



Tropentag, September 16-18, 2015, Berlin, Germany

“Management of land use systems for enhanced food security:
conflicts, controversies and resolutions”

Effect of Landscape Composition on Native Bee Communities (Apoidea) of an Oak-Pine Forest and Agricultural Land Mosaic of Sacatepéquez and Chimaltenango, Guatemala

NATALIA ESCOBEDO KENEFIC, MARÍA JOSÉ DARDÓN PERALTA, JESSICA ESMERALDA LÓPEZ,
OSCAR MARTÍNEZ, EDSON EDUARDO CARDONA VALENZUELA

San Carlos University of Guatemala, Center for Conservationist Studies (CECON), Guatemala

Abstract

In this study we raised a comparison among three landscape categories (continuous forest, fragmented forest and agricultural or farming areas) in Sacatepéquez and Chimaltenango, Guatemala; defined on the basis of their degree of fragmentation and types of land use, during the dry and rainy seasons of 2012. We sought to determine patterns of bee diversity variation among the three landscape categories, and identify changes in community composition. The results point towards two general situations: (1) Difference in bee diversity was observed in different types of vegetation, this being highest at sites corresponding to the fragmented forest category. This category has a greater heterogeneity in landscape configuration, composed of fragmented forest and agricultural areas. In addition, the continuous forest category had higher abundance of individuals, both in the dry and rainy seasons. This last can be explained by the presence of social bees, which are usually associated with forest areas. (2) Regarding the composition of bee communities, some degree of clustering of the sampling sites was observed, but it seems to respond to geographical closeness among them rather than to differences in land use.

Aside from assessing native bee diversity and composition, we recorded the frequency of floral visits made by bees to different botanical families. The most frequently visited botanical families were Asteraceae, Solanaceae, Brassicaceae and Fabaceae. Based on the results, we highly recommend the protection of forest remnants, both fragmented and continuous, in order to preserve pollination services given by native bees to natural and agricultural systems in the study area.

Keywords: Agricultural land, bees, landscape ecology, pollinating insects