We Need MANY MORE Scientific Areas

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Wilderness or scientific areas advance the frontiers of knowledge. We have made a start in setting them aside. Local groups can further a worthy cause by locating and acquiring valuable sites.

To the biologist, especially to the research biologist, conservation does not only mean wise use when a use is known. To him, conservation also means preservation when no direct immediate use has as yet been found.

We have come to realize during the last 30 years that preservation of soil or forest for economic reasons is not enough; that to really make advances in proper conservation we have to learn to understand the immense complexities of what the British ecologist, Tansley, called the *ecosystem,* the interrelationships of plants, animals and their environments. In order to study these, we need to preserve areas containing undisturbed ecosystems for scientific study. These we call scientific areas.

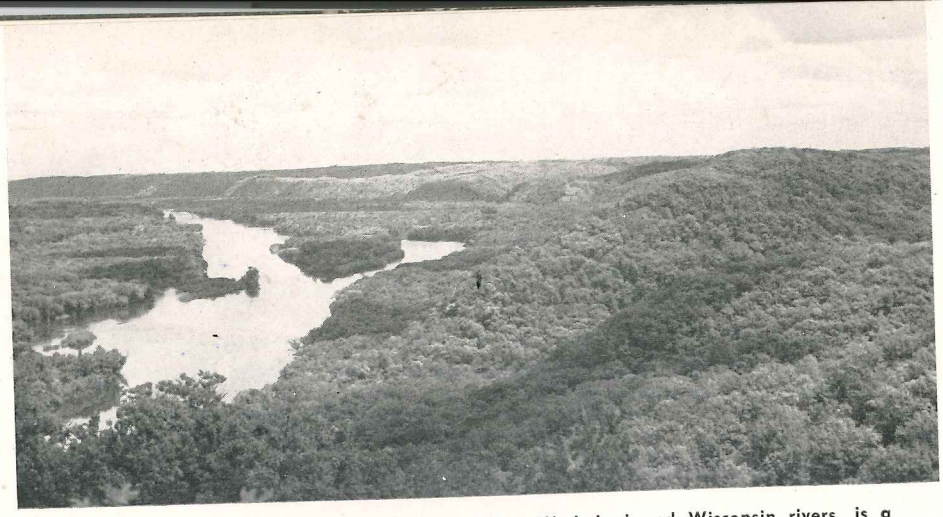
WHAT do we really know about our Wisconsin land and soil, our plants and the animals that feed on them, and the myriads of delicate ecological relationships between all these organisms? The truth is, we know very little, despite the fact that we know more about the natural history of Wisconsin than that of most any other state.

Natural history is in many ways in its infancy. We may know about how many species of plants grow in Wisconsin, but do we know where and why? And if we think of insects, fungi, bacteria, and other small organisms, in many instances we do not even know their names, far less their potential uses, or importance in the schemes of the living world.

There are countless questions that can be asked. For example, what effect do all these organisms have on soil formation, or on the growth of trees? What are the factors that produce the types of soil found in Wisconsin? What effect does selective cutting have on the heredity of tree species? Why are species such as chestnut, elm, or oak so vulnerable to disease, especially now that most of their habitat has been disturbed by man? What is the maximum size of a tree? How many local genetic types of, say, red oak or sugar maple are there here? Are there any strains of oak that are wilt-resistant?

EACH WOODS or prairie has particular forms of each species, each form specially adapted to that particular site. The differences between them may be minute, but they are there and they can be measured. With all this variety, each area is therefore a tremendous storehouse of potential resources, not only for ecological or taxonomic research but also for the source of as yet unknown economic products of plants. What month goes by when we do not read of a new antibiotic or a new drug that originated from plant sources? We therefore need to keep inviolate samples of as many types of vegetation in as many situations as possible, to keep from extinction as many species and genotypes as possible. Is there a one among us who could evaluate the potential of *Lespedeza leptostachya*? None of us can, for this legume disappeared from Wisconsin with the plowing of the prairies. And once extinct, no human effort can ever recreate this or any other species!

It is indeed a small price to pay, to buy 50 acres of prairie! For from such a prairie as this, which would barely support a family, came streptomycin, or



In Wyalusing state park, at the junction of the Mississippi and Wisconsin rivers, is a 200-acre scientific area which contains virgin hardwood forest as well as some of our rarest plants such as *Sullivantia* and jewelled shooting star.

strains of penicillium, which helped save this country billions in man-hours and human suffering, or may come a valuable strain of grass or legume.

