

# The Role of Plant Life

in the

## History of Dutchess County

Signatures for Lucy Leptoy and Eleanora S. Leptoy

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# GENERAL PRINCIPLES OF THE DEVELOPMENT OF PLANT LIFE

## INTRODUCTION

Wherever plants grow, the several environmental factors — soil, moisture, light and temperature — are not all equally favorable, and the development of the plant is limited by that factor which is the least favorable. However, it is often difficult to determine what the limiting factor or factors may be in a particular case.

Every plant has a more or less definite form or structure, and in order to live it must carry on certain chemical and physical processes. For these reasons it has certain requirements as to its environment, and the requirements of some plants are more specific than others. Dutchess County offers a wide variety of combinations of environmental factors. The surface of the county is broken into elevations and depressions, uplands and lowlands, with streams, lakes and bogs. The soil may be shallow or deep, and the light varies with the slope of the land.

All the areas characterized by various groups and combinations of environmental factors from the standpoint of vegetation are called *habitats*.<sup>5a</sup> Plants are found only in those habitats that afford the right conditions for their growth, and plants requiring similar environmental conditions are found in the same habitats, because there only, are the environmental conditions suited to their hereditary structure and qualities, and favorable to their complete development.<sup>5a</sup>

The vegetation or plant covering of any area is made up of hundreds of individual plants. They are of many different kinds, and they are organized just as any community. The plants present in any community are determined by the conditions there and the kinds of plants whose seeds or spores have been carried into it. Such communities of plants are called *plant associations*.

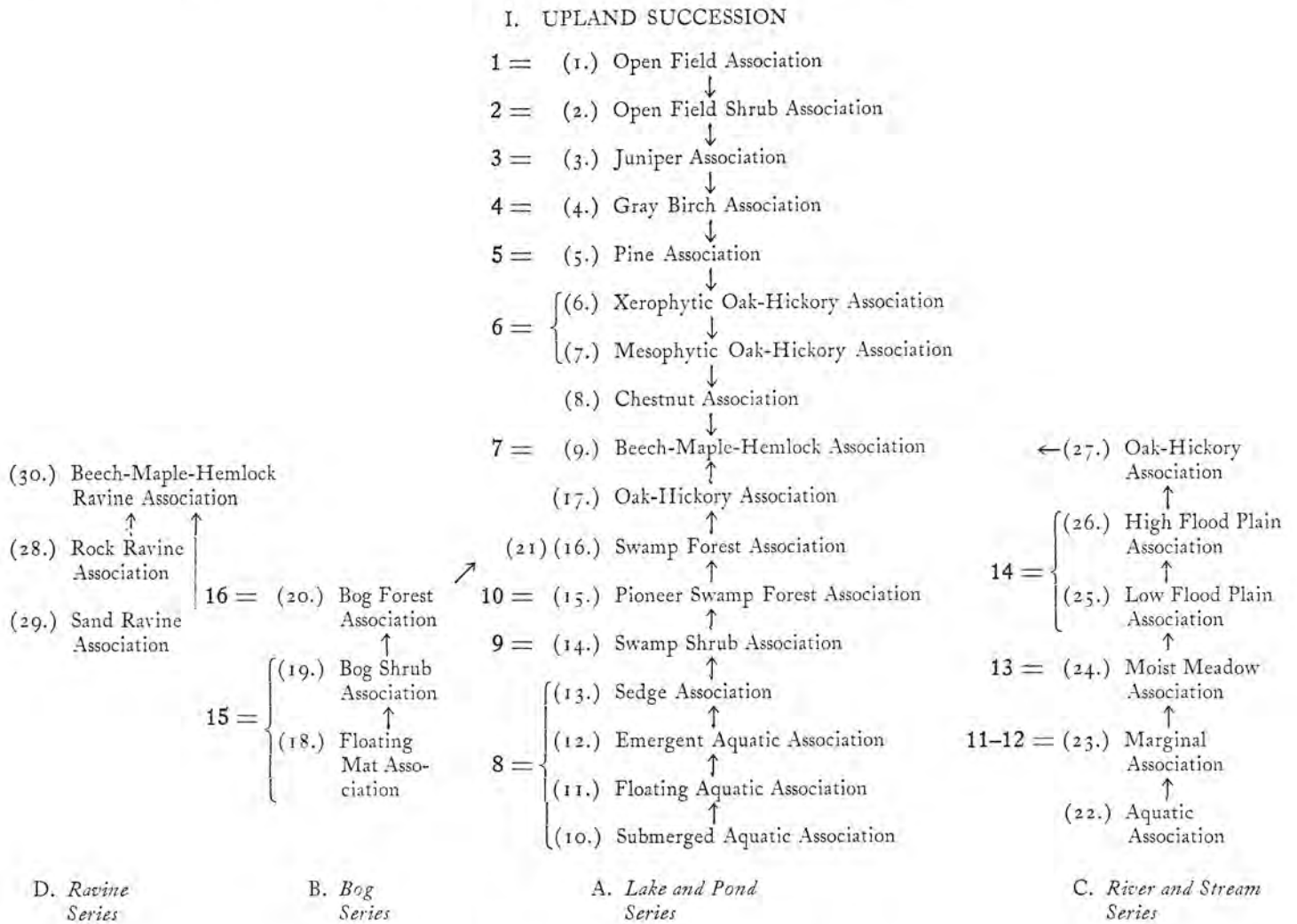
All the plants in an association have similar requirements, but each plant differs from the others in one or more requirement. They have certain soil, moisture, light and temperature needs in common but are different enough in some respects not to interfere with one another. The associations are named often for the most prominent or *dominant* plant. Thus an oak wood is called an oak association and a cedar hillside is called a cedar or juniper association.

Habitats and plants are constantly changing in the course of years and epochs, or in the relatively few years of the immediate past. The land forms are changing; streams are eroding at one place and depositing at another; hills are being worn down. The vegetation, too, causes changes. The decaying vegetation builds up soil; the growth of the plants themselves changes the light, temperature, and moisture, as well as the soil. A new group of plants becomes established, and this change in the vegetation, resulting from modifications of habitats, produces what is called a *succession of associations*.<sup>12</sup> The best example of this is to be found in the abandoned roads in the County. These roads first became covered with grasses and weeds, an Open Field Association. In ten or more years they are becoming well nigh impassible, overgrown with shrubs, and only the stone walls give any inkling of their having been formerly well-gravelled roads. Thus the Open Field Association is succeeded by the Shrub Association.

There is a rather definite order in the succession of associations and the successive relationship of those found in this county is given in Table 1, which is a diagrammatical representation of the plant associations in Dutchess County and their successional relations.

TABLE I.<sup>69</sup>

DIAGRAMMATIC REPRESENTATION OF THE PLANT ASSOCIATIONS IN DUTCHESS COUNTY AND THEIR SUCCESSIONAL RELATIONS.



I and II refer to the succession in the uplands and lowlands respectively, and the letters A, B, C, and D represent the series into which the lowland successions may be divided.