The Edmund Niles Huyck Preserve, Inc.

RENSSELAERVILLE
ALBANY COUNTY, NEW YORK
12147

N E W S L E T T E R

November 1, 1977

This is the first of a series of Newsletters in which I will describe the Preserve, its history, programs and objectives, in the hope that the membership may be better informed of options available, as we approach the second half of our centennial.

The Preserve's chartered purposes and objects of the Bylaws establish the intent of the founders, and legitimate interests of the Preserve. It is then appropriate to restate these articles:

> Purposes of Incorporation: *The purpose or purposes for which it is to be formed are as follows: To preserve the natural beauty of the Rensselaerville Falls, Lake Myosotis, Lincoln Pond and the lands around them in the Town of Rensselaerville, Albany County, New York; to increase the general knowledge and love of nature, particularly that of trees and wild life, by maintaining a demonstration of reforestation and forest culture, and by providing means for increasing and protecting the birds, wild animals and fish within the boundaries of said lands.*
>
> *Also to acquire real and personal property for the corporate purposes by grant, gift, lease, purchase, devise or bequest, and to hold and dispose of same subject to such limitations as may be prescribed by law.*
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> Bylaw objects: *The objects of this corporation shall be to preserve the natural beauty of the Rensselaerville Falls, Lake Myosotis, Lincoln Pond, and the lands around them in the Town of Rensselaerville, Albany County, New York; to increase the general and scientific knowledge and love of nature, particularly that of trees and wild-life, by maintaining a demonstration of reforestation and forest culture, and by providing means of increasing and protecting the birds, wild animals and fish within the boundaries of said lands and, in furtherance of said objects, to research, record and preserve the history of said lands and do all acts in furtherance of said objectives, subject to such limitations as may be prescribed by law.*

In addition to the legal constraints of our charter, we are subject to natural laws and processes, which govern the direction and limits of change. Failure to recognize the dynamic state of the environment is at the root of much of the conflict and misunderstanding between the conservationist and the consumer. It is not only the present assemblage of plants, animals and physical features that make up the environment, but the processes which will surely cause these assemblages to change.

The rationale for the conservation of open lands is frequently based upon a desire to either protect that which is there now, and/or save some native habitat for future generations. All too often these objectives fail to consider the natural processes that bring about changes in the composition and structure of these open lands. These changes may eliminate that which was hoped to be preserved or may result in a community that is either more or less desirable than that present at the time of acquisition or planning. The qualitative judgments can be more soundly based if they consider the future of the site and probable pathways of natural change.

The purpose of this discussion is to introduce you to the concept of biotic communities changing with time, the principle known as succession, and relate it to open land conservation planning, and the Huyck Preserve.

But first, some basic vocabulary and principles:

Succession. The term succession will be used for any unidirectional change that can be detected in the proportions of species in a stand or for the complete replacement of one community by another.

Sere. Succession typically begins on a bare area soon after it has been created. An initial group of pioneers appears, then this is usually replaced by other communities in turn until the area comes under the control of plants that seem capable of perpetuating themselves indefinitely, these forming the climax association. All temporary communities in the sequence are collectively referred to as a sere (or "chronosequence"); the adjective seral is used for particular communities or organisms. It is possible for two or more seres involving different community sequences to terminate in the same climax.

Stage. Any floristically or structurally distinctive segment of a sere may be called a stage, but the transition from one stage to another is always part of a gradual process rather than event, so that each stage becomes recognizable only as the dominant which characterizes it gains ascendancy. Even so, many seres cannot be divided into stages.

Primary and secondary seres. The character of the bare area has a very important bearing on the kind of community which invades it, as well as on the rate at which the sere advances. Primary bare areas are those which are formed by recently active physiographic processes such as deglaciation or erosion, and the seres which begin on such habitats are called primary seres (or primary successions). There is always an invasion of a relatively unweathered parent material, the surface of which has never before borne a plant cover.

Secondary bare areas are those which result from the destruction of pre-existing vegetation by fire, smelter fumes, cultivation, etc. Community sequences on such areas are referred to as secondary seres (or secondary successions). Frequently, the catastrophe which creates a secondary bare area does not exterminate all of the preexisting vegetation. Thus residual species may be mingled with invaders. It is most convenient to extend the use of the term bare area to include such habitats as have been only partially depopulated.

