

Wisconsin Natural Areas Preservation Council

GUIDELINES

Acquisition and Management of Forested Natural Areas

Introduction

Within Wisconsin there are perhaps twelve distinct forest community types not including seral stages, most all of which are represented in the natural areas system by old-growth stands. Many stands are small, so small that the internal environment may not resemble true old growth in all respects.

Tree species making up these stands range from those requiring almost full sunlight for successful growth and reproduction to those that can reproduce successfully and grow for long periods in the shade. Requirements for a germination substrate, for mineral nutrients, and for soil moisture also differ as do normal life spans and resistance to insects, disease, wind, and ice. Under natural conditions all forest stands are subject to change, partly as a result of disturbance by biotic and environmental factors. Susceptibility to disturbance varies with the nature of the disturbance, as well as with the forest type involved. Jack pine stands, for instance, are flammable but are adapted for regeneration and development following relatively frequent fire (average interval of perhaps 80 years). Northern hardwood stands are much less susceptible to fire, but as they grow in size and age, they become more susceptible to windthrow. Catastrophic windthrow has been estimated to occur at any particular point in the northern hemlock hardwood type approximately every 1200 years.

In addition to species characteristics and to biotic and abiotic disturbance, there is an element of long-term climatic change that may alter temperature, moisture, and the incidence of abiotic disturbance; all are critical to the dynamics of any stand.

Guidelines

The Natural Areas Preservation Council has adopted guidelines for management of forested natural areas in Wisconsin based on scientific knowledge of forest stands. The following are guidelines for components as well.

1. Ecological processes are to be maintained and allowed to function. These processes include successional change and biological response to wildfire, natural levels of disease and animal infestation, and windthrow.
2. Areas of adequate size should be reserved to permit such processes to operate.
3. Buffer areas may be acquired to provide for stand integrity, replacement, and for the potential for dynamic change and greater species diversity.
4. Adequate samples of younger, vigorous, high-quality stands of communities now represented chiefly by old growth should be included in the system.
5. Communities representing seral forest stages should be identified on existing natural areas. Those successional stages not now represented may be considered for inclusion in the system.



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6. Where sufficient excellent examples of a forest type are lacking, lower quality stands may be added to the system.
7. Management to maintain forest communities at a specific stage will not be attempted. Exceptions may be made in the case of communities early in successional sequences.
8. Manipulative research will generally not be permitted in forested natural areas.

Rationale

1. The natural processes within these systems are of primary interest. Understanding those processes will provide information essential to appropriate management of our forest resource.
2. In many cases, large areas are essential if habitat diversity and natural processes are to be adequately represented.
3. Since change is universal and cannot be completely predicted, buffer areas assist in providing for stand replacement as well as giving some protection to small natural areas from abiotic events.
4. Many of the stands now in the natural areas system are old-growth stands in which species may be nearing their normal life span. Vigorous, younger stands are necessary to provide representation of similar forest types over the next 100 to 300 years.
5. Many present state natural areas include zones where seral communities are present. Changes in seral communities should be monitored in specific areas and if such communities are not available, critical changes may not be observed.
6. High quality stands are no longer available for some types and replacement stands are clearly needed. Thus, lower quality communities must sometimes be considered.
7. The results of management in many forest types are still unclear. Management-oriented studies are directed to changes in composition and nature of forest communities. Therefore, changes that occur in natural areas should be monitored. Management to maintain any particular forest type is still a questionable technique, save perhaps for stands early in the successional sequence, such as jack pine, aspen, and oak openings.

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