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ILLINOIS NATURE PRESERVES COMMISSION

COMPREHENSIVE PLAN FOR THE ILLINOIS
PRESERVES SYSTEM

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COMPREHENSIVE PLAN FOR THE ILLINOIS NATURE PRESERVES SYSTEM

PART 1 GUIDELINES



Illinois Nature Preserves Commission

COMPREHENSIVE PLAN FOR THE ILLINOIS NATURE PRESERVES SYSTEM PART 1—GUIDELINES

Prepared by the Illinois Nature Preserves Commission under the guidance of the Framework Advisory Committee and in cooperation with the Illinois Department of Conservation.

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FOREWORD

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Since the creation of the Illinois nature preserves system in 1963, much thought and effort have gone into development of policies and guidelines for establishment and maintenance of a system of nature preserves that will be truly representative of the natural landscape of Illinois. This first part of a Comprehensive Plan for the Illinois Nature Preserves System is a result. It presents the purpose and objectives of the nature preserves system and the policies and criteria that have been developed to guide its establishment. It also discusses the responsibilities of the various agencies and organizations involved in establishing and maintaining the system.

Other components of the Comprehensive Plan include a discussion of the Natural Divisions of Illinois that identifies the principal vegetational types, landforms, geologic features, aquatic habitats, and rare plants and animals of Illinois that should be included in the nature preserves system. The discussion of Natural Divisions will be published as Part 2 of the Comprehensive Plan. An inventory of natural areas of Illinois and a list of rare and endangered flora and fauna are being prepared to supplement the Guidelines and the Natural Divisions. Consideration of archaeological site preservation within the nature preserves system is deferred pending completion of studies by the Illinois Department of Conservation and the Illinois Archaeological Survey.

Although much has been accomplished toward determining policy for the designation and preservation of natural areas, much more must be done, especially in determining appropriate policy and methods for preserving sites that are worthy of preservation for their scientific or educational value but that may not constitute strictly natural areas.

The Nature Preserves Commission hopes that this publication and its companion volumes will be studied and used by those interested in the preservation and use of natural lands, including scientists, resource planners, land managers, and educators. We invite comments from interested persons and will consider their suggestions in preparing future editions.

Edmund B. Thornton, Chairman
Illinois Nature Preserves Commission

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INTRODUCTION

The need for natural area preservation

Destruction of the last natural areas

During the past 150 years, man has changed the Illinois land. He has plowed the prairies, drained the marshes, cut the forests, and built homes, factories, and highways. With increases in population and advances in technology, the pace of human activity and of change in the landscape has quickened.

In Illinois the primeval wilderness is gone. The remaining bits of wild land are in jeopardy. Every day that passes marks the conversion of natural land to bare earth. A natural community of wild plants and animals that has existed undisturbed through the ages can be crushed in an instant by the blade of the bulldozer.

At this moment in history man and his bulldozers are destroying the last remnants of unprotected wild nature in Illinois. In a few years, hardly an acre will remain in its natural condition except for those areas that are deliberately set aside and protected.

Even land that is set aside in parks and forest preserves is vulnerable to disturbance. Increasing population, leisure time, mobility, and wealth have brought an overwhelming increase in the use of parks. This results in more clearing, mowing, trampling, and construction with less and less of the land left in a natural condition. In many cases, areas that were acquired to preserve unique natural features have been badly damaged by such changes.

Why preserve natural areas?

Man traditionally has looked upon the natural landscape as raw material for development, a source of materials for food and shelter, and a

medium for recreation. The scientific, educational, and esthetic values of natural land and its living things have only recently become apparent. As more about the world of nature is learned, scientists are increasingly aware of the tremendous loss that will be suffered with the impending annihilation of natural communities all over the world. The loss in real wealth from the extinction of living forms is beyond comprehension. Some of the values of natural areas are as follows:

The pursuit of knowledge

In this day of tremendous technological advancement, there can be no question of the value of basic scientific research. Technology is derived from discoveries which seemed of little consequence when they were first made. Only with a continuing process of basic investigation and discovery can the quality of our civilization and economy be improved. Natural areas are resource materials from which such new knowledge can be derived. Virtually every aspect of biological science needs the resources of natural areas.

Maintaining a healthful environment

Ecology, the study of the relations of living things to their environment, is particularly concerned with the study of natural communities of living things. With the problems of environmental pollution and degradation multiplying as a result of the headlong growth of population and technology, the discoveries of ecologists are increasingly significant. Yet the amount still to be learned about natural communities is enormous. Scientists are just beginning to gain an elementary understanding of ecological processes.

Natural areas can serve as check areas in studies relating to air, water, and soil pollution. Gaining a greater knowledge of wild communities

and populations can lead to a better understanding of the growing problems of human society, urban environment, and population control.

