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COMMUNITY ASSISTANCE PLANNING REPORT NUMBER 146

A WILDLIFE HABITAT MANAGEMENT PLAN FOR THE NICHOLSON WILDLIFE CENTER TOWN OF CALEDONIA RACINE COUNTY, WISCONSIN

Prepared by the

Southeastern Wisconsin Regional Planning Commission P. O. Box 769 Old Courthouse 916 N. East Avenue Waukesha, Wisconsin 53187-1607

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SOUTHEASTERN WISCONSIN REGIONAL PLANNING COMMISSION

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May 7, 1986

Mr. Lawrence H. Gorney, Chairman Town of Caledonia Park Commission Caledonia Town Hall 6922 Nicholson Road Caledonia, Wisconsin 53108

Dear Mr. Gorney:

The Town of Caledonia Park Commission on June 25, 1984, requested that the Southeastern Wisconsin Regional Planning Commission assist the Town in the preparation of a wildlife management plan for the Nicholson Wildlife Center--a management plan which would recommend provisions for the protection, preservation, and enhancement of wildlife habitat and resource-oriented outdoor recreation opportunities. Acting in response to that request, and working under the direction of the Town Park Commission, the Regional Planning Commission staff has now completed the requested management plan for the Nicholson Wildlife Center.

This report describes that plan. It provides an evaluation of existing wildlife habitat conditions at the Nicholson Wildlife Center and sets forth agreed-upon wildlife management, preservation, acquisition, and development objectives and standards relevant to the needs and values of the citizens of the Town; presents pertinent information concerning existing public access facilities and recommendations for the enhancement of wildlife habitat and outdoor recreational activities; and identifies the roles which the Town and other units and agencies of government can and should play in meeting the Centers' wildlife management needs.

The recommended management plan contains three separate development phases, each of which is an entity in itself. Any one, or combination, of the three phases may be adopted as a final development and management plan for the Nicholson Wildlife Center. These phases are believed to represent the basic choices practically available to the Town for the provision of an area with enhanced wildlife habitat and facilities for passive outdoor recreational use. Implementation of the management plan presented in this report would, over time, provide for an increased, expanded, and integrated wildlife-carrying capacity within the Center, thereby contributing to the ecologically and environmentally sound development of the Town of Caledonia.

The Regional Planning Commission is pleased to have been able to be of assistance to the Town Park Commission in planning this important program. The Commission stands ready, upon request, to assist the Town Park Commission in presenting the information and recommendations contained in this report to the public and to elected officials for review and evaluation prior to adoption and implementation.

Sincerely,

Kurt W. Bauer Executive Director

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TABLE OF CONTENTS

	Page
CHAPTER I - INTRODUCTION	1
CHAPTER II - LAND USE. Introduction. Wetlands. Woodlands. Wildlife Habitat. Soils. Agricultural Lands. Environmental Corridors. The Environmental Corridor Concept. Primary Environmental Corridors.	3 3 4 5 7 7 7 9
Secondary Environmental Corridors	9
CHAPTER III - RECOMMENDED PLAN. Recommendations for Wildlife Habitat Modification. Ponds and Potholes. Brush Piles and Raptor Perches. Bird Nest Boxes. Prairie Restoration and Dense Nesting Cover. Berm Construction. Public Access Recommendations. Access Roads and Parking Lots. Hiking Trails and Observation Platforms.	11 13 13 16 18 18 20 21 22 22
Plan Implementation. Land Acquisition. Purchase. Easements. Other Forms of Acquisition. Zoning. Shoreland Regulation. Plan Costs. Park and Outdoor Recreation Aids.	24 24 25 26 26 26 27 27 27
CHAPTER IV - SUMMARY AND CONCLUDING RECOMMENDATIONS	29

LIST OF APPENDICES

Appendix

A	Nest Box Construction Guidelines	33
	A-1 Wren, Bluebird, or Tree Swallow Nest Box	33
	A-2 Kestrel or Screech Owl Nest Box	35
	A-3 Wood Duck Nest Box	36
В	Preliminary Bird Surveys	
	Nicholson Wildlife Area	37
С	Preliminary Vegetation Surveys	57
	Nicholson Wildlife Center	39

