Efectos de la estructura del paisaje y de la vegetación en la diversidad de murciélagos filostómidos (Chiroptera: Phyllostomidae) de Oaxaca, México

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Abstract: Effects of landscape and vegetation structure on the diversity of phyllostomid bats (Chiroptera: Phyllostomidae) in Oaxaca, Mexico. The tropical forest fragmentation is known to affect the spatial structure of the landscape and habitat. These alterations can modify the attributes of bat assemblages, however, this phenomenon has been little studied and understood. In this work we evaluated the structure of landscape (i.e. composition and configuration) and vegetation, and its relationship with assemblage- and population-level characteristics of phyllostomid bats in a tropical rainforest of Southeastern Mexico. For this, we previously selected 12 sites located in continuous and fragmented forests, where bats were captured using mist nets during a two years sampling effort (144 nights). Bats relative abundance, species richness (diversity of order 0, ^{0}D), Shannon diversity index (^{1}D) and Simpson index (^{2}D) were evaluated in all sites, and their relationship with seven measures of landscape structure and seven measures of vegetation structure was described using a Hierarchical Partitioning Analysis. A total of 1 840 individuals of 29 species of phyllostomid bats were captured in this period. Differences in the assemblages were manifested only in the relative abundance and not in the richness of the species. The assemblages of fragmented forest exhibited greater variation in species composition and a greater abundance of frugivorous and nectarivorous bats in comparison with the assemblages of continuous forest. The landscape configuration was related to the assemblage- and population-level attributes, contrasting with previous studies where the composition was a key element. At habitat level, tree density and canopy cover determined the abundance of bats. Nectarivorous and frugivorous bats were mostly found in disturbed vegetation landscapes, primarily due to landscape configuration (e.g. edge density). This phenomenon could be a response to the availability of food in primary and intermediate successional stages, which are characterized by an abundance of food value. Rev. Biol. Trop. 62 (1): 217-239. Epub 2014 March 01.

Key words: Mexico, Neotropical bats, landscape configuration, Los Chimalapas, spatial scale.

Las transformaciones que han sufrido los ecosistemas naturales en el último siglo han sido dramáticas, en gran medida por la expansión de las poblaciones humanas en busca de nuevas zonas habitables y recursos naturales (Erlich & Wilson 1991; Vitousek et al. 1997). Estas transformaciones se han manifestado como pérdida y fragmentación de extensas regiones de vegetación nativa (Vitousek et al. 1997). La fragmentación se define como la transformación de un hábitat de gran tamaño en numerosos fragmentos de área menor, aislados por una matriz de hábitat distinto al original (Wilcove et al. 1986; Andrén 1994) y es considerado un proceso de degradación ambiental humana-inducida a escala de paisaje (McGarigal & Cushman 2002; Haila 2002). Se ha observado que taxa distintos responden de manera diferencial a la fragmentación del hábitat (Fahrig 2003). La descripción de las consecuencias de este fenómeno en murciélagos han sido cualitativos y poco claros (Fenton et al. 1992; Estrada et al. 1993, Cosson et al. 1999; Medellín et al. 2000), en gran medida porque