Guidance in land use

Natural areas serve valuable functions in research in many aspects of land management. Foresters use natural areas in their studies of the factors influencing forest productivity. Soil scientists depend on natural areas to provide undisturbed soil profiles to compare with soils altered by cultural practices and erosion.

Reserves of breeding stock

Plants and animals have evolved into a bewildering diversity of forms, varying in infinite detail with their adaptation to varying climates, soils, and living conditions. Man has chosen a few kinds for his use. These he has domesticated and improved for his purposes by selection. In so doing, he has changed the domesticated strains and eliminated many genetic characteristics that exist in related wild populations. As the science of plant and animal breeding progresses, researchers find that the wild relatives of domesticated species are invaluable sources of new genetic material. The domestic varieties may be improved by crossbreeding with wild strains having desired characteristics. The wild populations of a species are divided into geographic races that differ genetically from one another. Thus, it is desirable to set aside habitats in various locations that will serve as refuges for these various geographic races.

Unknown uses of wild creatures

The plants and animals man uses are only a tiny fraction of the wild things that inhabit the earth. The potential usefulness of the others is unknown but doubtless enormous. We are constantly discovering new uses and products from wild plants and animals previously unexploited. Penicillin, for instance, is derived from a mold. What living thing could seem more insignificant and useless than a lowly green mold? Yet from that mold, practically unnoticed until a few years ago, has been produced the most revolutionary drug in the history of man's conquest of disease. How many other equally stupendous values are hidden in the wild creatures that will continue living on earth only if we save a bit of their habitat?

Natural beauty

Natural areas are sources of beauty and inspiration, both as scenery and in the more intimate sense of the form and color of individuals and groups of living things. We have only a faint understanding of the connection between our sense of beauty and the form and order of the world of nature. But we know that a view of a natural landscape, like a work of art, can be profoundly beautiful to the beholder. Natural areas may well be considered as museums filled with irreplaceable masterpieces of art.

Living museums

Natural areas are living museums in a historical sense also. They stand as examples of the rich and diverse natural world from which the pioneers built this country. They are historic memorials — living links with the primeval past that can enhance one's understanding and perception.

Outdoor classrooms

Natural areas serve as objects of study for students of all levels, from grade school through college. Outdoor education is expanding rapidly, due to the realization that many of today's children have little contact with the world of nature except for what is provided through the schools. Natural areas provide a teaching resource to fill this need. They are also indispensable for teaching many of the more advanced aspects of biological and earth sciences. Since most wild creatures are vulnerable to man's exploitation of the land and will survive on earth only by our consent and effort, it must become a normal part of education to teach that we have a responsibility for their welfare.

Sanctuaries

Many forms of life will perish from the earth if we do not spare bits of their native habitats as havens from the flood of civilization. The large spectacular species like the whooping crane that have been driven to the verge of extinction are matched by an untold number of less conspicuous forms that are likewise in jeopardy due to a decrease in habitats meeting their specialized requirements. Simply to keep these living things on earth to maintain the awe-inspiring myriad array of living things is our obligation to future generations. We should also recognize that these creatures have a right to a place on earth.

Purpose of the nature preserves system

The Illinois nature preserves system was established by law in 1963 to secure for present and future generations the benefits of an enduring resource of natural land. Nature preserves are set aside for scientific research in such fields as ecology, taxonomy, genetics, forestry, agriculture, geology, soil science, and archaeology; for the teaching of natural history and conservation; as habitats for rare and vanishing species of plants and animals; as places of natural and historic interest and scenic beauty; and as living illustrations of our original heritage wherein one may experience or envision primeval conditions in a wilderness-type environment.

A nature preserve is an area in public or private ownership that is formally dedicated, pursuant to the terms of the law, to being maintained in its natural condition. It must either retain to some degree its primeval character (though it need not be completely natural and undisturbed at the time of dedication) or have unusual floral, faunal, geological, or archaeological features of scientific or educational value. It is to be used in a manner and under limitations consistent with its continued preservation, without unreasonable impairment, disturbance, or development, for scientific research, education, esthetic enjoyment, and to provide habitat for plant and animal species and communities and other natural objects.

The law declares that an area dedicated as a nature preserve is put to its highest, best, and most important use for public benefit and that it shall be held in trust and shall not be subject to alienation except to another public use upon a finding of imperative public necessity concurred in by the Department of Conservation, the Nature Preserves Commission, and the Governor.

An area becomes a nature preserve upon its dedication by the administering agency or owner with the approval of the Governor, the Department of Conservation, and the Nature Preserves Commission.

All departments and agencies of State and local government are empowered to dedicate suitable areas within their jurisdictions as nature preserves.

