Book Reviews

RANGE MANAGEMENT

This second edition of a well known text and reference in range management is an extensively revised and rewritten version of the first edition published in 1943. There has been much rearrangement of the material, and in general, the new edition is somewhat more concise than the first.

The history, development and economic role of the range livestock industry has been condensed from three chapters into one on the "Development of Range Management in the United States." Similarly, other chapters in the first edition have been absorbed into other sections in the second. The first edition chapter on ecology and physiology of plants in relation to grazing, on the other hand, has been expanded into two chapters. A notable addition has been a chapter on "Eradicating Undesirable Range Plants." A former chapter on the effects of burning on range lands has been included in this new chapter, and to this has been added material on mechanical, chemical, and biological control methods.

This new edition reflects the increasing interest in research in range management problems and brings out the newest concepts, developments and trends in this rapidly growing field. W. C. Robocker.

THE GRASSES AND PASTURES OF SOUTH AFRICA

This book, 7 years in preparation, was published as a companion volume to others of the series on the Birds of South Africa, the Sea Fishes and the Mammals. Its purpose was to publish a book of value to experts, teachers, farmers, students and the general public. The collaborators are to be commended for their accomplishment in developing so successfully a volume to meet the needs of such a broad audience. Because of their success in this unique presentation, a detailed review is presented.

Part I, "A Guide to the Identification of the Grasses in South Africa" by Lucy K. A. Chippindall, opens with a very readable section on systems of classification, a discussion of scientific and common names, the use of binominals, et al. Following this is an excellent discussion on the gross morphological characteristics of members of the Gramineae. The line drawings illustrating the various organs are clearly executed. The keys are dichotomous throughout, and where exceptions to the alternatives occur, attention is directed to these. The definition of tribes essentially follows that of Dr. R. E. H. Smith of the Kew Gardens. Twenty-five tribes are recognized; these including some 17 genera. No attempt was made to cite the extensive synonymy characteristic of many grasses. The specific descriptions are "brief and incomplete, and they are not uniform throughout." The characters listed in the descriptions appear to be those diagnostic for specific separation. Sufficient comments regard distribution, questions on synonymy and interrelationships, the economic importance and usefulness of the species, and pertinent reference to other species with which confusion might occur. Groups in need of revision are indicated in the systematic portion of this volume; in some instances suspected hybrid combinations are recognized. Attention is directed to groups, wherein the disposition of entities might have to await cytotenic study. The systematic treatment of the genus *Eragrostis* was contributed by Mr. B. de Winter.

Pasture Management

Part 2, a discussion on "Pasture Management," might have been more appropriately entitled "Grassland Management," since much of it includes ages beyond pastures. It opens with a concise historical sketch of grassland usage, its magnitude and economic importance. "The ecology of grasslands," by Prof. Bayer, discusses ecological principles and considers the dynamics of grasslands as affected by man and animal. Reproductive processes are discussed in Dr. Pinck, "The chromosome numbers of some indigenous South African and introduced Gramineae." This is a general and well-written statement of the principles of cytology and genetics in relation to reproduction aimed to draw the layman's attention to the usefulness of fundamental information regarding these processes in improvement programs.

Dr. Weimann's chapter on "The chemistry and physiology of grasses" gives a short but clearly written review of the basic principles of photosynthesis, respiration, water relations, mineral constituents and their metabolic products. This leads naturally into the crux of the problem, the growth patterns, chemical composition and feeding habits of herbage. "The principles of pasture management," by Dr. Scott, portrays the relation of proper grazing management to the growth rhythm of veld (range) plants, emphasizing the importance of root development of seedling and young plants, of flowering and its relation to re-seeding; and of the period of rest and recovery upon maintenance of stand and production. He defines the different kinds of velds (sour and sweet) of which there are 21 main agro-ecological areas. Main categories are characterized and the scientific basis for various systems of management as mowing, burning, deferred grazing, rotational grazing, stocking, etc., are considered. Dr. Ween's discussion of "Veld management in the dry summer-rainfall bushveld" is essentially an extension of the previous section but applies to a lower rainfall belt. All the sections are intimately tied in with ecological principles.

Fertility Problems

The remainder of the volume is devoted to several closely related topics: "The role of fertilizer in pasture management," by Drs. Hall, Meredith, and Altona; Dr. Scott's discussion on "Pasture plants for special purposes" which includes an inventory of grasses (and some legumes) available for special problems in the several rainfall belts; "The establishment of indigenous grasses from seed," by Mr. Liebenberg; and "The preservation and utilization of grassland products," by Messrs. Meredith, Scott, and Rose; Mr. Fisher opens his chapter on "The grass ley" with a quotation from George Washington which concludes: "Our lands were originally very good; but use, and abuse, have made them quite otherwise." This sets the pattern of the contents of this chapter, directing attention to the beneficial; to its proper management and the effects of such upon soil structure, etc. This is related to seed mixtures, strains, and methods of seedling and to the necessity of introducing or developing better-suited grasses and legumes for use in more carefully controlled grasslands.

Dr. Theron reviewed "The recuperation of soils under grass pastures" with emphasis upon soil stability and soil depletion through various cultural practices. The importance of climatic and biotic factors incumbent with the development and maintenance of the fertile substrate is recognized. "Grasses in soil and water conservation," by Mr. Pentz, gives practical suggestions for reclamation including protection, reseeding through pellets, etc., hay seeding, thatching, and other similar practices.

"Grasses for sporting purposes, parks, and aerodromes" by Dr. C. H. Hall, et al., outlines of the principal usages of turf in South Africa.

The final chapter is a historical account of botanical sciences in South Africa. The volume includes a glossary of terms and abbreviations used. Definitions are generally concise and clear. It is well-indexed and appears to be adequately cross-referenced. It is evident that the collaborators in this successful venture have caught the spirit of General Smuts' statement in the foreword: "And when we consider how small this globe is, and how restless the human race is expanding and over-occupying it, we begin to realize to what an extent the whole future of the human race on this globe is dependent on the progress we make in the development of our grass resources—the mass of it (the veld) overwhelms your senses. You become a passive instrument for nature's play on with magic fingers. Give me the grasses, the rolling veld, the bushveld Savannah, with bush and trees dotting the endless grass scene in all its variety of shade and tone, with scents and sounds of bird and insect added, and shy animals silently gliding through the grass cover. This is the grass pattern of life, and there is no fancy like it." This book should do much to tender a greater appreciation of the significance and economic importance of this vast resource of South Africa. There is much of significance between its covers that immediately apply to our own problems. It includes the least of which is the setting of a pattern of presenting a difficult subject as a dynamic topic of vast importance to all of us.—Etlar L. Nielsen.

Published May, 1956