicides in the agricultural ecosystem, habitat loss, habitat fragmentation, forest fire, climate change and anthropogenic pressure are the major threats to these important pollinators. Without bees, the existence of life can not be possible on this planet. Xylocopa spp. are important for the maintenance of diversity in many terrestrial ecosystems. Their conservation is required for a healthy and sustainable ecosystem.

ACKNOWLEDGMENTS

The first author is thankful to all colleagues from ZSI, NRC, Dehradun, and Wild Life Institute of India for helping collect and compile field data. The authors thank the Director of The Zoological Survey of India, Kolkata, for providing the necessary facilities. The authors are also thankful to Dr Jagdish Saini, Assistant Professor at the University of Allahabad, Department of Zoology, for the help in the identification of bee species.

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Received: 19 Nov 2022; Accepted: 27 Dec 2022