Summary of objectives of the nature preserves system

ESTABLISHMENT

To preserve adequate examples of all significant types of natural features occurring in the State.

To preserve habitats of rare or endangered species of plants or animals.

To preserve unique and unusual natural features.

To preserve wilderness remnants.

To preserve natural areas in all portions of the State.

MAINTENANCE

To provide perpetual protection for nature preserves against intrusions.

To provide management that will assure perpetuation of nature preserves in as nearly a natural condition as possible.

RECORDS

To provide for the accumulation of knowledge concerning features and conditions within nature preserves.

USE

To allow and facilitate research studies in nature preserves in such manner and to such degree as will not modify natural conditions.

To allow and facilitate the visiting of nature preserves for observation and study for education and pleasure in such manner and to such degree as will not modify natural conditions.

To provide for interpretation of nature preserves that will enhance the understanding and enjoyment of visitors.

GUIDELINES

Establishment of the nature preserves system

Establishment objectives

Preservation of adequate examples of significant types of natural features

A major objective of the nature preserves system is to preserve adequate examples of all significant types of natural features occurring in the State. Natural features include landforms and geological formations, soils, streams and lakes, terrestrial and aquatic communities of plants and animals, and archaeological sites.

The natural features of Illinois

The various classes of natural features are superimposed one on another. Any particular site represents an intermingling of geological features, soils, vegetation types, and animal life in a complex pattern.

Illinois is a meeting place of diverse ecological conditions. It includes part of the eastern deciduous forest and part of the tallgrass prairie that once extended from the Great Plains into Illinois, Wisconsin, Indiana, and Ohio. Within the State there are elements of the northern bogs, the western plains, and the southern swamps.

Forests and prairies

The original Illinois vegetation was about equal parts of forest and prairie. The forest communities vary from north to south and from wet to dry sites. The upland forests are predominantly of the oak - hickory type. The floodplain forests are generally of the silver maple - ash - American elm type, with the bottomland forests on the terrace soils of the major rivers containing a mixture of mesic upland and floodplain species. The species diversity increases from north to south and species composition varies with the permeability of the soils.

In northern Illinois, maple - basswood forests are found on some sites. A few stands of tamarack, white pine, white cedar, and white birch also occur. Beech - maple forests occur in east - central Illinois near the Wabash and Vermilion rivers and in parts of southern Illinois. Bald cypress - tupelo swamps are found in the southernmost part of the State, and shortleaf pine is found near the southwestern border.

Illinois prairies were predominantly of the tall-grass type, with extensive areas of wet prairie and marsh. The dominant grasses are generally uniform; however, the total species composition varies from one part of the State to another. The pioneers were not familiar with the prairie plants and did not leave an adequate account of the original prairie flora. Most of the prairies have been destroyed by cultivation and grazing; and some types, especially the "black soil" prairies, may no longer exist in some parts of the State in which they originally occurred.

Examples of sand prairies, loess hill prairies, gravel hill prairies, and limestone glades remain because they were not adapted to cultivation. The species composition of these prairies has been well documented. They are generally dominated by mid-height grasses, and contain species common to the Great Plains.

Preservation of examples of the various forest and prairie types is a dominant objective of the nature preserves system.

Wetlands and waters

Wetland communities such as sedge meadows, fens, bogs, and swamps contain many distinctive plant species and were generally restricted in their distribution. Most of the once vast marshes and many of the other wetlands have been drained and converted into cropland.

Illinois is partially bounded by the Mississippi, Ohio, and Wabash rivers and Lake Michigan. It has many other rivers and streams. Glacial lakes are frequent in northeastern Illinois and backwater lakes of the Illinois River valley are a distinctive feature of the State. The natural rivers, creeks,

lakes, sloughs, and ponds of the State support a diverse fish fauna and many species of amphibians, reptiles, invertebrates, and aquatic plants. Some lakes and streams have rare or unusual species that are of limited distribution. Wetlands also provide habitat for large populations of waterfowl and other wildlife.

Preservation of marshes and other wetlands in the nature preserves system is another dominant objective. The system should also include adequate representation of aquatic features and habitats. In addition, there is need for a system for preservation of scenic streams as an adjunct to the nature preserves system.

Relict communities

Cliffs and ravines provide a wide range of microclimatic and edaphic conditions which often support communities of rare plants and animals, or plants and animals far removed from their normal ranges. In some cases they support relict colonies of plants and animals that indicate the past extent of vegetation types in Illinois and the direction and extent of past plant and animal migrations. Unglaciated areas of the State harbor species which apparently have persisted from preglacial or interglacial times.

Preservation of relict communities is highly important because of their scientific and educational value.

Other natural communities

Transitional communities of trees and shrubs, plant communities of disturbed sites, and other plant communities of minor significance are found locally throughout the State. It is likely that these natural types will be adequately represented along with the more significant natural features and will require little deliberate preservation.