Page

LIST OF TABLES

Table

Chapter II

1	Soil Types in the Nicholson Wildlife Center		8
	Chapter III	•	

2	Prairie Restoration and Dense	
	Nesting Cover Plantings	21
3	Nicholson Wildlife Area Cost Analysis	28

LIST OF FIGURES

Figure

Chapter III

Wildlife Pond Diagram	16
Brush Pile Diagram	17
Brush Pile and Raptor Perch Diagram	19
Cross-Section of Berm With Corrugated	
Metal Pipe Drop Inlet Spillway	22
Corrugated Metal Pipe Drop Inlet Spillway	
With Manually Operated Floodgate	22
Parking Lot DesignNorth Lot 1	23
Parking Lot DesignNorth Lot 2	23
Parking Lot DesignEast Lot 1	23
Observation Platform Design	25
	<pre>Wildlife Pond Diagram Brush Pile Diagram Brush Pile and Raptor Perch Diagram Cross-Section of Berm With Corrugated Metal Pipe Drop Inlet Spillway Corrugated Metal Pipe Drop Inlet Spillway With Manually Operated Floodgate Parking Lot DesignNorth Lot 1 Parking Lot DesignNorth Lot 2 Parking Lot DesignEast Lot 1 Observation Platform Design</pre>

LIST OF MAPS

Map		Page
_	Chapter I	
1	The Nicholson Wildlife Center	2
	Chapter II	
2	Wetlands in and Adjacent to the Nicholson Wildlife Center	5
3	Wildlife Habitat in and Adjacent to the Nicholson Wildlife Center	5
4	Soils Within the Nicholson Wildlife Center	8
5	Secondary Environmental Corridor in and	
	Adjacent to the Nicholson Wildlife Center	8
	Chapter III	
	-	

6	Phase 1: Minimum Wildlife Habitat Enhancement Plan	12
7	Phase 2: Wildlife Habitat Enhancement	
	With Water Level Control Plan	14
8	Phase 3: Maximum Wildlife Habitat Enhancement Plan	15

Page

Chapter I

INTRODUCTION

Coastal areas have traditionally been prime locations for settlement and subsequent urbanization. Accordingly, the Lake Michigan shoreline has experienced extensive development within southeastern Wisconsin. Concentrations of populations in this riparian area have created areas of intensive urban land uses. The rural lands in proximity to these coastal urban centers are largely devoted to agricultural uses. Once covered by extensive prairies, wetlands, and forests, the Lake Michigan coastal area of southeastern Wisconsin has thus been converted largely to urban uses and to cropland and livestock production uses. As a result, the few remaining areas of good wildlife habitat within the coastal area have taken on increased importance. Therefore, areas determined to be important to wildlife for breeding, feeding, and shelter need to be identified, protected, and managed not only to help sustain local and migratory wildlife populations, but also to contribute to environmental diversity and ecological stability.

On June 25, 1984, the Town of Caledonia Park Commission requested the Southeastern Wisconsin Regional Planning Commission to undertake a study of the Nicholson Wildlife Center, leading to the preparation of a wildlife habitat management plan for the site. The plan effort was to include an assessment of the existing habitat conditions of the area and result in recommendations for wildlife habitat improvement and restoration, and for the provision of facilities to accommodate public access. Cost estimates for each of the improvement and restoration recommendations were to be provided in the plan report.

The Nicholson Wildlife Center is a 123-acre parcel located within U. S. Public Land Survey Section 21, Township 4 North, Range 22 East, Town of Caledonia, Racine County, Wisconsin (Map 1). Surrounded by agricultural lands, this isolated wetland is located approximately seven miles west of the Lake Michigan shoreline and constitutes an important feeding and resting site for birds using the migratory corridor along the Lake Michigan shoreline. Properly managed, the Nicholson Wildlife Center can serve as supporting habitat for resident and migratory wildlife, and can provide unique recreational and educational opportunities for residents of the Town of Caledonia and surrounding communities.

The findings and recommendations of the requested study are presented in this report. The Town of Caledonia, Racine County, and the Wisconsin Department of Natural Resources were asked to review a preliminary draft of this report, and the resulting comments are reflected in this final report. Subsequently, this report should serve as a practical guide for the sound management of wildlife habitat in the Nicholson Wildlife Center.





THE NICHOLSON WILDLIFE CENTER

Chapter II

LAND USE

INTRODUCTION

Land use is an important determinant of both the supply of and need for wildlife habitat. An understanding of the amount, type, and spatial distribution of lands in and near the study area is essential to the development of a wildlife habitat management plan as it relates to local wildlife populations and passive recreational opportunities for the surrounding communities. This section describes the existing (1980) land use pattern in the study area.

