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Species richness matters for the quality of ecosystem services: a test using seed dispersal by frugivorous birds

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Abstract

The positive link between biodiversity and ecosystem functioning is a current paradigm in ecological science. However, little is known of how different attributes of species assemblages condition the quality of many services in real ecosystems affected by human impact. We explore the links between the attributes of a frugivore assemblage and the quantitative and qualitative components of its derived ecosystem service, seed dispersal, along a landscape-scale gradient of anthropogenic forest loss. Both the number and the richness of seeds being dispersed were positively related to frugivore abundance and richness. Seed dispersal quality, determined by the fine-scale spatial patterns of seed deposition, mostly depended on frugivore richness. In fact, richness was the only attribute of the frugivore assemblage affecting the probability of seed dispersal into deforested areas of the landscape. The positive relationships between frugivore richness *per se* (i.e. independent of frugivore abundance and composition) and all components of seed dispersal suggest the existence of functional complementarity and/or facilitation between frugivores. These links also point to the whole assemblage of frugivores as a conservation target, if we aim to preserve a complete seed dispersal service and, hence, the potential for vegetation regeneration and recovery, in human-impacted landscapes.

biodiversity–ecosystem function **functional complementarity** **habitat loss**
seed rain **species richness** ***Turdus* spp.**

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