

Evolutionary Conservation Biology



As anthropogenic environmental changes spread and intensify across the planet, conservation biologists have to analyze dynamics on large spatial and temporal scales. Ecological and evolutionary processes are then closely intertwined. In particular, evolutionary responses to anthropogenic environmental change can be so fast and pronounced that conservation biology can no longer afford to ignore them. To tackle this challenge, currently disparate areas of conservation biology ought to be integrated into a unified framework. Bringing together conservation genetics, demography, and ecology, this book introduces evolutionary conservation biology as an integrative approach to managing species in conjunction with ecological interactions and evolutionary processes. Which characteristics of species and which features of environmental change foster or hinder evolutionary responses in ecological systems? How do such responses affect population viability, community dynamics, and ecosystem functioning? Under which conditions will evolutionary responses ameliorate, rather than worsen, the impact of environmental change? This book shows that the grand challenge for evolutionary conservation biology is to identify strategies for managing genetic and ecological conditions such as ensuring the continued operation of favorable evolutionary processes in natural systems embedded in a rapidly changing world.

Régis Ferrière is Professor of Mathematical Ecology in the Department of Ecology at the Ecole Normale Supérieure, Paris, France, and Associate Professor of Evolutionary Ecology in the Department of Ecology and Evolutionary Biology at the University of Arizona, Tucson, USA.

Ulf Dieckmann is Project Leader of the Adaptive Dynamics Network at the International Institute for Applied Systems Analysis (IIASA) in Laxenburg, Austria. He is coeditor of *The Geometry of Ecological Interactions: Simplifying Spatial Complexity*, of *Adaptive Dynamics of Infectious Diseases: In Pursuit of Virulence Management*, and of *Adaptive Speciation*.

Dennis Couvet is Professor at the Muséum National d'Histoire Naturelle, Paris, France, and Associate Professor at the Ecole Polytechnique, Paris, France.