WETLANDS

Wetlands are defined as those areas that are inundated or saturated by surface or groundwater at a frequency and with a duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands include deep and shallow marshes, sedge meadows, fresh (wet) meadows, shrub carrs, alder thickets, low prairies, fens, bogs, lowland hardwoods, and conifer swamps.

Wetlands form an important part of the landscape in and adjacent to the Nicholson Wildlife Center in that they perform an important set of natural functions that make them ecologically and environmentally invaluable resources. These functions may be summarized as follows:

- 1. Wetlands affect the quality of water. The aquatic plants which grow in wetlands change inorganic nutrients, such as phosphorus and nitrogen, into organic material, storing it in their leaves and in peat (the plant remains). In addition, the stems, leaves, and roots of these plants slow the flow of water through the wetlands, allowing silt and other sediment with the attached nutrients and other water pollutants to settle out. Thereby, wetlands help protect the downstream or off-shore resources from siltation and pollution.
- 2. Wetlands influence the quantity of water. Wetlands act to provide water during periods of drought and hold it back during periods of wet weather, thereby stabilizing streamflows and controlling downsteam flooding. At a depth of 12 inches, one acre of marsh is capable of holding more than 300,000 gallons of water and thus helps protect downstream areas from flooding.
- 3. Wetlands which are located along the shoreline of lakes and streams help protect the shoreline from erosion.

4. Wetlands may serve as groundwater recharge and discharge areas.

3

5. Wetlands are important resources for overall ecological health and diversity. They provide essential breeding and feeding grounds, and shelter and escape cover, for many forms of fish and wildlife. The water present in a wetland is attractive to upland birds and other animals. These functions give wetlands recreational, research, and educational values; support activities such as hunting, trapping, and fishing; and aesthetic value to add the community.

Wetlands have severe limitations for residential, commercial, and industrial development. Generally, these limitations are due to the erosive character, high compressibility and instability,



The Nicholson Wildlife Center wetlands are dominated by emergent vegetation such as cat-tail and reed canary grass interspersed with willow thickets and scattered stands of lowland hardwoods as shown in this photo.

high water table, low bearing capacity, and high shrink-swell potential of wetland soils. In addition, the use of metal conduits in some wetland soil types is constrained because of high corrosion potential. These limitations may result in flooding, wet basements, unstable foundations, failing pavements, and broken sewer and water lines. In addition, there are significant onsite preparation and maintenance costs associated with the development of wetland soils, particularly as they relate to roads, foundations, and public utilities.

As shown on Map 2, wetlands within the Nicholson Wildlife Area in 1980 covered about 77 acres, or 63 percent of the area. The specific wetland types include shallow marsh, fresh (wet) meadow, and shrub carr with scattered lowland hardwoods. These three wetland types correspond to the following wetland classifications set forth in the 1979 Wisconsin wetlands inventory: emergent, narrow-leaved, persistent, palustrine (E2K) and scrub shrub, deciduous broadleaved, wet soil, palustrine (S3K).

WOODLANDS

Woodlands have both economic and ecologic value and under good management can serve a variety of uses. Located primarily on ridges and slopes and along streams and lakeshores, woodlands provide an attractive natural resource of immeasurable value. In addition to contributing to clean air and water, reducing stormwater runoff and flooding, and promoting groundwater recharge, woodlands contribute to the maintenance of a diversity of plant and animal life in association with human life and can thereby provide important recreational and educational opportunities. It is important to note that valuable woodlands can be destroyed through mismanagement in a short time, thereby contributing to the siltation of lakes and streams and the destruction of wildlife habitat areas. Thus, woodlands should be maintained for their total values--scenic, wildlife habitat, educational, recreational, and watershed protection--as well as for their commercial value in producing forest products and in contributing to the increased values of residential and other types of urban development.



WETLANDS IN AND ADJACENT TO THE NICHOLSON WILDLIFE CENTER

WILDLIFE HABITAT IN AND ADJACENT TO THE NICHOLSON WILDLIFE CENTER

Source: SEWRPC.

Woodlands are defined as those areas one acre or more in size having 17 or more deciduous trees per acre, each measuring at least four inches in diameter at breast height and having 50 percent or more tree canopy coverage. In addition, coniferous tree plantations and reforestation projects are identified as woodlands by the Commission. Approximately two acres, or about 1 percent, of the Nicholson Wildlife Center are covered by woodlands. This woodland cover is

classified as southern wet to mesic hardwood forest.

