BOOK REVIEW

James T. Tanner, *Guide to the Study of Animal Populations*, Univ. of Tennessee Press, 1978, 186 pp., index; $8.95.

The stated purpose of the book is "...to describe the characteristics of animal populations, the methods of their measurement, and their interactions... to review the important aspects of the subject and to describe the research methods most useful in animal population studies, emphasizing those methods most amenable to statistical analysis." The first four chapters present an overview of more important statistical methods for estimating population density, dispersion, abundance, sex ratio, and age composition. References to the open literature are frequent, making the book a good reference for more specialized information either on particular plant and animal population studies or on details of statistical methods. Chapter Five introduces clearly the basic mathematical idea of population rates of change. Chapter Six contains a long discussion of mortality, death, and survival rates, their relationships, and statistical methods of estimating them, organized according to the type of available data. The life table and its usage is also discussed. Chapter Seven is a very brief introduction to reproduction, migration, and recruitment. Chapter Eight is an introduction to the measurement of increases or decreases in population size with a brief exposition of some statistical problems in analyzing a population record. Chapter Nine first lists the six parameters of a closed population as: the reproductive rate, death rate, growth rate, probability of survival to a given age, age-specific reproductive rate, and age distribution. These parameters and probabilities are then compared, and interrelationships are analyzed. The treatment is mathematical rather than statistical. The author endeavors throughout to present the basic concepts at a level requiring no more than a year's course in calculus and a course in sampling theory. Graphical illustrations and worked-out numerical examples are plentiful. The final chapter is a brief but interesting discussion of approaches to mathematically modeling populations. This book is highly recommended as a reference which pulls together and relates the basic mathematical concepts underlying quantitative population analysis, important statistical techniques for estimating population parameters, and some problems involved in statistically assessing population characteristics. It would be an excellent source for doctoral prelim questions covering the quantitative aspects of population studies, and students of population dynamics ought to have it on the bookshelf.

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