There are many more questions for which we do not as yet know the answers. To get the answers, we must carry out basic research. To carry out basic research we must have natural or scientific areas, that is, tracts of land in a natural state, set aside and permanently protected or managed to preserve native plant and animal communities, free from *any* kind of interference that will destroy the community. Cultivated land or grazed or cut forest has different living things—the complex system has changed and with it, the original value for basic research has been lost.

To quote Aldo Leopold: "The science of land-health (i.e., conservation), needs, first of all, a base datum of normality of how healthy land maintains itself as an organism.

"Paleontology offers abundant evidence that wilderness maintained itself for immensely long periods . . . . soil was built as fast or faster than it was carried away. Wilderness, then, assumes unexpected importance as a land laboratory.

"One cannot study the physiology of Montana on the Amazon; each biotic province needs its own wilderness for comparative studies of used and unused land. It is of course too late to salvage more than a lop-sided system of wilderness remnants, and most of these are far too small to retain their normality. All wilderness areas, no matter how small or imperfect, have a large value to land-science. The important thing is to realize that recreation is not their only, or even their principal, utility."

What are, then, the principal purposes of wilderness and scientific areas? First of all, it is here that we can preserve permanently the tremendous compelxity of undisturbed natural biotic communities, so that we may further the understanding of nature for the benefit of man by basic research into the ecology, taxonomy, and economic uses of its organisms, and to transmit such an understanding to students of this and later generations.

For advanced students of the land-use sciences, a virgin maple woods or bluestem prairie is a "living museum," an outdoor classroom, a check or control experiment, and a biological storehouse, whose demonstration value is tremendously important in teaching. Without such a demonstration, no teacher, no matter how good, can ever transmit to the student the knowledge he needs to properly evaluate the effects of the activities of man on his surroundings or ever hope to know nature. To understand the soil of a plowed field he needs first of all to understand the intact, un-

plowed soil profile of an oak opening or a prairie. There simply is no substitute!

For that reason *scientific areas must never be disturbed, cut or grazed,* except in the specific cases where management is necessary to preserve a vegetation type (e.g., the burning of prairies). So-called improvements, like trail building, clearing out over-mature timber or dead trees, or spraying with DDT, or 2,4-D, are incompatible with their functions.

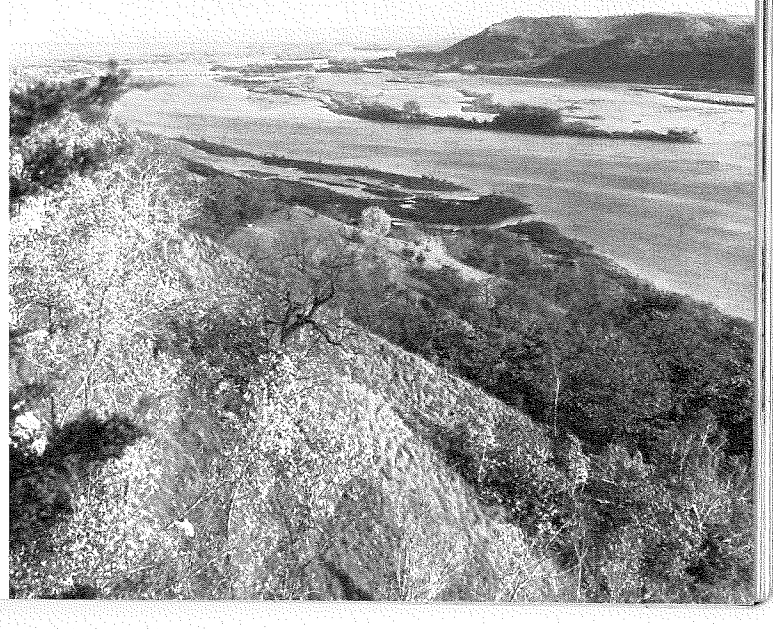
To the biologist, in addition, the scientific areas may represent in some cases sanctuaries for valuable and rare species of plants or animals (such as the blue aconite in Parfrey's Glen), or of whole communities, such as the wild flowers of the Ridges Sanctuary or the Cedarburg Bog species and communities which give us clues to the past history of Wisconsin's living things.

Now what do we have in Wisconsin in terms of scientific areas? Wisconsin has a number of interesting and valuable scientific areas already set aside. The number is as yet pitifully small, considering the size of the state and the potential value that will be derived from them in the future.

Through the efforts of Norman Fassett, Aldo Leopold, John Curtis, Albert Fuller and C. L. Harrington, just to mention a few, a law was passed in 1951 to establish a State Board for the Preservation of Scientific Areas. This board has worked hard to preserve some 28 of the areas in immediate need of preservation. But in Wisconsin we need not 28, but 280 or even 500 such areas, scattered throughout the state, to give us a full representation of the vegetation mosaic that used to cover the landscape. This is the great need, the urgent problem, for time is running out.