Soils

The bedrock, glacial deposits, and soils occurring in the State provide the foundation for plant and animal communities and determine to a large extent their distribution.

Illinois has 26 soil associations and about 500 soil types. Representation of all these soil types in the nature preserves system may be impractical, but many will be represented incidentally with the preservation of the other natural features. Areas of soils of special interest to soil scientists, such as type localities of described soils, should

be identified and protected within the nature preserves system where appropriate.

Most Illinois soils are derived from loess, a wind-deposited silt; but glacial outwash, glacial till, and alluvium are also important parent materials. Soil conditions created by sand, bedrock, peat, claypan, or fragipan are of particular scientific interest because they support specially adapted plant communities and species.

Bedrock

Except for a small amount of igneous rock and some unconsolidated deposits of Cretaceous and Tertiary age, mostly in southern Illinois, the outcrops of bedrock that occur in the State are of sedimentary materials, ranging in age from Cambrian to late Pennsylvanian. The principal cliff-forming types of bedrock are limestone, sandstone, and dolomite. Bedrock outcrops are of special interest because they are generally scarce in most parts of the State. They often are highly scenic; and, consequently, some have been protected in public parks and preserves. Caves occur in some limestone and dolomite formations.

Bedrock exposures typifying rock strata should be preserved for their geological interest and importance. Sinkholes, caves, examples of mineral deposits, and examples of fossil-bearing strata are also interesting and significant geological features that should be included in the nature preserves system where appropriate. Caves are particularly worthy of attention as they hold a great fascination for people and may provide habitat for several unusual or endangered species of animals. Significant geological features are not restricted to natural areas. Some, in fact, have been exposed by man in roadcuts, quarries, or mines.

Glacial features

The Pleistocene glaciers had a great effect on the topography and soils of the State. Glacial drifts of Kansan, Illinoian, and Wisconsinan age occur. Glacial landforms include moraines, till plains, outwash plains, kames, and eskers. Other glacial features include lakebed deposits, terrace deposits, and beaches associated with glacial lakes. The deposits of loess that cover most of Illinois were derived from glacial outwash on the major river floodplains. Glacial landforms are important features of the landscape and are valuable for understanding and illustrating the history and effects of Pleistocene glaciation. Features that significantly illustrate glacial processes and history should be preserved.

Landforms

For the most part, the State consists of a level to rolling plain of glacial till. This plain is more dissected by stream erosion in the older till of western and southern Illinois than in the younger till of the central and northeastern parts of the State. Much of the rugged topography with bluffs, ravines, and cliffs is along the river valleys and in the driftless areas. Sinkhole topography occurs in parts of western, southwestern, and southern Illinois. Glacial landforms are most apparent in the northeastern region.

Many landforms will be adequately represented in the nature preserves system incidental to the preservation of other features. Others will be protected in parks and conservation areas outside the system. Notable topographic features not otherwise protected should be included in the system.

Archaeological sites

Archaeological sites of scientific or educational value qualify by statute for inclusion in the nature preserves system. These sites are important cultural assets of the State. Many are seriously threatened because they are in locations that are attractive for development. Despoliation by vandals and by amateur and commercial collectors also causes serious losses. Archaeological features may occur at times in undisturbed natural areas but may also be found essentially intact in pasture, cropland, or other disturbed areas.

Preservation and study of archaeological sites calls for special policies and procedures. Some excavation of sites is often desirable.

The Illinois Department of Conservation has undertaken, under the guidance of its Historic Sites Advisory Council, a survey and inventory of historic, architectural, and archaeological sites. Besides providing advice and guidance, the Historic Sites Advisory Council acts as the Department's agency in nominating significant sites to the National Register of Historic Places. The Illinois Archaeological Survey, a private nonprofit agency, is making the survey of archaeological sites, funded by grants from the Department of Conservation. Surveys are being made on the basis of river valleys. The inventory is to include a rating of sites by relative importance. Formulation of

policies for the acquisition and dedication of archaeological sites within the nature preserves system is accordingly deferred.

Replication of natural features

Each significant natural feature should be represented in enough nature preserves to reasonably assure that it will not be annihilated by natural catastrophe, developmental intrusions, external land transformations, pollution, or errors in management. Replication of each type of natural feature will help insure its preservation and make it more accessible to the public. Replication will protect a greater variety of natural communities, species, and genetic variations. It will also enhance the possibilities for comparative research.

