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A. N. Wilcox

W. J. Breckenridge

R. L. Donovan

T. B. Magath

H. E. Stork

See next page for additional authors

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indicate that the germ-plasm carries only good qualities. Often defective germ-plasm can be carried, unknown to the family until the birth of a defective child. Under the circumstances, it seems wise to marry outside the family. If a person knows that he is a carrier, or if he knows that he may be a carrier for some defective trait, he assumes a grave responsibility if he marries a relative or if he marries a person who has a similar defect in her family history.

I express my appreciation to Dr. M. C. Petersen of Willmar,

Minnesota who examined one of the members of the family.

### FURTHER PROGRESS IN THE SEARCH FOR NATURAL HISTORY AREAS IN MINNESOTA

Report of the Committee on the Preservation of Natural Conditions by

> A. N. Wilcox, Chairman W. J. Breckenridge

R. L. Donovan

T. B. MAGATH H. E. STORK GUSTAV SWANSON

In 1937 the Minnesota Academy of Science undertook a program of encouraging natural history studies on the indigenous plant and animal communities in the state. The first step in this program was a search for tracts of forest or prairie which were well enough preserved and large enough to be suitable for such studies. The search was begun by the Committee on the Preservation of Natural Conditions, which was appointed in 1937 and made its first report in 1938.1

Since the annual meeting in 1938, the work of the Academy along this line has included a careful survey of the southern part of the state for well preserved and large remnants of the deciduous forest, of a vigorous but unsuccessful effort in cooperation with other agencies to obtain passage of an act to establish the Nerstrand Woods State Park, and of a more detailed investigation of the Cedar Creek Bog, all of which were carried out by the Committee on the Preservation of Natural Conditions, and of the location in Itasca State Park of an area suitable for natural history studies, carried out by the Subcommittee on Itasca State Park. The work of this subcommittee, which was appointed by the president, is described in a separate report.

A survey of all of the southern Minnesota counties which once contained deciduous forests was made for the purpose of determining just how many remnants of this type are left which are suitable for natural history studies requiring a considerable area, and how well preserved and how desirable they are. The aerial survey photo-

<sup>&</sup>lt;sup>1</sup> Report of the Committee on the Preservation of Natural Conditions. Proc. Minn. Acad. of Science 1938, 6:20-25.

graphs used by the Soil Conservation Service were kindly made available to us. These were examined carefully and the location was determined of all the larger remnants which appeared to be in a reasonably good state of preservation, or which appeared to be large enough or dense enough to merit closer investigation. The best of these forests were then visited by W. J. Breckenridge, L. M. Gould, C. O. Rosendahl, Gustav Swanson, and A. N. Wilcox, all of whom were acquainted with the Nerstrand Woods.

The areas visited included one in Olmsted County, two in Fillmore County, one in Houston County and one in Winona County. Two of these forests appeared to include tracts about as well preserved as those in the Nerstrand Woods and to contain very interesting biological features. These forests deserve more thorough investigation. Both of them lie very close to the borders of the state, however, and are therefore far less accessible to most of the investigators and students of natural history in Minnesota

than are the Nerstrand Woods.

The study of the aerial photographs revealed that strictly within the area once covered by the Big Woods, there is apparently no single remaining tract covering as much as five hundred acres of dense or nearly undisturbed forest. What appeared to be the best of the smaller tracts was located for further examination.

#### The Nerstrand Woods

Continued cutting in the Nerstrand Woods and the increased purchases of timber land for cutting indicate that the unique values which make the preservation of these woods so important must soon be lost unless the tract is purchased for preservation. The large number of small holdings in this forest is considered to make the acquisition by a private agency impractical and to necessitate purchase by a public agency with power of condemnation. In spite of certain disadvantages of acquisition for a state park, this has appeared to be the most practical way of preserving the Nerstrand Woods. If cutting were to be arrested soon, the natural features of the remaining forest would be preserved in nearly their original condition for scientific purposes, and if at the same time the areas recently cut over were protected from burning, plowing and grazing, these portions would in time resume their beauty and assume a close resemblance to their original condition, so that their values for recreational and aesthetic purposes would be restored.

It is regrettable that the efforts made this year to preserve the Nerstrand Woods as a state park were, like efforts made in the past, unsuccessful. During the recent session of the legislature identical bills were introduced in both houses providing for the establishing of the Nerstrand Woods State Park, appropriating \$88,000 for the purchase, by condemnation if necessary, of 1,320 acres of specified lands, and providing that a portion of the park should be preserved for scientific and educational purposes. The members of

your committee assisted in drawing up these bills, participated actively in the work of calling public attention to their importance, and supported them in hearings before committees. The publicity work included correspondence, talks before organizations, the preparation of articles for publication, and the preparation and presentation of radio programs. Splendid cooperation was received from many members of the Academy and from other organizations, committees, newspapers, and radio stations.

The Nerstrand Woods bill was favored by the committees on state parks of the two houses of the Legislature, but was not approved by either the Senate Finance Committee or the House Committee on Appropriations. This was not surprising in view of the unusual record which the Legislature made with respect to economy, and it should not be taken to mean that further efforts will necessarily be futile. The desirability of the project was recognized by many legislators, and it seemed to be conceded that, because of the publicity, the Nerstrand Woods would have had to receive first consideration if it had been possible to establish any new state park.

