Mutualisms: drivers, and in turn victims, of biological invasions

Anna Traveset*†[1]

[1]Mediterranean Institute of Advanced Studies (CSIC-UIB) – Spain

Abstract

Mutualistic interactions play an important role maintaining biodiversity, structuring ecosystems and mediating their functioning. Such positive interations, however, have begun to receive much attention relative to negative ones (e.g. competition, predation) only in the last decade. The persistence of many mutualisms is increasingly threatened by different drivers of global change, with still unknown ecological and evolutionary consequences. Particularly, the impacts of alien invasive species on native mutualisms are still poorly documented, although the data available so far indicate that they may be highly relevant, often leading to population declines, reduced biodiversity, and altered ecosystem functioning. In turn, positive interactions enhance the invasion of many alien species. In my talk, I will go through the different mechanisms whereby mutualisms mediate invasions and are in turn influenced by invasions. I will focus on two main types of mutualisms (pollination and seed dispersal) and draw on examples mostly from Mediterranean ecosystems, and from both species and community - level studies, that show the possible demographic and genetic impacts of alien invasive species on native ones as well as the relevance of incorporating positive interactions in the study of biological invasions. I will also show how ecological networks provide a useful framework for predicting tipping points for community collapse in response to invasions and other synergistic drivers of global change.

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*Speaker

†Corresponding author: atraveset@imedea.uib-csic.es