The natural divisions of Illinois

In order to distinguish the natural features of Illinois for the purpose of providing a framework for the nature preserves system, a systematic arrangement of natural geographic divisions of Illinois has been devised. This is presented in Part 2 of the Comprehensive Plan. This classification divides the State into 14 regions (called "natural divisions") and 33 subregions (called "sections"). The natural divisions and sections are distinguished according to differences in topography, glacial history, bedrock, soils, and distribution of flora and fauna. The "natural divisions" approach integrates the soils, topography, geology, and biotic communities into one classification.

The natural divisions serve as the basic classification for natural features to be included in the nature preserves system. Within each of the divisions and sections are various types of forests, prairies, wetlands, etc.; and these are to a considerable degree distinctive among the various divisions and sections. The distinctions are presented in the discussion of the natural divisions.

Each of the distinctive natural features within each division and section should be represented in the nature preserves system.

Probably some of the original natural features of Illinois have been completely destroyed. Some are very rare. Others are still moderately well represented. All are in jeopardy; and in many cases the samples available are pitiful, partly mutilated remnants that have escaped complete destruction only by accident.

Preservation of habitats of rare or endangered species

An important objective of the nature preserves system is to preserve habitats of species of native Illinois plants and animals that are vanishing, rare, or restricted in range. The establishment of nature preserves to fulfill the other objectives will also fulfill this objective to some extent. However, nature preserves may be established to provide specific conditions necessary for the survival of species that are otherwise inadequately protected. Some species require the protection of their complete habitat for survival; but others, particularly birds, may require the protection of only certain parts of their habitat such as sites for nesting, feeding, or roosting or sites that are needed only during the breeding, migration, or wintering seasons. These habitat areas do not necessarily have to be in an undisturbed condition.

An annotated list of rare and endangered vertebrates of Illinois has been prepared. Some of these species or subspecies are restricted primarily to Illinois while others are more common beyond our boundaries. Information on the habitat needs of the rare and endangered vertebrates is incomplete. No attempt has yet been made to list species of rare invertebrates or plants.

Preservation of unique and unusual natural features

Areas may be worthy of preservation because of the presence of unique or unusual features such as unusual landforms or geologic formations, unusual vegetation types, or near-virgin conditions. Many of these features were always rare and cannot be considered major features of the primeval Illinois landscape. Their preservation is justified for their scientific and educational value as well as for their interest as scenic attractions or curiosities.

This objective overlaps the others to some extent. Some natural areas would qualify as nature preserves under this objective as well as under the objective of preserving examples of significant types of natural features.

Preservation of wilderness remnants

Wilderness remnants qualify by statute for inclusion in the nature preserves system. "Wil-

derness" is here considered in the sense of the psychological effect on the observer in contrast to "natural area" which refers to the physical condition of a plot of land. An area may be natural in the sense of having a relatively undisturbed community of plants and animals yet have no wilderness value because of proximity and exposure to the sights and sounds of civilization.

Illinois still has areas large enough and sufficiently lacking in human disturbance that they convey a semblance of wilderness and afford the visitor the opportunity to experience a feeling of some degree of isolation and remoteness from the sights and sounds of civilization. Such areas are worthy of preservation because of their unique recreational value and because extensive areas of wild land are necessary as habitat for larger animals. Some caves may merit preservation for their wilderness quality.

Geographic dispersal of nature preserves

The location of nature preserves is necessarily determined by the geographic occurrence of significant natural areas. The remaining natural areas are not distributed uniformly throughout the State. Also, some regions contain a greater diversity of natural features than others.

Automobiles and highways make all portions of the State accessible to most people seriously interested in visiting natural areas. However, use of nature preserves by classes from schools, colleges, and universities is generally limited to areas that can be easily reached on an ordinary field trip. Ability of the general public to make casual visits to nature preserves is likewise limited by accessibility.

Geographic dispersal of nature preserves is desirable. Effort should be made to acquire or dedicate appropriate and acceptable natural areas that are accessible to persons wishing to use them. Students at all levels should have reasonable opportunity to study one or more nature preserves. Geographic distribution of nature preserves will also help provide protection for species and geographic races of plants and animals that may not yet be known to exist.

Use of the "natural divisions" approach as a basis for classifying the natural features to be represented in the nature preserves system will help to provide geographic dispersal of preserves.

Criteria for evaluating potential nature preserves

The statutory definition of "nature preserve" provides the general basis for establishing criteria for evaluating potential nature preserves. This definition states that a nature preserve is an area that ". . . either retains to some degree its primeval character (though it need not be completely natural and undisturbed at the time of dedication) or has unusual flora, fauna, geological or archaeological features of scientific or educational value . . ."

In evaluating a specific area to determine its conformance with statutory intent and its priority ranking in comparison with other areas, various factors are considered. These factors provide general guidelines for determining the desirability of acquiring and of dedicating an area. They provide a basis for evaluation by persons having thorough knowledge of the natural history and natural areas of the State. Separate evaluations are made of factors relating to natural quality and scarcity, factors relating to protection and management, and factors relating to availability and threat of destruction. Decisions are based on the three evaluations considered together rather than on selected individual factors.

