

FOREST INFLUENCES

*The Effects of Woody Vegetation
on Climate, Water, and Soil, with Applications
to the Conservation of Water and the
Control of Floods and Erosion*

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PREFACE

Forests and rainfall, forests and stream flow, and forests and floods have been subjects of intermittent controversy between foresters and others for many years. Yet many foresters today have only a hazy conception of what is meant by forest influences, watershed management, and the protection forest. Parts of the subject have been referred to briefly in courses dealing primarily with other subjects. There has been no textbook in English, and the considerable literature covering specific phases has been widely scattered in many publications, including some rarely consulted by foresters. Moreover, the treatment of pertinent data has often been planned with different objectives and interpretations. The fact that the subject is broad and necessarily overlaps the related fields of meteorology, hydrology, and soil science is additional evidence of the need for a book that might collect and unify these diverse materials and serve as introduction, text, or source of reference for foresters and others. If the presentation is somewhat lacking in popular appeal, perhaps that defect may be partially compensated by the content of substantial information.

As in all the natural sciences, every unit of land with its flora and fauna has peculiarities differentiating it from every other unit. Consequently, for an area of land containing many unit complexes, the possibility of generalizing conclusions is often dubious. The attempts at broad generalizations based on inadequate information have been the commonest sources of the controversies of past and present. In many cases the information needed to resolve these conflicts or to clarify the problems must be quantitative. Consequently every effort has been made to bring together numerical data in support of conclusions and, wherever possible, to express relations in equations as the most useful form of quantitative generalization. Admittedly, many of these equations or the empirical constants require confirmation or further study of the variations associated with other factors.

The subject matter of forest influences proper is summarized in a series of statements at the end of each chapter. The attempt has been made to make them definite and conclusive, perhaps more so than the present state of our knowledge justifies. The summaries do not recapitulate the introductory parts of many of the chapters, which are