

Preface

The second edition of this book reflects a change in the approach taken in development of the first edition. In that edition, I attempted to simply present information on vegetation measurements as reported in published papers, reports, and existing books at that time. Included was any study that used one or more of the four characteristics of plants as they occur in communities, associations, in stands or other units of vegetation categories. I made very few comments on studies that compared data results obtained from various equipment to measure cover for example. I found very few published papers or reports of such comparisons that provided sufficient details that the study could be repeated by another researcher. In particular, study conclusions did not report statistical evidence as to which method or equipment was found to be the most precise, reliable, and/or repeatable, even in the same study area.

It is recognized that reported studies of comparative estimates of a measure are very old. Yet, it is a fact that budget managers in natural resource offices have never given priority to adequately finance such studies; this is so, even as needs for use of vegetation measurement data in decision-making changed over the decades. It follows that the existence of new methods for measurements are few in published literature. This new edition still contains a few old evaluations of method comparisons of plant cover estimates obtained from different quadrat sizes and shapes. These are included to suggest size and shape of plots that modern day field ecologists might consider for preliminary evaluations before embarking on a full-scale vegetation study. In contrast, old habits and traditions die hard, allowing professional plant ecologists in academics, private industries, and state and federal agencies to continue vegetation measurements of attributes that are not based on sound scientific principles. The use of prior methods and procedures to collect and analyze field data continues with indifference as to whether "old methods" result in biased, non-repeatable, and imprecise estimates. Almost any of these latter problems can be mitigated by proper sampling designs and subsequent data analysis.

The greatest problem in obtaining a measure often is not the equipment used, but rather the data analysis used to generate data summaries. Statistical methods for data analysis have increased at a relatively rapid rate, while measurement equipment has essentially remained the same. Yet, this book is about the measures themselves, not how to analyze the data collected. Even so, some newer methods of data analysis,

especially those involving spatial statistics, have been included in this new edition, but only in brief form. Data collection methods were added to include spatial statistical sampling designs and examples for analysis are provided from both published and unpublished sources.

No attempt has been made to give more concise meanings of words and terms than those already employed for up to a half-century. These include the use of double sampling in place of regression equations, quadrat for plot, and line transects from a measurement tape, to mention a few. The book deals with principles and procedures used to obtain structural measurements of terrestrial vegetation communities. Emphasis is placed on frequency, cover, density, and biomass, as commonly defined in the preponderance of literature on such measures.

I am grateful to the reviewers of the manuscript. Their editorial as well as other suggestions offered improvement to the manuscript. I am especially indebted to Ms. Margaret Broadbent who provided the expertise needed to develop figures, tables, and special formats for the text. Her attention to detail needed for each revision and subsequent finalization of each chapter is greatly appreciated. I extend my sincere appreciation to the editorial staff, especially to Rachel Wade, Izzy Canning, and Fiona Seymour, for their forbearance and kindness extended me throughout the entire process at John Wiley & Sons, Ltd, United Kingdom.

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