WILDLIFE HABITAT

Wildlife occurring in and adjacent to the Nicholson Wildlife Center include pheasants, waterfowl, marsh birds, raptors, and a variety of mammals such as deer, muskrat, rabbit, and fox. The area also provides an important staging area for migratory waterfowl and songbirds. The wildlife habitat area provides valuable recreational opportunities and constitutes an immeasurable aesthetic asset to the Town of Caledonia and environs.

The complete spectrum of wildlife species originally native to Racine County has, along with its habitat, undergone significant change in terms of diversity and population size since settlement of the area. This change is a direct

result of conversion of the land by the European settlers from natural to agricultural and urban uses, beginning with the clearing of the forest and prairies and the drainage of wetlands, and ending with the development of extensive urban land uses. This process, which began early in the nineteenth century, is still operative in the Town of Caledonia today. Successive cultural uses and attendant management practices, both rural and urban, have been superimposed on the overall land use changes and have also affected the wildlife and wildlife habitat. In agricultural areas, these cultural management practices include land drainage by ditching and tiling



The Nicholson Wildlife Center provides important feeding and resting habitat for a variety of wildlife species including migrating birds such as this pectoral sandpiper.

and the expanding use of fertilizers, herbicides, and pesticides. In urban areas, cultural management practices that affect wildlife and their habitat include the use of fertilizers, herbicides, and pesticides, road salting, heavy motor vehicle traffic which produces disruptive noise levels and damaging air pollution, and the introduction of domestic animals.

All wildlife habitat areas remaining in southeastern Wisconsin, including the Town of Caledonia, were identified and inventoried by the Regional Planning Commission in 1970. These areas were categorized as being high-, medium-, or low-value habitat. High-value habitat areas contain a good diversity of wildlife, are adequate in size to meet all of the habitat requirements for the species concerned, and are generally located in proximity to other wildlife habitat areas. Medium-value wildlife habitat areas generally lack one of the three criteria for a high-value wildlife habitat; however, they do retain a good plant and animal diversity. Low-value habitat areas are remnant in nature in that they generally lack two or more of the three criteria for a high-value wildlife habitat, but may, nevertheless, be important if located in proximity to high- or medium-value wildlife habitat areas, if they provide corridors linking higher value wildlife habitat areas, or if they provide the only available range in the area. The major factors considered in assigning value ratings to wildlife habitat areas are diversity, territorial requirements, vegetative composition and structure, proximity to other wildlife habitat areas, and disturbance.

The wildlife habitat areas were further classified by the Commission as deer, pheasant, waterfowl, muskrat-mink, songbird, squirrel, or mixed habitat. These designations were applied to help characterize a particular wildlife habitat area as meeting the specific requirements of the indicated species. However, this classification does not imply that the name species is the most important or dominant species in that particular habitat. For example, an area designated as a pheasant habitat may also provide deer and songbird habitat.

As shown on Map 3, wildlife habitat areas in and adjacent to the Nicholson Wildlife Center generally occur in association with existing wetland and

woodland resources. Existing wildlife habitat areas cover about 31 acres, or about 25 percent, of the Nicholson Wildlife Center. Of this total habitat acreage, 28 acres, or about 90 percent, were classified as high-value habitat areas, and 3 acres, or about 10 percent, were classified as low-value habitat areas.

SOILS

Soil properties exert a strong influence on the manner in which land is used. Soils are an irreplaceable resource, and development pressures upon land continue to make this resource even more valuable. Therefore, any planning program needs to examine not only how land and soils are presently used, but how they can best be used and managed. This requires a detailed soil survey which maps the geographic location of various types of soils; identifies the physical, chemical, and biological properties; and interprets these properties for land use and public facilities planning. Such a soil survey of the entire Southeastern Wisconsin Region was completed in 1965 by the U. S. Department of Agriculture, Soil Conservation Service, under contract to the Regional Planning Commission.

Through the use of the data provided by soil surveys, the Commission staff has identified six specific soil types in the Nicholson Wildlife Center: Houghton muck, Navan silt loam, Morely silt loam, Aztalan loam, Elliot silt loam, and Markham silt loam. The location and extent of the areas covered by these soils are shown on Map 4. Table 1 indicates the suitability of these six soil types for recreational and onsite soil and land use. Table 1 also sets forth the limitations of the soil types for various land uses.

