



FIG. 1. The Raymond and Margaret Dreier Robins Memorial Forest showing invasion of a hardwood understory. The preservation of this longleaf pine forest in its natural state requires the use of controlled burning. Photo by Roy Komarek.

## Wildfire and Natural Area Preservation

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THE NATURE CONSERVANCY is a private, non-profit corporation established for the purpose of preserving natural areas. It is stated that, "Every untouched, natural or wild area that can be saved from exploitation gives tomorrow's generations a link of America's past."

In support of its premise that natural areas are indispensable it is further stated that:

Natural areas constitute an irreplaceable resource, as important to mankind as the earth's economic products. They are the resource that exemplifies the past for the benefit of the future. Once they have been destroyed, they are gone forever.

The more civilization crowds forward, the fewer natural areas there will be, and the more precious they will become. If there are to be any natural areas left for the future, they must be set aside today.

Natural areas are requisite to our way of life, for it is to nature that man frequently turns for inspiration. Also, they furnish the only true background against which to measure the changes that civilization has wrought in our environment. They often help us to understand and tolerate such changes. As living examples of an earlier day, they provide unsurpassed opportunities for studies in the natural sciences.

Ten years ago, the Conservancy considered only areas that were undisturbed, but today it also acquires lands where the forces of nature have restored the natural balance. It is deeply concerned with providing sanctuary for an endangered plant or animal species. In one case it is holding lands to see just what course an exotic will take if allowed to grow untouched.

The first reaction to preservation of any biotic community is to bar any further disturbance by man and simply to let natural forces take their course. On first impression, this may sound fine, but the hard facts are that this is just not possible and is furthermore, self defeating. Even if there is no trespass, the elimination of the predators, the destruction of bird life, changes in the insect population and the encroachment of exotics all have a very significant bearing upon every biotic community. Perhaps the greatest of these influences is the elimination of wildfire through modern technical advances in fire control.

In thinking of land in a natural state, we must recognize, that at this latitude, natural fires have always swept over the vegetation and on this continent the American Indians used fire extensively to manage forests for their hunting and agricultural benefit. The stability of the biotic community has been dependent upon fire.

In its official statement relative to management, the Conservancy makes provision for steps to be taken to simulate natural conditions. The official publication relative to land management, "Nature Conservancy Policies for the Preservation, Care and Use of Natural Areas" recognizes that human disturbance, in some degree is almost universal and that there must be further manipulation of the natural environment, according to a carefully determined plan. There is a specific reference to fire ecology. It is, "Fires, whether set by man or lightning, may have affected an area, and either destroyed natural communities, or led to development of communities which are adapted to burning, and are relatively stable so long as fires occur, but will change if fires are prevented." Now, a few years after this manual was printed, it might be revised to read, "have almost universally affected." We might venture to add that where fire is excluded over a period of several years the land ceases to be a living museum of the past.

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To a limited extent, this statement has been put into practice with interesting and dramatic effect. Shooting Star Hill, in Green County, Wisconsin is a classic example of fire as a management tool in the restoration of a natural prairie. A comparatively small tract of rough ground had escaped the plow and suffered only limited grazing. However, exotic plants introduced from nearby farms had turned it into a jungle of weeds. It was thought that most of the natural vegetation had been crowded out. A scientist from the University of Wisconsin arranged for its acquisition by the Conservancy and then, at the proper time in early Spring, fire was applied. By August, the native flowers were back in all of their glory, having been freed from the oppressive force of the exotics. These, unadapted to fire, had been killed. Numerous plants were soon abundant where previous search had led to the conclusion that they were extinct. Thus a true



FIG. 2. Oliver Prairie (Shooting Star), Wisconsin. Land near a quarry had escaped the plow but exotics had replaced native plants. After a single controlled burn, the native plants were back. Photo by Hugh H. Iltis, Univ. Wisconsin.