The primary factors to be considered in evaluating a potential nature preserve are those relating to natural quality, scarcity of the natural type, and the prior representation of the feature in the nature preserves system. Factors relating to protection and management of an area are considered separately from those relating to natural quality but are also important. The priority for acquisition and dedication of an area, once it is thus identified as a potential nature preserve, is affected by the degree to which it is threatened with destruction or alteration and its availability.

The principal factors are listed below in approximate order of importance for each category. All factors do not receive equal weight and some may be of much greater importance than others.

The relative weight of various factors will vary depending on whether an area is proposed for purchase by the State or for donation or dedication by the owner. More specific guidelines for these respective situations may be developed in the future.

The criteria are oriented principally toward natural biotic communities. Special criteria may be developed for evaluation of other types of natural features.

Factors relating to natural features, location, replication, and potential use

1) Presence of natural features not adequately represented in sufficient other nature preserves. (Representation in the vicinity, in the natural division, in the State, and in the region should be considered.)

2) Absence of past disturbance such as logging, grazing, development, erosion, exotic species, change in fire history, etc. that have significantly altered the original natural conditions. (Almost all areas have suffered some degree of direct human disturbance. The extermination of various animal species has altered the original ecology of all areas of the State.)

3) Presence of rare, endangered, or unusual natural types and features and the extent and frequency of their occurrence within and outside the State. (Some of the natural types, particularly forests of certain types, are still found in relative abundance; while others, particularly prairies and wetlands, are extremely rare within a section, a division, or the State as a whole.)

4) Presence of rare, endangered, or unusual species of plants and animals. (The listing of all species on an area is impractical, but the finding of notable rare or uncommon species indicates the likelihood that others may be present.)

5) Diversity of natural types and of flora and fauna.

6) Scientific and educational value, particularly from the standpoint of accessibility to population centers, schools, and scientists.

7) Location in a part of the State that is deficient in nature preserves.

8) Presence of wilderness qualities that give the visitor a feeling of remoteness from civilization.

9) Value for observation and enjoyment of nature. Presence of scenic attractions, displays of wild flowers, wildlife concentrations, etc. Accessibility to people. Potential interest to substantial numbers of people.

Factors relating to protection and management

1) Self-sufficiency of the natural ecosystem. Lack of vulnerability to disturbances and intrusions. Sufficiency of buffer area to assure protection. (A nature preserve should constitute or include a sufficient biotic, topographic, and hydrologic unit to prevent damage by pollution, sedi-

mentation, alterations in drainage or groundwater hydrology, etc. or by development or use of adjacent land.)

2) Capability of being managed so as to protect and maintain it in a natural condition and make it available and useful for its designated purposes. Absence of land conditions that will require substantial or continuing management attention.

3) Ease of servicing and controlling visitors. Absence of hazards or nuisances to visitors or neighbors. Absence of attraction to and damage from destructive persons. Availability of custodial and patrol services. Suitability of adjoining or nearby land for public recreational development or other conservation uses and for efficient management in conjunction with the nature preserve.

Factors relating to acquisition and dedication

1) Threat of destruction if the area is not protected.

2) Availability of the area, and necessary buffer, for acquisition or dedication as a nature preserve. Favorable ownership status and willingness of the owner to donate it or dedicate it as a nature preserve.

3) Ease and low cost of purchase, if required. Favorable cost, compared with other areas of similar quality. Availability of acquisition funds.

Other objectives of the nature preserves system

Maintenance objectives

Protection against intrusions

By law, nature preserves are "declared put to their highest, best and most important use for public benefit". They cannot be taken for another public use except upon a finding by the Department of Conservation of imperative public necessity and with the approval of the Governor and the Illinois Nature Preserves Commission, and then only after public notice and an opportunity for interested persons to be heard. This safeguard is in addition to any protection the area may have under other laws or under any reversionary or other rights or conditions established in the articles of dedication or other legal instrument.

Vigilance on the part of the Nature Preserves Commission, the Department of Conservation, and others concerned is essential to the protection of nature preserves against intrusions. Announce-

ments, reports, plans, and environmental impact statements are scrutinized for possible adverse effects of proposed development projects on nature preserves. Land surrounding a nature preserve is kept under surveillance for new developments or changes in land use that may be harmful to the preserve. Proposed developments or activities that may damage a nature preserve are opposed.

When necessary to protect a nature preserve against potential intrusions, buffer areas are established on adjoining land by purchase, easement, or other means.

Management to assure perpetuation of natural conditions

The paramount objective of nature preserves is to preserve natural areas and their populations of living things. Nature preserves are storehouses of natural features and populations to be held in trust and passed on unimpaired to the future.