What are the specific problems that we face, in trying to acquire land for such purposes in Wisconsin, we who are convinced of the value of conservation, and who have a deep faith in the over-all concepts of conservation on a scientific basis?

Many of the areas on your map are



The steep slopes of Brady Bluff Prairie scientific area harbors at least 100 prairie herbs. This area is located in Perrot state park, Trempealeau county.

state property and their acquisitions involved relatively simple transfers of status. This type of acquisition is now coming to an end, for except for some wetlands there are only a few desirable and obvious areas left in state ownership that the board has not recommended and actually set aside for preservation.

Many areas that are of great scientific value are in private ownership and cost money, often *much* money. And unfortunately, many of these which are in the greatest need of being conserved, are also those that are valuable commercially—upland prairies, upland virgin hardwoods, and coniferous forests. Climax communities can only be bought at great expense, for there are few such areas left and these are very valuable, even though often less than 40 acres in extent. Nevertheless, some of these will have to be bought, no matter what the expense.

While money is the big bottleneck in the acquisition of land, there is much that can be done at the "grass root" level. As a matter of fact, it is the conviction of many that this is the real answer to the problem, that the hope of preservation for many local areas lies in the efforts of the conservation leaders of the community, you who are reading this, and in the various organizations, from Garden Clubs to Friends of the Native Landscape, from the Izaak Walton League to the Nature Conservancy.

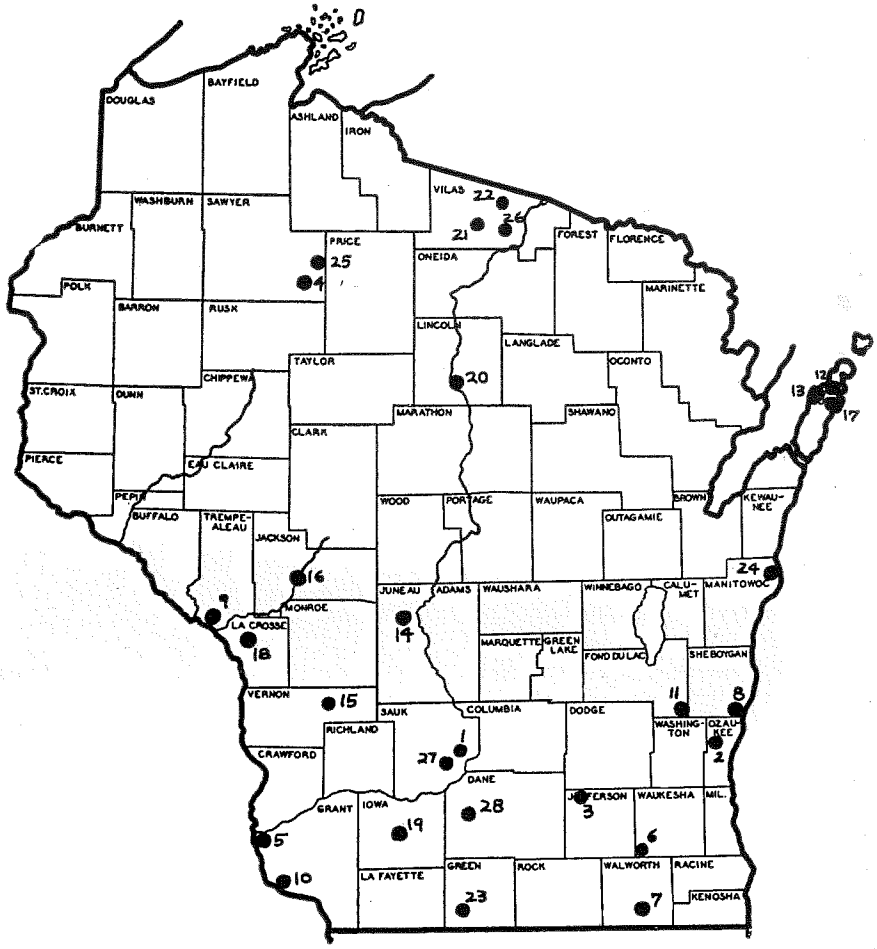
To show that even if funds are lacking, local support *is* the answer, I would like to give you an example of a recent instance in Marquette county.