AGRICULTURAL LANDS

Properly managed agricultural lands, in addition to providing food and fiber, can enhance wildlife habitat. This is especially true for those farms that maintain small fields and associated fence rows and which grow a variety of crops. By utilizing the underlying agricultural resource base in a manner consistent with wildlife habitat needs, important nesting and feeding habitat for many forms of wildlife can be supplied, and local conditions for the management of resident or migratory wildlife can be substantially improved. In 1980, approximately 44 acres, or about 36 percent, of the Nicholson Wildlife Center were in agricultural use.

ENVIRONMENTAL CORRIDORS

The Environmental Corridor Concept

One of the most important tasks undertaken by the Commission as part of its regional planning effort was the identification and delineation of those areas of the Region having high concentrations of natural, recreational, historic, aesthetic, and scenic resources and which, therefore, should be preserved and protected in order to maintain the overall quality of the environment. Such areas normally include one or more of the following seven elements of the natural resource base which are essential to the maintenance of both the

7

Map 4

SOILS WITHIN THE

NICHOLSON WILDLIFE CENTER

16 15 21 23 17 16 FIVE MILE RD NICHOLSON WILDLIFE CENTER STUDY AREA RD I CTH 20 21 21 22 28 27 FOUR MILE RD LEGEND HOUGHTON MUCK MORELY SILT LOAM ELLIOT SILT LOAM NAVAN SILT LOAM MARKHAM SILT LOAM AZTALAN LOAM Source: SEWRPC.

SECONDARY ENVIRONMENTAL CORRIDOR IN AND ADJACENT TO THE NICHOLSON WILDLIFE CENTER

Map 5



Table 1

	Limitations of Soil					
		Limitations for Natura	Onsite Soil Absorption Sewage Disposal Systems for Lots			
Soil Type	Native Vegetation	and Hiking Trails	Less Than 1 Acre	1 Acre or More	Coverage	
Houghton Muck	Swamp forest	Very severe-high water table; trails soft and wet for long periods; low trafficability; difficult to maintain	Very severe-high water table; systems will not operate	Very severe-high water table; systems will not operate	65	
Navan Silt Loam	Low prairie	Severe-high water table; trails are wet and slippery for long periods; may need surfacing	Very severe-high water table; slow permeabil- ity; systems will not operate	Very severe-high water table; slow permeabil- ity; systems will not operate	13	
Morely Silt Loam	Southern hardwood	Moderate-trails slippery and muddy when wet; erosion a haz- ard on slopes; surface remains wet for short periods after rains due to heavy subsoil	Severe-high water table; slow permeabil- ity; systems will not operate	Moderate-high water table; slow permeabil- ity; systems will not operate	11	
Aztalan Loam	Prairie	Moderate-soils may be wet during periods of high water table	Very severe-high water table; slow permeabil- ity; systems will not operate	Severe-high water table; slow permeabil- ity; systems will not operate	9	
Elliot Silt Loam	Low prairie	Moderate-wet for short periods; trails muddy and slippery when wet; may need surfacing	Very severe-high water table; slow permeabil- ity; systems will not operate	Very severe-high water table; slow permeabil- ity; systems will not operate	1	
Markham Silt Loam	Prairie-oak opening	Moderate-trails slippery when wet; erosive on slopes; may need resurfacing	Severe-slowly permeable substratum restricts use of systems	Moderate-slowly per- meable substratum restricts use of systems	1	

SOIL TYPES IN THE NICHOLSON WILDLIFE CENTER

Source: SEWRPC.

ecological balance and the natural beauty of the Region: 1) lakes, rivers, and streams and their associated undeveloped shorelands and floodlands; 2) wetlands; 3) woodlands; 4) prairies; 5) wildlife habitat areas; 6) wet, poorly drained, and organic soils; and 7) rugged terrain and high-relief topography. While these seven elements constitute integral parts of the natural resource base, there are five additional elements which, although not a part of the natural resource base per se, are closely related to or centered on that base and therefore are important considerations in identifying and delineating areas with scenic, recreational, and educational value. These additional elements are: 1) existing outdoor recreation sites; 2) potential outdoor recreation and related open space sites; 3) historic, archaeological, and other cultural sites; 4) significant scenic areas and vistas; and 5) natural and scientific areas.