It is possible to get base line information on the biota of a region from the accounts of the early settlers and from monographs on the ecotypes of the area being studied (i.e. E. L. Braun, 1950. Deciduous Forests of Eastern North America, McGraw-Hill, N. Y.) This information can normally be used to characterize the climax community of the region and probable end product of post agricultural succession. Using these sources the precolonial forests of this region have been described as being composed primarily of Hemlock, with some American Beech, White Birch, Sugar Maple and lesser amounts of other species.

The first settlers in this region (1780's - 1880's) cleared the land of its forests and cultivated a wide variety of crops. Buckwheat cultivation, sheep and milk cow pasturing predominated in the last years of economic agriculture. Information in deeds identify the farms, records of the mills give some indication of the variety and quantity of cereal crops, stone walls define the fields, and this information collectively describes the nature of previous land use. As discussed earlier, the previous use of the land, together with the local and regional environmental parameters will determine the pathways to the restoration of the climax community.

In this region (Helderberg Plateau) of New York State, reforestation seems to occur in four principal ways (or follows 4 principal seres) as indicated in Fig. 1; (1) White pine often completely recaptures fields by seeding in as a dense stand. This tends to result in an even-aged, relatively uniform stand in which hemlocks and deciduous trees gradually become established. This pathway requires that White Pine seed trees were left in or near the tract. (2) Paper Birch, Aspen, or Birch-Aspen communities are common early seral stages, particularly on ravine slopes or along streams. Hemlock often seed in at the base of Birches, resulting in an old Birch and Young Hemlock mixtures as an intermediate stage, or Aspen-Birch may be invaded by Ash-Maple or Beech-Maple stages. (3) On low ground, Alder and Willow are prominent early invaders. These may be followed by deciduous floodplain forests. (4) On poorly drained shallow upland soils, early stages include mixed shrubs (Blackberry, Sumac, Thorn Apple, Pin and Choke Cherry), these are then invaded and followed by White Ash, Sugar Maple, Elm and Basswood intermediate stages. The above may occur, of course, in combinations resulting in seral stages having one or more types in competition. Succession may apparently take a short cut where land is cut over but not cultivated. Also if the forest is only partially removed, a mixed community of old and new results. In this and other regions of New York (i.e. Alleghany State Park, Saunders, 1936) this usually results in a Beech-Maple-Hemlock association.

Several dynamics of succession are plotted on figs. 2 & 3. Basal area is closely correlated with density of large trees, both increasing as the forests mature. The number of dominants, on the other hand, decreases from 4 or 5 in young stages to 1 - 3 in older communities. The density of trees and herbs is inversely correlated, whereas the shrub layer tends to reach maximum development in the intermediate forests.

Perhaps it is to emphasize the obvious, but natural communities do change, and open land planning which fails to take this into consideration is deficient in planning.

Given the above description, we should then be able to anticipate some of the changes that will occur in the absence of our intervention. We should not, however, be too quick in labeling some processes "natural: and others "man made", for mankind influences all these processes both from past and present activities. Likewise, the "natural beauty of the Rensselaerville Falls, Lake Myosotis, Lincoln Pond and the lands around them . . ." is for the most part man made.

Future Newsletters will focus on specific issues and options for the management of the Preserve.

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I have invited a graduate student from Syracuse University, who is conducting research on deer behavior, to visit the Preserve and investigate the feasibility of conducting his research here. Should this research be appropriate, I would then be able to answer some of the questions raised by the Board of Directors regarding deer management.

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It is with regret that we record the death of Dr. Lewis A. Eldridge, Jr. on Sunday, October 23rd. Dr. Eldridge was a member of the Board of Directors of the Preserve, and a Trustee of the Huyck Foundation until 1975. Dr. Roswell A. Eldridge replaced his father as a Trustee of the Huyck Foundation. Louie Eldridge was a quiet and gentle man, who loved the beauty and serenity of the Preserve; he nourished and protected it. No member of the Preserve had a greater interest in the visiting scientists or their research. He will be missed though not forgotten.