An area dedicated as a nature preserve is managed according to ecological principles and policies which have been formulated by the Nature Preserves Commission and the Department of Conservation in the form of "Rules for Management of Illinois Nature Preserves". These rules serve as the basic guidelines for management. They provide that there shall be a master plan prepared for each preserve. The master plan allows administration of an area in accordance with its individual needs and characteristics. The Nature Preserves Commission periodically consults with the preserve custodian and makes inspections to assure that the preserve is being protected and maintained in accordance with the rules and the master plan.

Since a natural area can be quickly destroyed by mismanagement, the vigilance of all interested persons is vitally needed to supplement the efforts of the Nature Preserves Commission and the Department of Conservation.

Records objectives

Assemblage and retention of information

Documentation of the characteristics, natural features, biological communities, species, history of use, past disturbances, etc. is essential for each nature preserve. The master plan for each preserve has a compilation of basic information for the area. As further research is done, the results are added to the file of information. Records

are kept of all disturbances that occur and management procedures that are carried out. This information is available to the custodian, researchers, and other interested people. As more detailed information is accumulated, the scientific value of the nature preserve is immeasurably increased.

Use objectives

Research studies

All nature preserves are available for the conduct of scientific research in such manner and to such degree as will not significantly modify natural conditions. Research studies are encouraged and facilitated, particularly those leading to accumulation of basic knowledge concerning a preserve.

Approved scientific research has priority over other uses, but it is subject to restrictions that are necessary for the preservation of natural conditions. Research involving activities other than ordinary observation must be conducted under a permit approved by the Nature Preserves Commission and the owner or custodian. Disturbance of natural conditions is permitted only as provided in the permit. Collecting is restricted in accordance with rules adopted by the Nature Preserves Commission and the Department of Conservation as well as other applicable laws.

Public visitation for education and pleasure

Use of a nature preserve by the public for observation and study is encouraged and facilitated. Visitation for education and pleasure in such manner and to such degree as will not significantly modify natural conditions is allowed. Intensity and character of use is restricted in order to protect natural conditions and scientific research projects and to promote public health, welfare, and enjoyment. Public use is principally in the form of walking and observation. In most cases intensity of use can be increased without significant damage to the preserve if accompanied by adequate development and maintenance of trails and other visitor facilities.

Interpretation

Interpretive facilities and services enhance the understanding and enjoyment of visitors. Nature preserves are storehouses of fascinating information that the visitor may fail to understand without guidance.

Interpretation of the natural features of nature preserves and how they relate to the natural features of the State as a whole and to the person viewing them may be provided. Where visitation is sufficient, an on-site interpretive staff carries out this function. Descriptive leaflets and other informational materials are published for all nature preserves. Interpretation of nature preserves to visiting school groups is particularly emphasized.

Responsibility for establishment and maintenance of nature preserves

To achieve the objectives of the Illinois nature preserves system will require the cooperative effort and participation of many groups and individuals, both public and private. The statutes authorize this participation.

The Illinois Nature Preserves Commission and the Illinois Department of Conservation share the major responsibility for establishing, maintaining, and protecting the nature preserves system. Their efforts are carried out on a cooperative basis.

Illinois Nature Preserves Commission

The Nature Preserves Commission identifies and evaluates natural areas, promotes their acquisition and dedication within the nature preserves system, and participates in the development of plans for their management and use. It keeps nature preserves under surveillance and helps protect them from destruction or intrusion. It formulates policy for and approves or disapproves the acquisition, dedication, and management of nature preserves. It keeps records on nature preserves and makes public reports on the nature preserves system. It also maintains registries and records of other natural areas and of habitats for rare and endangered species and it assists with the protection of natural areas which are not dedicated as nature preserves. It is also responsible for the inventorying and evaluating of natural areas and habitats of rare and endangered species.

Illinois Department of Conservation

The Department of Conservation has the principal responsibility for acquiring, managing, and protecting nature preserves representative of the significant natural features of the State and for

protecting habitats of rare and endangered species. It acquires and holds natural areas of statewide significance which should be included in the system but which will not be preserved by other agencies. In addition to acquiring areas for inclusion in the system, it dedicates suitable natural areas within its existing holdings. It shares with the owners and the Nature Preserves Commission the responsibility for protection, management planning, and record keeping for all nature preserves.

Colleges and universities

Most colleges and universities hold or are actively interested in acquiring natural areas for intensive teaching and research use. Some areas are developed as field stations with laboratories and living facilities. Responsibility for acquiring such areas rests principally with these institutions. Occasionally there may be direct participation by universities in preservation of other natural areas or management and protection of nature preserves acquired by other agencies.