The delineation of these 12 natural resource and resource-related elements on a map results in an essentially linear pattern of relatively narrow, elongated areas which have been termed "environmental corridors" by the Commission.

<u>Primary Environmental Corridors</u>: Primary environmental corridors include a wide variety of the above-mentioned resource and resource-related elements and are at least 400 acres in size, two miles long, and 200 feet wide. There are no primary environmental corridors located within the Nicholson Wildlife Center study area. The nearest such corridor to the Center is that lying along the Root River approximately 1.5 miles to the east of the Center.

Secondary Environmental Corridors: The secondary environmental corridors are generally located along intermittent streams or serve as links between segments of primary environmental corridors. Secondary environmental corridors contain a variety of resource elements, often remnant resources from former primary environmental corridors which have been developed for intensive agricultural purposes or urban land uses. Secondary environmental corridors facilitate surface water drainage, maintain pockets of natural resource features, and provide for the movement of wildlife, as well as for the movement and dispersal of seeds for a variety of plant species. Such corridors should also be preserved in essentially natural, open uses as urban development proceeds, particularly when the opportunity is presented to incorporate the corridors into urban stormwater detention areas, associated drainageways, and neighborhood parks. As indicated on Map 5, about 86 acres, or 70 percent of the study area, are encompassed within secondary environmental corridors.

9

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Chapter III

RECOMMENDED PLAN

The primary purpose of the Nicholson Wildlife Center planning program is the preparation of a sound, workable plan to guide the protection, development, and management of the Center. Specifically, the plan is designed to achieve the following three objectives: 1) a spatial distribution of the various land uses and supporting management activities that will protect, preserve, and enhance the area and encourage the utilization of the area by wildlife; 2) the provision of an area that will result in the protection and wise use of an important wetland in the Town of Caledonia; and 3) the provision of an outdoor recreation facility to allow the resident population of the area adequate opportunity to participate in passive resource-oriented outdoor recreational activities. In this regard, recreational hunting and trapping should not be allowed at the Nicholson Wildlife Center. This chapter presents a recommended wildlife habitat enhancement and management plan which meets, to the extent practicable, the objectives set forth in this report. In addition, this chapter outlines the steps required to implement the recommended plan.

The first section of this chapter describes the recommended wildlife habitat enhancement plan for the Nicholson Wildlife Center. It includes recommendations to enhance the existing natural resource base for wildlife; to restore portions of the parcel to native plant communities; to purchase lands adjacent to the Nicholson Wildlife Center; and to develop the area for passive outdoor recreational activities. The second section of this chapter outlines the actions that must be taken to ensure that the recommended plan is carried out over time. It includes a discussion of specific actions that should be taken by the Town of Caledonia to facilitate plan implementation, and an estimate of the costs likely to be realized during plan implementation.

The recommended Nicholson Wildlife Center management plan has been developed as a phase plan. The plan consists of three separate phases, each of which is an entity in itself. Any one, or any combination of, the three phases may be adopted as a final development and management plan for the Nicholson Wildlife Center.

Each phase consists of two sets of improvements. The first set of improvements is intended to enhance the natural resource base of the Nicholson Wildlife Center by diversifying existing wildlife habitat. Habitat diversification would be accomplished by methods such as pond construction, creation of supporting habitat, and restoration of agricultural lands to more native plant communities. These habitat modifications, along with others, would provide additional quality feeding and nesting habitat and shelter for resident and migratory wildlife. The second set of improvements is designed to encourage passive outdoor recreational activities at the Center by providing facilities that will promote the use of the Center. Improvements would include a system of hiking trails, wildlife observation platforms, and parking areas which should encourage recreational use of the Center.

Phase one (see Map 6) recommends the construction of access roads and parking lots, establishment of a trail system that includes 1,000 feet of boardwalk and two wildlife observation platforms, and acquisition of 6.5 acres of land





adjacent to the Nicholson Wildlife Center property. Approximately 4.6 acres (71 percent) of the lands recommended for acquisition would remain in their present condition as wildlife ponds and wetlands. Of the remaining 1.9 acres, 1.8 acres (28 percent) are recommended for planting to dense nesting cover and 0.1 acre (1.0 percent) is recommended for prairie restoration. Additional recommended phase elements include the construction of ponds and potholes, the establishment of a system of brush piles and raptor perches, the planting of 14.5 acres of dense nesting cover, the restoration of 22.5 acres of prairie cover types, and the maintenance of row crop production on prescribed acreages.

