

## 基于过程的群落生态学理论框架

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## A process-based theoretical framework for community ecology

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摘要

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**摘要** 如何解释群落的物种多样性是群落生态学的核心问题之一, 贯穿于群落生态学的整个发展过程, 至今仍未得到圆满解决。与这个问题有关的理论层出不穷, 使得群落生态学研究产生了很多混乱, 这种状况促使一些生态学家开始反思群落生态学是否一定要从群落结构出发? 最近, 一个新的、基于过程的理论框架为群落生态学提供了更有前景的发展方向。该理论框架认为群落的形成只包含了选择、漂变、成种和扩散这四个过程, 不同的群落中四个过程的相对重要性不同, 而各种群落生态学理论间的差别就在于强调了不同的过程。本文在介绍该理论框架的基础上, 分析了已有的用于解释局域群落多样性的理论所包含的过程。其中, 与生态位有关的理论主要强调了平衡选择的过程; 局域与区域过程共同作用理论强调了成种、扩散和选择的过程; 而与生态漂变有关的理论则强调了漂变、成种和扩散的过程, 但忽略了选择作用。在这个理论框架下, 这些理论本身及其相互之间的关系显得更加清晰。

**关键词:** 选择 漂变 成种 扩散 群落多样性

**Abstract:** Understanding what maintains species diversity in a community is a central challenge in community ecology. However, consistent answers to this very question are not yet available. This dilemma has led some ecologists to call community ecology “a mess” and to rethink whether it is appropriate for community ecology to move only unidirectionally from patterns to processes. A new and promising theoretical framework is proposed. According to this new framework, there are four basic processes possible in a community: selection, drift, speciation, and dispersal. The relative importance of these four processes varies among communities. All current theories can be readily incorporated into this framework, because they individually consider a subset of the four processes. In this study we give a brief introduction to this process-based theoretical framework and use it to analyze the processes underlying existing community theories relating to niche, local and regional interactions, and ecological drift. Niche theory only considers balancing selection, whereas theories of local and regional interactions emphasize the role of speciation and dispersal, besides selection. Theories incorporating ecological drift focus on drift, dispersal and speciation but discount selection. We are confident that this new framework provides new insights that will help to integrate existing community theories.

**Keywords:** selection drift speciation dispersal community diversity

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