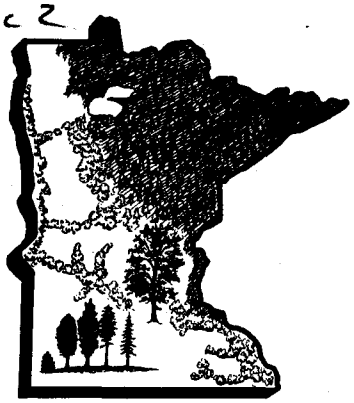

MINNESOTA FORESTRY NOTES

No. 92
April 15, 1960

SUGGESTIONS FOR FURTHER DEVELOPMENT OF THE FOREST COVER TYPE SYSTEM OF EASTERN NORTH AMERICA

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A forest classification system if it is to be most useful should have classes which will reflect uniform response to treatment. That is, a given disturbance such as cutting or fire will within the class produce similar response in reproduction and growth. A synecological forest classification which regards the organisms and their environment as the fundamental functional unit is well adapted to meet these requirements.

The cover type system of the Society of American Foresters (1954) (3) distinguishes between permanent and temporary types. Permanent forest cover types should reflect relatively homogeneous environmental complexes of moisture, nutrients, heat, and light. However, some of the Society of American Foresters cover types (for example, black spruce, Type 12; red spruce, Type 32; and white spruce-balsam fir-paper birch, Type 36) will, as suggested by a number of previous authors, require subdivision. Since all temporary types can be derived through disturbance from the permanent types, the fundamental elements of the classification should be restricted to the homogeneous permanent types alone.

The cover type list of the Society of American Foresters arranges types within a region on the basis of soil moisture relations. American ecologists in developing primary successional patterns make use of the moisture factor, and in addition assume a time factor to be responsible for the observed differences in nutrient levels at different stages of the primary succession. Recognition of these two coordinate axes (moisture, nutrients) provides the framework for the proposed classification modification.

The permanent types can be arranged on the moisture-nutrient coordinate system on the basis of information from primary succession investigations and general knowledge accumulated as to community requirements.

In arranging the permanent types listed for the Northern Forest Region (3), several types from geographically separate areas, i.e. red spruce and white spruce-balsam fir-paper birch, fall in the same position on the coordinate system. Such difficulties could be eliminated by splitting the Northern Forest Region into eastern (Acadian-Appalachian) and western (Great Lakes-St. Lawrence) regions. This would be in accord with the existing Canadian regional classification.

The three upper diagrams in the figure illustrate the proposed method as applied to forest cover type classifcations for the Boreal and the Northern Regions, the latter having been subdivided into two regions. The lower three diagrams provide examples of more detailed localized classification systems as they could be constructed using data from other authors. Various characteristics of forest communities can be easily presented with the aid of this technique. As an example, the distribution of balsam fir (an ecograph) is shown in all six edaphic fields in the figure.

1/ This investigation was supported in part by Graduate School Grant No. 128-9214-2431.

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Published by the School of Forestry, University of Minnesota, St. Paul 1, Minnesota, cooperating with the Division of Forestry, Minnesota Conservation Department, and Forest Industries of Minnesota

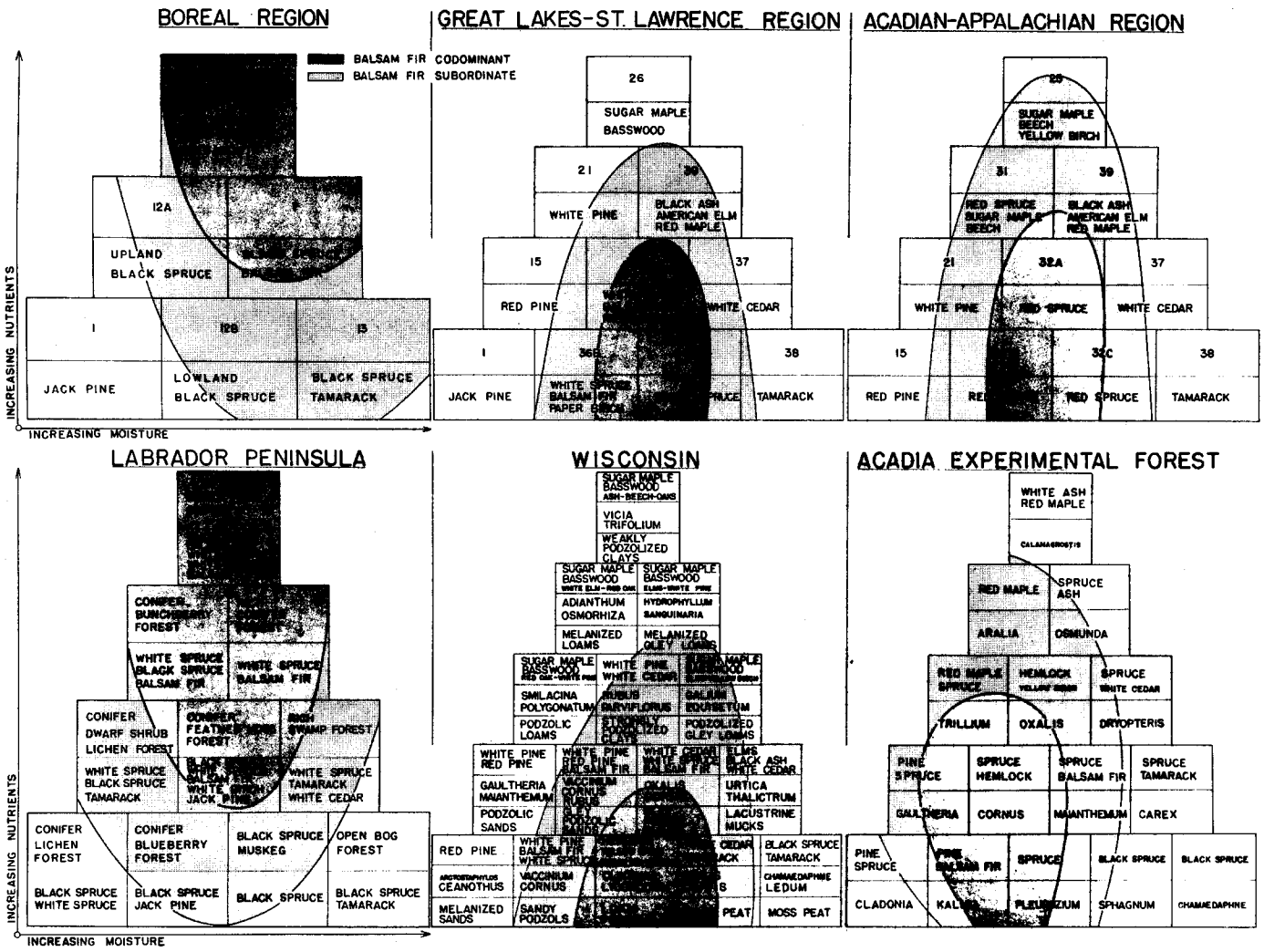

Figure. Arrangement of forest cover types of Eastern North America and other regional forest classification systems in edaphic (moisture-nutrient) coordinates. The distribution of balsam fir illustrates the varying position of a species in different forest geographical areas. Data from Hustich (1), Loucks (2), Society of American Foresters (3), and Wilde et al. (4).

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Published as Sci. Jour. Series Paper No. 4366 of the Minnesota Agri. Expt. Sta.