

Invasion Biology

Hypotheses and Evidence

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There are many hypotheses describing the interactions involved in biological invasions, but it is largely unknown whether they are backed up by empirical evidence. This book fills that gap by developing a tool for assessing research hypotheses and applying it to twelve invasion hypotheses, using the hierarchy-of-hypotheses (HoH) approach, and mapping the connections between theory and evidence. In Part 1, an overview chapter of invasion biology is followed by an introduction to the HoH approach and short chapters by science theorists and philosophers who comment on the approach. Part 2 outlines the invasion hypotheses and their interrelationships. These include biotic resistance and island susceptibility hypotheses, disturbance hypothesis, invasional meltdown hypothesis, enemy release hypothesis, evolution of increased competitive ability and shifting defence hypotheses, tens rule, phenotypic plasticity hypothesis, Darwin's naturalization and limiting similarity hypotheses and the propagule pressure hypothesis. Part 3 provides a synthesis and suggests future directions for invasion research. This book:

- Summarizes the key concepts of how biological invasions occur
- Examines how invasion hypotheses are interrelated
- Explores the evidence to support the various concepts

This book is linked to the website hi-knowledge.org that features an interactive visualization tool and provides the data analysed in the chapters.

ISBN 978-1-78064-764-7



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