FIG. 3. Helen Allison Savanna, Minnesota. After several years of fire exclusion, trees and woody plants were converting a savanna to a forest.

'living museum' of the Wisconsin prairie as it was before the white man came, was restored.

At the time of the acquisition, the tract now known as the Helen Allison Savanna in Anoka County of Minnesota was reverting to woody plants, brush and trees. Now, burnings are being used on clearly defined sections to study the effects of varied frequency of fire. Obviously, this was a savanna because of prairie fire and without its occasional return the land would have lost the quality of a 'living museum.' It was interesting to note that ant hills in the prairie are constructed with a fire barrier of clean sand around them. Those where the barrier was broken were burned out or at least badly damaged by the fire, while those with a perfect sand barrier were unharmed. Obviously these insects had adapted themselves to the prairie fire sequence.

Where forest cover is the object of preservation, the management problems are far more complex and difficult. This is partly a ques-

tion of objectives and partly one of general attitude toward burning. In a dense virgin forest such as Dysarts Woods in Ohio, all exclusion of fire is probably wise, especially because it is a show place of big hardwoods. In a tract of mixed young timber where it is hoped that another generation may view a mature forest, the proper course is not so easy to establish. We know that the forest succession with fire excluded will be very different from that which evolved in ages past. In forest preserves where it would be fifty years before the loss by fire would be replaced, the public enjoyment in this generation will not permit that waiting period.

Some cases do warrant the use of controlled fire. The Conservancy is fortunate in having management of a four hundred acre tract of virgin longleaf pine near Brooksville, Florida. This is the Raymond and Margaret Dreier Robins Memorial Forest. At one time it was a very beautiful place. Due to management problems under the U. S. Agricultural Research Service a hardwood hammock succession was beginning to take place. A dense understory of brush and hardwoods was choking out the young pine, and had greatly altered the ground cover. Now, The Nature Conservancy has been given management and a program of controlled burning has been instituted. One section is being left strictly alone to study the consequences of exclusion of all fire and other disturbance. Other areas are being burned and managed under varying plans so as to see exactly what does take place under each set of conditions.

Since longleaf pine survives the burning, in fact thrives upon it, the Conservancy does not have the problem of forest appearance to worry about that it might in a different kind of forest complex. Furthermore the basic objective—the preservation of longleaf pine—was understood by those who might want to visit the area.

At this point, I would like to mention that the Conservancy would not have been able to undertake this project without the wholehearted cooperation of several public agencies. The entire estate had been given by Colonel and Mrs. Robins to the Department of Agriculture which had in turn, placed it under the Agricultural Research Service. That body is engaged in important beef cattle research and is not prepared to manage a forest stand of this type. Still, it recognized the need and placed the management in the hands of the Con-

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servancy. Tall Timbers Research Station provided technical advice and guidance. Even with this cooperation, it would not have been possible to conduct the burn with the limited financial resources at hand. It was the Florida Board of Forestry that provided the manpower and equipment plus on-the-spot supervision to do the job. Whatever good comes from this project is due to the combined effort and good will that has prevailed since the Conservancy first came into the picture.

Fire management presents a very real problem for our national parks. One situation has recently come to my attention and I would like to review it rather fully because of its implications. Isle Royale National Park is an island of 130,000 acres in the northern part of Lake Superior. It was lumbered off before the beginning of this century. Moose came in and increased in numbers far beyond what the winter browse would support. Starvation resulted and there was great loss. Beaver came in, over populated the place and likewise starved off. In about 1933, a great forest fire burned much of the island. In due time a dense growth of young spruce and fir came in. The moose and the beaver began to multiply again. At this point, it was made a national park and shortly thereafter a pack of wolves came in. A pack of about 23 animals has remained there every since. In winter, they pull down the weak and sickly moose but the strong and healthy animals are able to fight them off. Thus a balanced population of moose survives. In summer, the wolves hunt beaver to a large extent and thus have kept their numbers in check. We have a balance between wolves, beaver, moose and natural forage. However, there are problems ahead. The Park Service has been efficient in controlling natural and accidental fires. The forest is growing up. There will come a day when a maturing forest will no longer provide browse and the moose will not survive, even without the wolves. Isle Royale National Park will have lost one of its greatest attractions and a most interesting ecological study will be scuttled simply because natural wildfire has been removed. If the Park Service would elect to do so, and this is the tough one, if the public would understand it, a section could be burned at a time to do the least damage and yet restore the browse, the present unique qualities of the park could be retained.