Forest preserve districts and conservation districts

Forest preserve districts and conservation districts are county-wide agencies created mainly to acquire areas for preservation, outdoor recreation, and other open space uses. Within their territories they have a major responsibility for the acquisition, management, and protection of natural areas, particularly for areas of dominantly local significance. The laws authorizing the creation of forest preserve districts and conservation districts recognize the establishment of nature preserves as one of the functions of these agencies. Only 16 counties have organized such districts, leaving 86 counties unorganized. Creation of districts in these unorganized counties is an important step toward completing the nature preserves system.

Park districts

Park districts have a responsibility for establishing nature preserves within their territories. The Park District Code recognizes the establishment of nature preserves as one of the functions of park districts. Most park districts are predominantly urban and their opportunities for establishing nature preserves are limited. However, there are within many districts excellent opportunities for creation of nature preserves.

Private conservation organizations

Private conservation organizations play an important part in developing the nature preserves system. They acquire natural areas by gift or by purchase with contributed funds and hold them or convey them to other agencies for management. They also assist governmental agencies in acquisition of areas. The Illinois Chapter of The Nature Conservancy and the Natural Land Institute operate in this manner. The Forest Park Foundation, the Parklands Foundation, and other groups carry on similar activities within certain parts of the State. Other organizations undertake acquisition of natural areas occasionally. Such groups as the Open Lands Project, the Great Lakes Chapter of the Sierra Club, the Illinois Audubon Society, and the Izaak Walton League assist with inventorying and protecting natural areas.

Federal land management agencies

Federal land management agencies, including the Forest Service, the Fish and Wildlife Service, and the Corps of Engineers, have extensive holdings of wildland in Illinois. Some of their natural areas have been designated for preservation and others should be. Federal natural areas are a significant adjunct to the nature preserves system and should be aligned as closely as possible with it.

Federal funding programs

Federal funding programs of benefit to the nature preserves system are the Open Space Program of the Department of Housing and Urban Development and the Land and Water Conservation Fund Program of the Bureau of Outdoor Recreation. These programs provide 50% matching funds to government agencies acquiring approved areas for open space and outdoor recreation purposes. They provide essential assistance for the preservation of natural areas. Areas acquired under a Federal grant have the benefit of rules established by the granting agencies that provide protection against future misuse.

Other public agencies

Many other agencies are involved in the establishment and maintenance of the nature preserves system. The State scientific surveys and State Museum provide expertise and advise on matters relating to establishment and maintenance of the

nature preserves system. Highway agencies, railroads, and utilities are sometimes directly involved in protecting areas. School districts, counties, townships, cities, and other units of local government may participate incidental to their principal functions. The combined contribution of these agencies is substantial.

Private landowners

Private landowners play an important role in development of the nature preserves system. They hold and protect many natural areas at great personal cost. They can assure their permanent preservation by donating or dedicating them as nature preserves or by making them available for public acquisition and dedication at reasonable cost.

Interested individuals

Interested individuals contribute to the protection of nature preserves by keeping watch over them and reporting problems and threats that may arise.

Other areas meriting protection

Scenic streams

Illinois streams are part of the State's rich natural heritage. They originally flowed through heavily wooded hills and floodplains, and in places cut through bedrock, forming high cliffs and bluffs. Most streams have suffered from siltation, channelization, abnormal fluctuations in water level, introduction of exotic species, pollution, impoundments, or removal of stream-side cover. Several native species of fish have been extirpated from the State because of these factors, and others are endangered. Nevertheless, there are many

streams that merit preservation because they are in relatively natural condition and have great scenic beauty, abundant wildlife, and excellent recreational potential.

Because of the linear character of streams and their susceptibility to external influences, the nature preserves system does not by itself provide an adequate means for their protection.

Preservation of streams requires special provisions and procedures which can best be handled by establishment of an Illinois system of scenic rivers. The scenic rivers system should include the Illinois streams most outstanding on the basis of absence of modification from their original condition; scenic and natural qualities such as extensive forests, bluffs and high cliffs; and species diversity and occurrence of unusual species.

Land transformations

The natural succession and biota that occur after such major land transformations as strip mining, severe soil erosion, fire, flood, and cultivation provide a basis for much important scientific research. The increased value that some of these areas have as they are studied over a period of years may warrant their protection in some manner. Some of these areas become included in the nature preserves system because they adjoin natural areas and serve as buffer areas.

Other sites

In addition to scenic streams and land transformations, there are a good many other areas that should be preserved in some manner for their scientific, educational, or other value but that may not qualify for acquisition or dedication as nature preserves under these Guidelines. The Nature Preserves Commission recognizes the value of these areas and assists with their preservation. More must be done to determine appropriate policy for designation and preservation of these areas.



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