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The Ecological Detective

The Ecological Detective

CONFRONTING MODELS WITH DATA

RAY HILBORN AND MARC MANGEL

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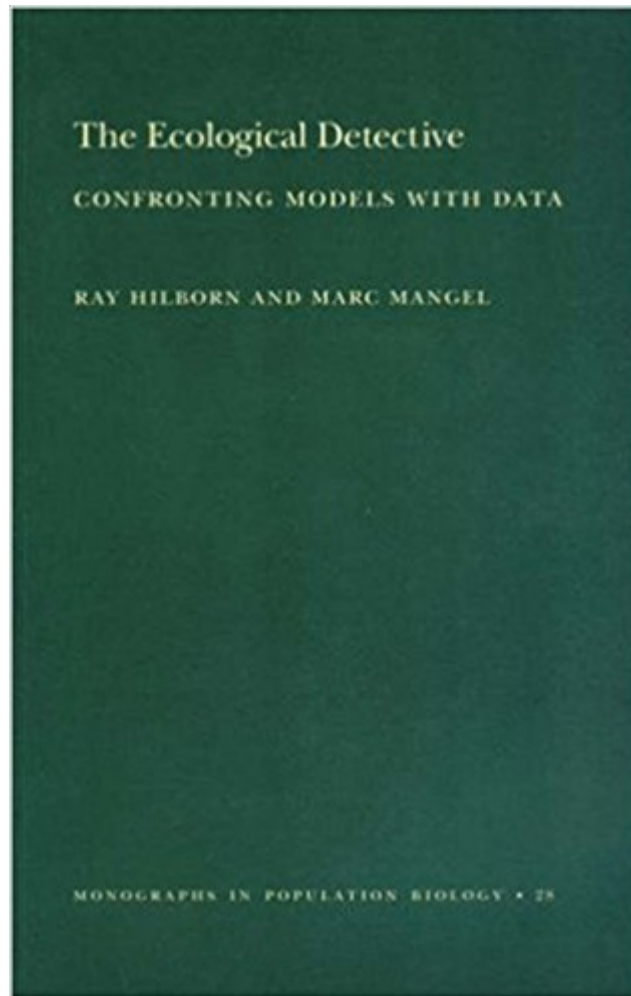
Synopsis

The modern ecologist usually works in both the field and laboratory, uses statistics and computers, and often works with ecological concepts that are model-based, if not model-driven. How do we make the field and laboratory coherent? How do we link models and data? How do we use statistics to help experimentation? How do we integrate modeling and statistics? How do we confront multiple hypotheses with data and assign degrees of belief to different hypotheses? How do we deal with time series (in which data are linked from one measurement to the next) or put multiple sources of data into one inferential framework? These are the kinds of questions asked and answered by The Ecological Detective. Ray Hilborn and Marc Mangel investigate ecological data much as a detective would investigate a crime scene by trying different hypotheses until a coherent picture emerges. The book is not a set of pat statistical procedures but rather an approach. The Ecological Detective makes liberal use of computer programming for the generation of hypotheses, exploration of data, and the comparison of different models. The authors' attitude is one of exploration, both statistical and graphical. The background required is minimal, so that students with an undergraduate course in statistics and ecology can profitably add this work to their tool-kit for solving ecological problems.

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Ray Hilborn is Professor in the School of Fisheries, University of Washington and the coauthor, with Carl Walters, of Quantitative Fisheries Stock Assessment. Marc Mangel is Professor of Environmental Studies and a Fellow at College Eight at the University of California, Santa Cruz, and a Visiting Professor at the University of Glasgow. He is the author of Decision and Control in Uncertain Resource Systems and coauthor, with Colin Clark, of Dynamic Modeling in Behavioral Ecology. --This text refers to the Paperback edition.

A nice overview of the difficulties a researcher in fisheries and ecologics can be confronted with using and interpreting data andhypotheses. The exercises can be done using EXCEL. The book has a nice collection of alternative approaches of some difficult mathÃƒÂ©matical and statistical topics, is well written.

I found the book to be worth the price but very difficult to read. I am a biologist with only an introductory level education in statistics and I couldn't read between the lines well enough to comprehend many of the points that the author was making. In many instances, the reader was provided with a summary of facts or different opinions, but then no conclusions or recommendations were presented. On the other hand, this book covers many very important topics that are not discussed elsewhere.

Hilborn and Mangel should be congratulated, if only for re-publishing Chamberlain's essay on Multiple Woorking Hypotheses, which should be on every ecologist's "Must Read" list but has till now been all too hard to find. Beyond that however the authors give some fascinating examples of ecological analysis based on real-world data, with clear explanations of the perils & pitfalls that they themselves have had to skirt. I have most of the Princeton Monographs, but find that this one is already more dog-eared than many of the others that have sat on the shelf much longer.

I have a lot of scientific books on my self, but i definitely think that this is one of the best ones.

While the first chapter on the tools of the "ecological detective" and the second chapter on modeling and philosophies of science are good, the rest of the book is just OK. Many of the topics in the book you can find elsewhere (e.g., the different types of probability models in Chapter 3). There is a mistake in the AIC formula on page 159. Therefore, it is a good synopsis of ecological "tools," and the philosophy of multiple working hypotheses, but it really doesn't present anything groundbreaking.

The Ecological Detective was an excellent, very readable introduction to the idea of combining data and models. Hilborn and Mangel have made a good case for something other than Popperian hypothetico-deductive methods in ecology, and done so in a way that demystifes the use of ecological models, maximum likelihood estimation and Bayesian statistics. Very readable.

This is a great book. Read it and keep it.

Well, since this author has now been proven to be a PAID mouthpiece for the fishing industry, I guess his books are pretty much what one would call PROPAGANDA!!! Now you know.

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