Both the Park Service and the Forest Service have pushed an anti-fire campaign and there is much merit in it. Somehow all of us must help to find a more reasoning, less emotional approach to the place of fire in nature. Perhaps Isle Royale is the perfect case for a truly educational program.

Before we come to that, there needs to be much work done in bringing about a wider understanding of fire ecology than we now have. Tall Timbers Research Station has rendered a great service in the start of the movement but it cannot stop there. Each one who comes to see the true relationship of fire to the flora and fauna of a region must become a missionary with other people.

At this point, I am going to make a few personal observations. I had read the first three reports of Tall Timbers Fire Ecology Conferences without being convinced. In approach to the problem of preservation of the longleaf pine, I had to give the subject a hard look and I came here last year. At that conference I listened to Ed Komarek's report on the historic role of lightning set fires and an entirely different outlook on fire came to me.

Since that time, every area visited has been seen from a different perspective. One of the side effects has been a better understanding of the dangers in narrow vision and slogan inspired thinking.

Parenthetically, some of the heavy emphasis upon game management here has bothered me. Preoccupation with quail production can also narrow our vision in land management.

Last fall a protest was made because of the extensive lumbering operations being carried on at the Moosehorn National Wildlife Refuge. The answer was deer production.

One of the few remaining fine stands of second growth pine was being cut, thereby reducing a seven thousand acre tract to exactly the same condition of the several hundred thousand acres of pulp timber in the rest of the country. The hunter interests are in the driver's seat, and the sense of better management lost. Here is an opportunity for management to restore a bit of natural forest. There would probably be better deer hunting, too.

Last week, I was at Mammoth Cave National Park. I wondered what a fire, even a controlled fire would do. Would you recommend a controlled burn? I am inclined to think not, based upon the park objectives.

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Acadia National Park was burned by wildfire in 1947. Twenty years later the formerly timber covered hills remain barren rock, and they will for a hundred years to come. This is nature's course.

What I am pointing to is an unbiased analysis of what is the best use of a tract of land and then management to that end.

If it is natural conditions, then wildfire should not be excluded.

If it is preservation of a species or production of either plant or animal, then controlled burning is oftentimes the answer.

Whatever is the best land use needs to be determined and then the means to that end must prevail. May Divine wisdom descend upon us to help see the truth through the smoke screen created by vested interests and the bureaucratic fog that smothers us.

Now to my greatest concern as an educator and conservationist. A study has shown there are over 2,500 different publications in the category of "conservation" literature. They are mostly free. Over 7,000 have been studied recently and one of the jolting discoveries is that very few are prepared to find the truth. They are almost all, well over 99%, pointed to sell some special viewpoint or interest. An excellent example is literature intended for the schools of a state which presents the idea that planting pines on a prairie is good conservation. It doesn't say for the pulp wood industry.

We here, are deeply concerned that the truth about fire as a land management tool be told. This is important, and so are several other major departures from our slogan patterned thinking. It does little good for us to tell each other about fire ecology. It will matter greatly if we go out and tell others.

Somewhere there is need for a publication dealing with plain truth about land management and of man in nature. The trouble is that very few would like it, and millions would be spent to discredit it.

If we do not face up to the truth in the matter of population control, pollution and land management, I predict mankind will disappear from the earth and nature will again rule undisputed upon this planet.