Organisms under peril from human threats are not statically awaiting rescue or extinction. Instead, many are evolving significantly in response to global change. Once thought to be rare and aberrant, cases such as industrial melanism foreshadowed a gathering transformation of the biosphere in response to human habitat alteration. That evolution, arbitrated by the interactions of genes, phenotypes, and a changing selective environment, is largely unexplored in conservation biology.

Moving beyond genetics, this book illuminates the importance of contemporary evolution in conservation biology. For example, some threatened populations are adapting to their altered habitats, species hunted and harvested in the wild are evolving new life histories, native species are adapting to the presence of invasive species in their communities, and novel hybrids are both extinguishing their parental species and developing into "superweeds." The coevolutionary structures of communities are rapidly being rearranged by extinctions and invasions. An "eco-evolutionary" perspective to conservation biology provides new insights for predicting and responding to these fundamental changes and offers approaches to sustainable management for the long term.

Written by a dynamic group of researchers in evolutionary and conservation biology, this volume provides tools for recognizing, managing, and using ongoing evolution in changing biotic communities to maximize the benefits and minimize the costs of human-caused ecological change. It includes introductory chapters on the historical and conceptual bases of evolutionary conservation biology. It also includes treatments of contemporary topics such as protecting the generation of biodiversity, reserve design, reintroduction strategies, biotic invasions, emerging disease, sustainable harvesting, and genetic engineering.

"This volume provides an important overview of the ways in which evolutionary biology is bringing insight to problems in conservation biology. The survey of contemporary approaches is complemented by a historical perspective on how evolutionary methods have been applied to numerous endangered and threatened species. The volume will be mandatory reading for all those who believe that understanding and managing evolution—an eco-evolutionary approach—is central to the sustainable conservation of endangered species and natural habitats." —Andrew Dobson, Princeton University

"From metapopulations to transgenes, this book contains nearly everything you would want to know about the evolutionary genetics of modern conservation by many of the leading authorities in the field." —David Ehrenfeld, Rutgers University, founding editor of *Conservation Biology*

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