

Preface

Practical ecological problems such as preservation of threatened species, design of nature reserves, planned harvest of game animals, management of fisheries, and evaluation of human impacts on natural systems are addressed with quantitative tools, such as models. A model is a mathematical representation of a natural process. Many biologists now use models implemented as computer software to approach the quantitative aspects of these practical problems.

In addition to their practical use, such models are excellent tools for developing a deeper understanding of how nature works. In an introduction to population ecology, most undergraduate students consider learning the mathematics required by traditional texts to be an unnecessary hindrance. The aim of this book is to teach quantitative methods that are necessary to develop a basic understanding and intuition about ecological processes, without intimidating or discouraging students who do not have extensive mathematical backgrounds. Even students who are intimidated by mathematical equations are not usually afraid of using computers. I hope that my integration of software that implements mathematical models in population ecology with an undergraduate textbook will make these models accessible to undergraduates in biological and environmental sciences.

—*Author*