

Evolutionary Causation

Biological and Philosophical Reflections

edited by **Tobias Uller** and **Kevin N. Laland**

Most scientific explanations are causal. This is certainly the case in evolutionary biology, which seeks to explain the diversity of life and the adaptive fit between organisms and their surroundings. The nature of causation in evolutionary biology, however, is contentious. How causation is understood shapes the structure of evolutionary theory, and historical and contemporary debates in evolutionary biology have revolved around the nature of causation. Despite its centrality, and differing views on the subject, the major conceptual issues regarding the nature of causation in evolutionary biology are rarely addressed. This volume fills the gap, bringing together biologists and philosophers to offer a comprehensive, interdisciplinary treatment of evolutionary causation.

Contributors first address biological motivations for rethinking evolutionary causation, considering the ways in which development, extra-genetic inheritance, and niche construction challenge notions of cause and process in evolution, and describing how alternative representations of evolutionary causation can shed light on a range of evolutionary problems. Contributors then analyze evolutionary causation from a philosophical perspective, considering such topics as causal entanglement, the commingling of organism and environment, and the relationship between causation and information.

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