

number of ecological studies in the light of this concept to obtain a synthesis which, if not as beautiful as the density-dependent model, is at least more credible.

The second book is characterized in the preface as "a compact text that students may use". It is divided into two parts, the first being a précis of Andrewartha's and Birch's concept of ecology, as given in the book reviewed above. A few examples are added from research published since 1954 but several of the original chapters (unfortunately, some of the most interesting) are not touched upon.

This section is followed by a laboratory course for students in ecology. A research worker may feel that this part of the book cannot offer him much, but it is very useful as a rapid reference work on research procedures. Although it is concerned with laboratory populations, it deals at a fairly advanced level with most of the problems of experimental design and analysis faced by the field ecologist. If Andrewartha's students can cope with this course, he must be blessed with a particularly earnest and erudite class.

G.C.

WILDLIFE INVESTIGATIONAL TECHNIQUES, edited by Henry S.

Mosby. 2nd ed. 1963. Wildlife Society of America. xxiv+419 pp., 168 figs., 124 tables. Price \$4.50.

This large volume, first published in 1960 under the rather misleading title of *Manual of Investigational Techniques*, has run through two printings and two editions in three years. This gives some idea of the demand in North American universities and colleges for a textbook of this kind for the many and varied (both in quality and quantity) wildlife management degree courses and wildlife research institutes.

The reviewer would be surprised to see this 400-page book on the desk of any New Zealand forester, and even more surprised if he had actually read it. However, the book is of some interest to those of us who have an animal bent, even though many of the techniques discussed are of little use for animal research in this country.

In this volume, the work of 8 American and 2 Canadian wildlife authorities, is a summary and description of the best-known field and laboratory techniques currently being applied in the management of game birds and mammals. An attempt is made, not to catalogue all techniques, nor to prescribe any single standardized procedure, but rather to report and illustrate methods that have been found of value.

The authors have sifted the voluminous wildlife literature up to 1962, plus the unpublished contributions of many individuals. The contents include consideration of instrumentation in wildlife research, record keeping, reconnaissance mapping, habitat evaluation, estimation of animal numbers, criteria of age and sex, population analysis, methods of preservation, post-mortem examinations, capturing and marking techniques, measures of mortality, control of nuisance wildlife, food habits procedures, project planning, use of wildlife literature, and the reporting of research results.

There is also a glossary of terms frequently used in wildlife work and in ecology. The appendix has tables on the hatching success of game birds, clutch size of game and predatory birds, the gestation periods of selected American mammals, and a list of North American

birds with A.O.U. numbers and recommended band sizes. The bibliographic section lists some 1059 titles and gives some idea of the task involved in preparing this book.

Some of the 124 tables in the text pertain to control measures, repellents, colours for use in marking animals, anaesthetics, sedatives and tranquillizers, chemical preservatives, terms used in population analysis, selected life tables, tooth eruption and replacement, stages in foetal development, and population estimates.

In the foreword, it is stated that "this volume is designed for use by the practising field biologist, by the wildlife administrator and by the college instructors of wildlife management".

An example of how the "space age" has caught up with wildlife research can be obtained from the section on instrumentation. This includes details of tiny transistorized radio transmitters weighing only a few ounces and which can be tied round the neck of the animal you wish to follow, be it a grizzly bear or a raccoon; the use of selected radioisotopes with suitable half-lives for tracing small mammals with a geiger counter; and the use of radar sets for studying bird migration.

Some of the techniques discussed in this volume, which have been tried with varying degrees of success in this country, include the faecal pellet count technique for determination of deer numbers (relative numbers, not absolute numbers), and the tranquillizer dart gun for marking deer, to trace subsequent movement. The distinct lack of success with these two techniques under New Zealand conditions makes it only too obvious that many of the elaborate and refined techniques for wildlife research will not be of any use to us in New Zealand until they have been thoroughly tested, and possibly modified to suit our rugged conditions.

Quite obviously a volume of this length cannot be adequately reviewed in one page. However, if this only too brief mention of some of the contents encourages a few readers to dip into it sometime, then the review has achieved its purpose.

The volume is well printed and sturdily bound and the many illustrations are well reproduced. For those interested in animal research it is very reasonably priced.

M.J.D.