The great conservation leader John Muir grew up near Ennis lake in Marquette county. This beautiful lake is surrounded by a marvelous alkaline sedge meadow, with a wealth of rare grasses and sedges, gentians, and orchids, and

On the shore of Trout lake, Vilas county, is Conifer Swamp scientific area, a forest of mature white cedar, black spruce and tamarack with an understory of heath family members, orchids and other bog plants.

others, a type of community not well represented in any of the existing scientific areas. Some fine oak openings and prairies are found on the surrounding upland. A forester at the University of Wisconsin, Fred Trenk, a lady in Montello, Mrs. Adrian, and many members of the Garden Clubs of the region, thought it would be fitting to preserve this lake and its surrounding area in memory of John Muir.

A local committee was formed, a de-



Scientific areas of Wisconsin: 1. Parfrey's Glen. 2. Cedarburg Bog. 3. Faville Prairie. 4. Flambeau River Hemlock-Hardwood. 5. Wyalusing Wilderness Area. 6. Scuppernong Prairie. 7. Wychwood Sanctuary. (Originally set aside by the University of Chicago, but has been subdivided into lots.) 8. Cedar Grove Game Refuge. 9. Brady's Bluff Prairie. 10. Dewey Heights Prairie. 11. New Prospect Hardwood Forest. 12. Peninsula Park Beech Forest. 13. Peninsula Park White Cedar Forest. 14. Jack Oak Natural Area. 15. Mt. Pisgah Hemlock-Hardwoods. 16. Castle Mound Pine Forest. 17. Ridges Sanctuary. 18. Midway Prairie. 19. Pine Cliff. 20. Council Grounds Pine Forest. 21. Trout Lake Conifer Swamp. 22. High Lake Spruce-Balsam Forest. 23. Browntown Oak Forest. 24. Wilderness Ridge. 25. Pickerel Lake Conifer-Hardwood Forest. 26. Plum Lake-Star Lake Hemlock. 27. Devil's Lake Red Oak Forest. 28. New Observatory Woods.

tailed botanical survey was made, land and money were donated, and before we knew it, and without any financial help from outside, the citizens of Marquette county were dedicating a county park, and at the same time, though few were aware of it, a valuable scientific area. And now some people in that county are continuing this work, and are talking of preserving other areas, such as a good tamarack bog or one of the geologically fascinating quartzite monadnocks. If each county would follow suit, much could be accomplished!

YET ANOTHER way that scientific areas might be set up is in conjunction with school forests. These, in Wisconsin, are the justified source of much local pride. However, in one way these need to be improved. To fully utilize the teaching and research potential of each school forest there should be, in every one of these, a portion that is left undisturbed and unmanaged. Even though virgin or mature stands are now rare in school forests, one portion of each, even if now second growth, should never be cut, or grazed or "improved," and should be allowed to grow unimpaired to maturity and climax conditions. The only attention that it would need is absolute protection from human interference. Then silviculture could be taught, not only by means of monotype plantations, which we now know are inferior to mixed forest growth, but also by comparing the man-managed forest with the base line, the standard, the mature climax forest.

Such control areas in conjunction with every school forest, scattered throughout the state, would not only help improve the education in forestry, conservation and biology of every school, but would be of inestimable value to the present and future scientific study of land use. And all this with very little money, for considerable acreage is already available for this purpose. The only thing that is needed is a change in viewpoint and a bit of vision.

In Madison we have a good beginning, for recently magnificent Stewards Woods was given to the school system for just such purposes. This is an example that shows people do give to schools a good woods just as readily as a poor one. How many "Stewards Woods" are there in Wisconsin for education of our youngsters?

OF COURSE, there is one very important point to remember—namely the absolute protection of scientific areas from human interference, and this includes protection from over-eager conservationists, foresters, and local Chambers of Commerce as well. Recent instances of the disturbance and destruction of some areas point up the everlasting danger even to areas already owned by responsible agencies.

This often well-meant changing of the character of an undisturbed habitat defeats the purpose of scientific areas. Thus Upham Woods, on Blackhawk island at the Dells, owned by the University of Wisconsin and used by thousands of students each year, must not be managed." For isolated areas such as this, because of their rarity, will have ever-increasing value only if left alone. Protection of such area must be ironclad —absolute and final—so that no matter how powerful the interests, or how lucrative the incentives, the areas will be safe for continued and long-range use by scientists for years to come.

AND FINALLY, we need to know where good areas are, and in this we need your help. There is no guarantee, of course, that once a potential scientific area has been spotted that acquisition is guaranteed. But in absence of such knowledge, many of the finest areas will disappear without trace or record. You, who go out into the country, year in, year out, can give all-important help here, help that is badly needed.

So tell us where good and undisturbed prairies, forests, bogs or beaches are, stimulate local interest, and help preserve and increase the scientific areas of Wisconsin.