

Seed dispersal by fruit bats in Colombia generates ecosystem services

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Abstract

When fruit bats forage, they serve an important ecological function, such as seed dispersal. Although several authors have approached the significance of bats in generating ecosystem services, there is a gap in understanding the importance of the seed dispersal by fruit bats for ecosystems and society. To fill this gap, we considered different components, such as ecosystem service drivers, functional ecosystem services, structural ecosystem services, and ecosystem services to humans. By taking two agroecosystems from the Colombian Andean region (mixed crops and extensive livestock) as the study cases, the following methodological approach was applied: (i) sampling of frugivorous bats (driver) present in the agroecosystems; (ii) identification of plants dispersed by bats (functional ecosystem services) in each agroecosystem; (iii) identification of the uses given to the plants spread (ecosystem services to humans). Finally, the plants spread by bats were considered drivers for soil fertility as well. In line of this, this research is the first in proposing a “causality chain approach” regarding the generation of ecosystem services by focusing on bat-dispersed plants. The research highlights that the diversity in frugivorous bats, the plants spread by bats, and the number of uses made of these plants were higher in mixed crops.

Keywords

Functional diversity, Farms, Driver, Mixed crops, Livestock