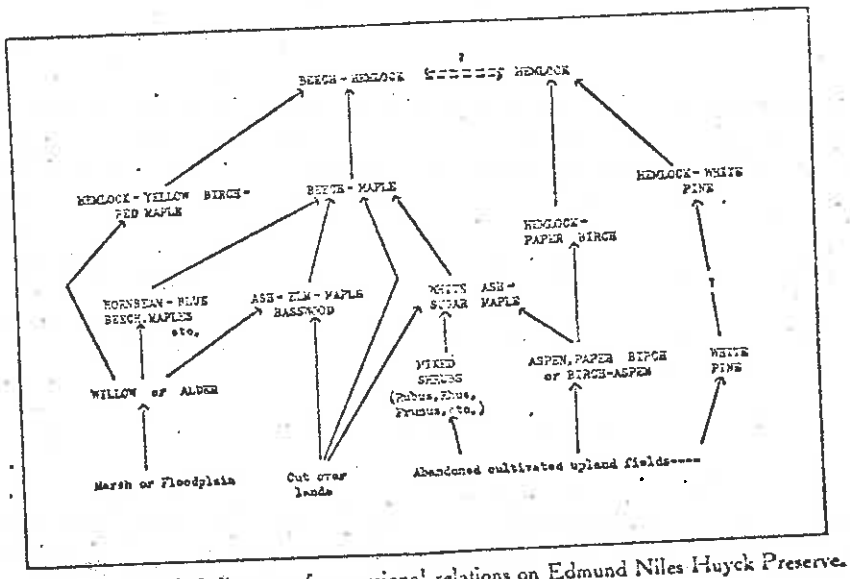

Fig. 1. Simplified diagram of successional relations on Edmund Niles Huyck Preserve. See text for details.

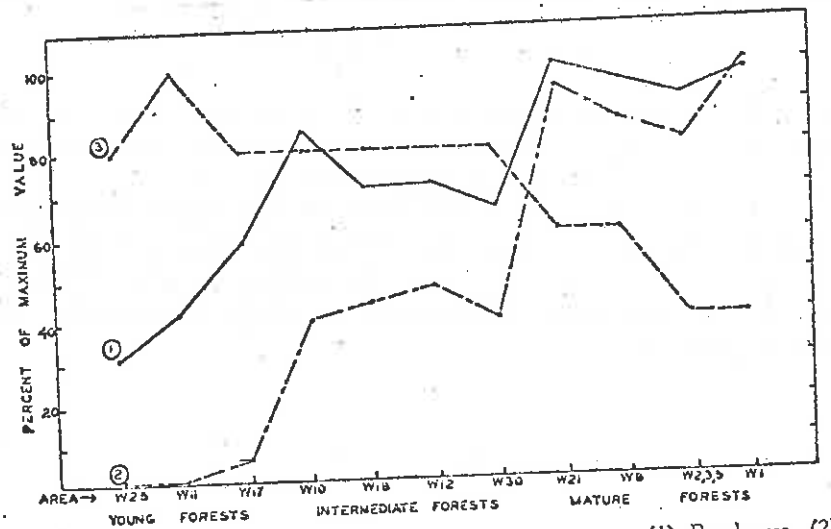

Fig. 2. Comparison of successional dynamics of eleven areas. (1) Basal area. (2) Density of trees 10 inches d.b.h. and over. (3) Number of dominant species comprising 90 per cent of the basal area (maximum number is five).

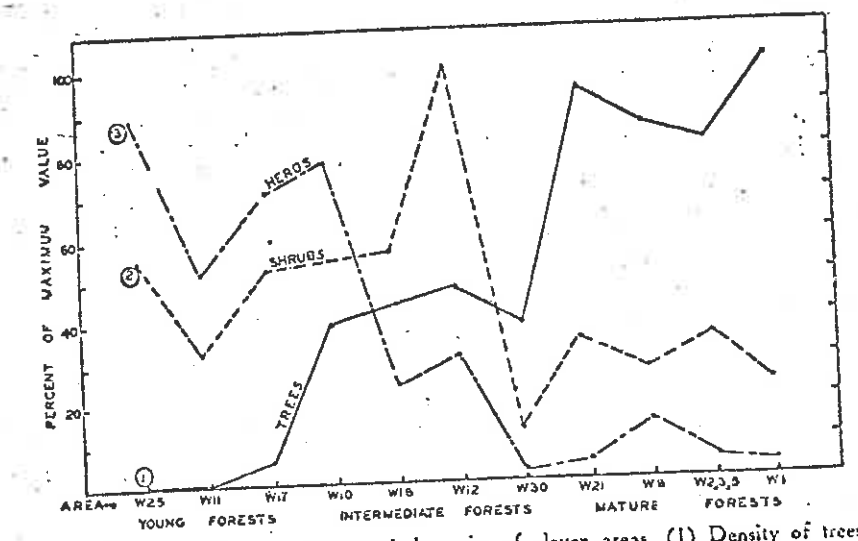

Fig. 3. Comparison of successional dynamics of eleven areas. (1) Density of trees 10 inches d.b.h. and over. (2) Density of shrubs and seedlings (under 1 inch d.b.h.). (3) Herb density in average percent of ground covered by foliage.