Biological invaders in food webs

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Abstract

Properties of food webs, such as their topology, stability and resilience to perturbation, have been central subjects in ecology for more than half a century. Because the obtention of good data has been particularly challenging, this research area has progressed relatively slowly. On the other hand biological invasions and their impacts have been extremely popular objects of study in the same period, and we are now in posession of an abundant litterature on this subject; often, these impacts are described in terms of trophic interactions but a true food web perspective is rarely adopted. The aim of the COREIDS group has been to review the available, somewhat scattered, information available to get a synthetic view of the impact of biological invasions on food webs. We will discuss the available theoretical and empirical arguments that allow to predict the local impacts of invasive species on its direct or indirect interactors in a recipient food web, as well as possible large-scale changes in structure or topology of food webs, and potential consequences on management policies. These arguments may be useful to orient future investigations that will doubtlessly flourish in a near future, owing to the rapid development of molecular methods that allow reserachers to study communities and trophic links with unprecedented power and cost-effectiveness.

Keywords: food web, biological invasion, trophic cascade, apparent competition, trophic links, interaction networks

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