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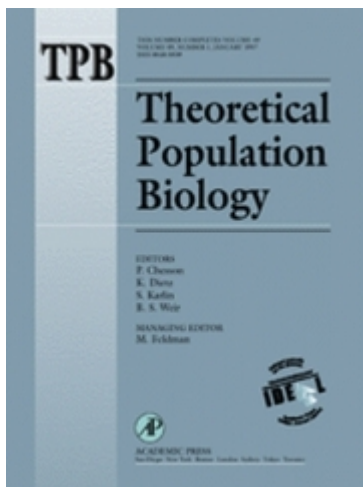
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PUBLICATION

Article
Biodiversity
Climate
Global Environment

The Risk of Competitive Exclusion During Evolutionary Branching

EFFECTS OF RESOURCE VARIABILITY, CORRELATION AND AUTOCORRELATION



[1]

Evolutionary branching has been suggested as a mechanism to explain ecological speciation processes. In this article the authors use a mechanistic ecological model to examine the influence of demographic stochasticity and environmental fluctuations on the branching process.

The model consists of one or two consumer populations feeding from two resource species. Environmental fluctuations are built into the model as fluctuations of the intrinsic growth rate of the resource species.

The authors present a single comprehensible analytical result, which summarizes most effects of environmental fluctuations on evolutionary branching driven by resource competition. Confirming earlier findings, branching may be delayed or even impeded if the underlying resources have uncorrelated or negatively correlated responses to environmental fluctuations. In addition, impeded branching of the consumer species is also found for positive environmental autocorrelation, e.g. a common external factor like

temperature affects both resources in the same way. This can be related to results from recent experiments on adaptive radiation in bacterial microcosms.

Moreover, the authors find that environmental fluctuations can lead to cycles of repeated branching and extinction of the species.

This research was supported by the Swedish Research council.

The [article](#) [2] can be ordered for \$31.50.

Main Link

Journal Article: The Risk of Competitive Exclusion During Evolutionary Branching

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Acknowledgments

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[2] <https://www.sciencedirect.com/science/article/pii/S0040580909001233>