

PRICE, P. W. 2002. *Macroevolutionary Theory on Macroecological Patterns*. Cambridge Univ. Press; New York, NY. x + 291 pp. ISBN 0-521-52037-1. Paperback. \$30.00. ISBN 0-521-81712-9. Hardback. \$85.00.

The familiar metaphor of the “evolutionary play on the ecological stage” is turned askew in this provocative book by Peter Price who stresses the importance of the emergent properties of adaptations that in turn influence the abundance and distribution of plants and animals. At the center of his argument is the “Phylogenetic Constraints Hypothesis”, such a constraint being “. . . a critical plesiomorphic character, or set of characters, common to a major taxon, that limits the major adaptive developments in a lineage and thus the ecological options for the taxon.” The emphasis here is on macro phenomena, “higher” taxa and “major” suites of adaptation, which leads to unusually powerful comparative experiments with large samples of multiple species.

The best-developed example of his approach is his consideration of population dynamics in sawflies. The observation he addresses is straightforward: Why do some herbivorous sawfly species periodically “explode” and become defoliating pests, while others are rather uncommon species with relatively stable populations? Price argues that these differences in dynamics are emergent effects of adaptations for locating larval feeding sites. In the case of rarer species (Tenthredinidae), females have competed for access to optimal oviposition sites, this has led to specialization, low fecundity, and because such sites are rare, ultimately low population numbers. In diprionid spe-

cies where females are less discriminating and much the responsibility for feeding site choice is left to larvae there has been selection for larval mobility, high fecundity, and generalized host preferences. Sub-optimal feeding sites can be relatively abundant and under the right conditions generalist sawfly numbers can skyrocket. Thus divergent oviposition adaptations in the two families, and their resulting phylogenetic constraints, ultimately underlie different degrees of population stability and potential abundance.

I have always enjoyed the work of Peter Price, who has struck me as a “theoretical naturalist”, someone whose inspiration comes from loving observations made in the field. This book is no exception, and the somewhat daunting title should not discourage other insect natural historians from picking it up. There is a good deal of interesting insect lore and a lot of stimulating thought on topics ranging from the importance of parasitoids to population regulation to the intellectual condition of contemporary Ecology. I had a macro-good time with the book.

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