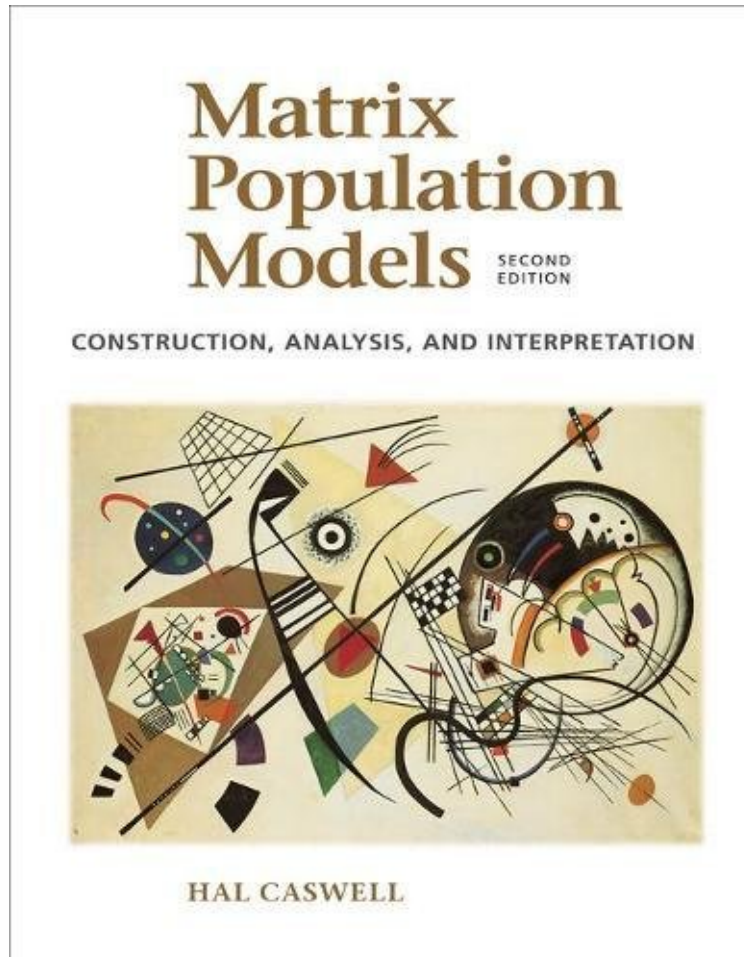


Matrix Population Models: Construction, Analysis, and Interpretation

Hal Caswell

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#863242 in Books 2006-03-27 Original language: English PDF # 1 7.10 x 1.50 x 9.10l, 2.60 #File Name: 087893121X722 pages | File size: 17.Mb

Hal Caswell : Matrix Population Models: Construction, Analysis, and Interpretation before purchasing it in order to gauge whether or not it would be worth my time, and all praised Matrix Population Models: Construction, Analysis, and Interpretation:

1 of 1 people found the following review helpful. A must have for every ecologist's library By Magpie This classic book is a must-have for anyone looking to do research into population dynamics. While extremely heavy on the mathematics from the very beginning, it is presented in such a way as to make the maths accessible to those who are willing to put in the effort to understand them. While other books may present the models in a more simplified form with fewer maths, this book is key if you really want to understand how to assess population dynamics using matrices. 2 of 3 people found the following review helpful. Linear Algebra of Biological Change By Jasmine Jennifer

McAlpine
In summary, these are the main points:
Mathematical representation of survivorship and maternity
Vital rates of a life cycle
Excellent real-life examples of application
The construction of matrix population models to describe the progression of biological events using abstract variables
Data linkage to matrix population models
Stochasticity as an introductory component of matrix models
This book, coupled with the discovery of the human genome, provides a fascinating conceptual framework for the analysis of human behavior across sexual reproduction. The main focus is mathematical modeling of organisms across time including parameter matrices and gradient matrices. The intrinsic difficulty, the discussion of which is the central feature of the book, is the discontinuity of change across a projection model.
0 of 1 people found the following review helpful. Great book! Covers everything I needed to know in Matrix population biology! Used it primarily as a reference.
By Bryant C. Dossman
Covers everything I needed to know in Matrix population biology! Used it primarily for class but now sits on my shelf as a reference

Matrix Population Models, Second Edition, is a comprehensive treatment of matrix population models and their applications in ecology and demography. It begins with simple cases, presented in detail so that beginning students can learn how to use these powerful models. It goes on to cover advanced topics in stochastic and nonlinear models. Analytical methods and theoretical issues are illustrated with empirical examples throughout. The decade since the publication of the First Edition of this book has seen enormous progress in the theory and application of matrix population models. The new edition includes greatly expanded treatment of stochastic and density-dependent models, sensitivity analysis, and statistical inference, and new chapters on parameter estimation, structured population models, demographic stochasticity, and applications of matrix models in conservation biology.
Matrix Population Models, Second Edition, is an indispensable reference for graduate students and researchers in ecology, population biology, conservation biology, and human demography

"For those with a taste for mathematical elegance and an interest in the full array of approaches available for modeling populations with complex life cycles, this book is a must."--Larry Barnhouse, SETAC Globe
Both the scope of issues and the means by which they are exposed show the author's desire to create a book that might be interesting and useful not only for the beginner, but for the expert too. Hal Caswell has succeeded remarkably in doing both."--Dmitrii O. Logofet, Ecological Modelling
"To say that the extent of material covered in this book is impressive is an understatement. If your research endeavors include population biology, or you teach a course in population biology, you need this text."--Floyd W. Weckerly, Natural Resource Modeling
About the Author
Hal Caswell is a Senior Scientist in the Biology Department at the Woods Hole Oceanographic Institution, where he holds the Robert W. Morse Chair for Excellence in Oceanography. He earned a Ph.D. in Zoology in 1974 at Michigan State University. In addition to Matrix Population Models, Dr. Caswell is a coauthor (with S. Tuljapurkar) of Structured Population Models in Marine, Terrestrial and Freshwater Systems (Chapman and Hall, 1997). A former Guggenheim Fellow and a Fellow of AAAS, he has also served as Chairman of the Theoretical Ecology Section of the Ecological Society of America. Dr. Caswell's research interests include mathematical ecology, structured population models, stochastic models for spatial processes, conservation of marine mammals and seabirds, plant population ecology, ecotoxicology, and nonlinear dynamics in ecology.