The presence in the Nerstrand Woods of a number of species of plants which are not found in the Big Woods area, but which are characteristic of the Mississippian forest, has indicated that the Nerstrand Woods was probably at one time an extension of the forest type which came upward into Minnesota along the Mississippi River. An early survey of Rice County showed the Nerstrand Woods in 1877 as being much larger than at present, covering at that time about six thousand acres and extending westward to within a half mile of the eastern edge of the Big Woods. This strongly suggests the possibility that at some time there may have been a connection between the two, so that the present Nerstrand Woods shows a unique relationship to both of the great deciduous forest types of Minnesota. The presence in these woods of certain relic plants of the Canadian type forest is well known, and has been an additional factor in giving interest and scientific importance to these woods.

Although the desirability of the Nerstrand Woods is rapidly decreasing, the values still remaining are so outstanding that they justify the continuance of vigorous efforts to have the woods pre-

#### Cedar Creek Bog

At the last meeting of the Academy the committee recommended the preservation of 240 acres in the area known as Cedar Creek Bog. A more careful study of this region has revealed that a larger area is desirable. The tract originally recommended included a lake surrounded by dense stands of white cedar and with higher land on which there were white and red pines. The preservation of this tract would be very worth while, but the preservation of a somewhat larger tract could be better justified because it would not

only include additional features, as valuable in their way as those already mentioned, but would also insure the better preservation of the wild life in the original nucleus. A compact and easily defined area of one thousand acres would add to the types already mentioned a dense stand of black spruce surrounding another but smaller lake, about two miles of creek with beaver dams, a tamarack swamp, a large, open meadow, and additional stands of pine, and would provide a much better range for the deer, grouse and other wild animals which are now present in abundance but which would soon be restricted to a small tract if the cutting which is now going on were not stopped. The larger area would also have natural boundaries along roads or the edges of woods which would aid in preventing fire and other disturbance.

Certain public-spirited owners of tracts in this area have expressed a willingness to bequeath their parcels in order to help establish this natural history refuge. The total cost of acquiring one thousand acres would probably be in the neighborhood of twelve thousand dollars. Although a tract of this size seems to be the most desirable, the project is so flexible that two hundred acres would be worth while, but the inclusion of as much as fifteen hundred acres would be possible without encroaching on the agricultural land

surrounding the wild area.

It is recommended that during the coming year special efforts

should be made to preserve the Cedar Creek area.

The more thorough search for tracts of forest and prairie which are well enough preserved and large enough to be suitable for natural history studies on the plant and animal communities which once maintained themselves over the largest portions of the state has revealed the alarming fact that the several remnants which can still be found are, with few exceptions, threatened with destruction. All of those which are accessible to most of the people of the state are so threatened. The threat has become acute during the last few years. Vigorous efforts meeting with a generous response will be necessary to save these last links with the great self-sustaining natural communities of the past.

Summary Report of the Subcommittee on Itasca State Park

by

Gustav Swanson, Chairman
A. M. Elliott
C. O. Rosendahl
A. A. Granovsky
A. C. Vogele

The chief task of this subcommittee during 1938 was to choose a suitable area within Itasca Park which could be designated as a natural area for ecological studies by Academy members and other investigators. The conditions which it was felt should be satisfied were: (a) that there should be reasonable assurance of permanence and freedom from any change in the natural conditions now prevailing, (b) that the area should have all of the different habitat types possible, but (c) that it should not be too large to discourage complete ecological studies of the entire area. The subcommittee feels that the area which has been chosen fulfills these conditions quite satisfactorily.

The members of the subcommittee who were resident at the University Biological Station were sufficiently acquainted with the area to be able to eliminate most tracts from consideration, and Dr. Donald Lawrence was called upon to investigate the possibilities of one area which from its isolation appeared to be suitable. This area was eliminated because it contained little except second-

growth timber, chiefly aspen.

On August 28, 1938, the entire committee met and spent the day in a general reconnaissance of the one area which seemed to fulfill the conditions best. As finally chosen, the area consists of about 1900 acres lying directly across Itasca Lake from the University Forestry and Biological Station. A map showing the main forest types, topography, and extent of the area has been prepared and is available for the perusal of anyone interested. The area lies within sections 9, 10, 15 and 16 of Township 143, north, and Range 36, west.

This particular area was chosen for the following reasons:

(a) It has the greatest possible diversity of habitat types in a comparatively small area; there are stands of each of the following forest types — white pine, Norway pine, jack pine, balsam, mixed hardwoods, aspen, white cedar, tamarack, alder, and spruce-balsam; in addition there is a stretch of nearly a full mile of lake shore, a small creek, a small but permanent pond or lake entirely within the tract, and a floating bog. The diversity of types it was felt was a distinct advantage.

(b) The area is very little disturbed by the tourist or picnicker because it is accessible chiefly by water. The park road which forms the west and a portion of the south boundary brings little disturbance because such a long trip afoot is necessary to reach most of the area. Furthermore, this is a portion of the park which we have been assured by the State Division of Parks will not be developed in any

way.

(c) While it is somewhat difficult of access by automobile, except along the west margin, the area is very easily and quickly reached by water from the University station. Investigators using this as their headquarters will not be handicapped in the least.

The 1900 acres may prove to be too large an area for intensive studies of some groups, and if this proves to be the case, a smaller area can easily be designated within the larger one already chosen. For studies on the various vertebrates present, however, the larger area seems most suitable.

# MINNESOTA'S CONTRIBUTION TO AMERICAN MEN OF SCIENCE

H. E. Zabel

Clay-Adams Co., Chicago

(Published privately by Dr. Zabel)

## THE IMPORTANCE OF LEAD POISONING IN MINNESOTA WATERFOWL

Gustav Swanson and Thos. L. G. Osmer University of Minnesota

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