Phase two (see Map 7) includes the actions recommended in phase one along with the construction of 500 additional feet of boardwalk. In addition, phase two recommends the construction of a berm to facilitate water level control and the acquisition of an additional 11 acres of adjacent land. The entire 11 acres are recommended to be restored to prairie cover types.

The phase three plan is similar to the phase two plan (see Map 8). However, areas maintained as row crops under phases one and two would be restored to prairie grassland cover types, and an additional 27 acres of land, including the 10 acres of wetland immediately north of the berm, would be acquired. The remaining 17 acres proposed for acquisition would be planted as dense nesting cover when acquired. Furthermore, the culvert located under Five Mile Road would be modified and fitted with a control structure, including stoplogs, to increase capabilities for water level manipulation. The drop inlet spillways located in the berm, as recommended in phase two, would function as a secondary means of water level control under phase three, remaining open unless water level conditions necessitated their closure.

RECOMMENDATIONS FOR WILDLIFE HABITAT MODIFICATION

An evaluation of existing wildlife habitat at the Nicholson Wildlife Center was conducted by the Commission staff to determine the types and amounts of modifications that should be considered to maximize the potential of the Center for resident and migratory wildlife. Based on that evaluation, the Commission staff recommends that the following modifications to the existing wildlife habitat be implemented:

Ponds and Potholes

The construction of ponds and potholes will diversify existing wetland habitat by providing areas of open water. The open water habitat will, in turn, provide important components of breeding and feeding habitats for local wildlife species such as mink, muskrat, waterfowl, shorebirds, and various species of reptiles and amphibians. In addition, areas of open water will provide important feeding and resting habitat for migratory birds such as tundra swan and Canada goose. Incidentally, ponds would also serve as sediment catch basins for rain and snowmelt runoff from surrounding agricultural lands, and thus help to maintain local water quality.

Wildlife ponds should have a surface area of approximately one acre, should not exceed five feet in depth, and should be constructed with intentionally gradual, minimum one-on-eight side slopes, as shown in Figure 1. An irregular pond configuration will increase the amount of edge between the water-wetland

Map 8

15

Figure 1

WILDLIFE POND DIAGRAM

Source: SEWRPC.

interface and thereby enhance the value of the pond as wildlife habitat. Construction of the ponds should be by excavation. All potential pond sites are proposed to be located in wetland areas adjacent to upland areas to enable construction equipment access for excavation purposes. Excavated material should not be deposited in the Nicholson Wildlife Center wetlands, but rather should be disposed of at a suitable upland site or, if suitable, may be used for berm construction. Potholes may be formed by blasting, the explosives being placed and detonated by a qualified individual with state certification in explosives use. Recommended pond and pothole sites are shown on Maps 6, 7, and 8. In addition, the banks of the pond which currently exists on the Nicholson property should be modified to a one-on-eight side slope.

Brush Piles and Raptor Perches

A system of brush piles and raptor perches would restore the balance between predator and prey relationships. The brush piles will offer denning sites and cover for small mammals such as cottontail rabbit and meadow voles. Properly placed, brush piles would encourage the establishment and use of a system of trails by mammals traveling from brush pile to brush pile. Raptor perches

Figure 2

Source: Retzer Nature Center and SEWRPC.

would provide perching and hunting sites for birds of prey such as hawks and owls. When correctly placed in relation to brush piles, raptor perches should provide additional opportunities for raptors to prey on small mammals, and thus encourage greater use of the area by local raptor species.

Two types of brush piles can be constructed. The materials for each consist of the tops of entire shrubs and the outer branches trimmed from bushes and trees; however, the dimensions and spacing are different for each type. Brush piles designed to attract smaller mammals such as deer mice and meadow voles are generally eight feet in diameter and four to five feet high, and spaced 20 feet from edge to edge. A railroad tie anchored vertically in the center of the pile will support the brush (see Figure 2). Hollow logs can also be placed in the brush pile to encourage use by small mammals. In addition, some brush may be placed between brush piles, or the piles may be situated closer to one another to encourage small mammal travel from pile to pile. A three- to fourfoot-wide mowed trail should be established and maintained around the brush pile network to facilitate brush pile checking and maintenance. The mowed trail will provide an additional function by creating supplementary edge habitat for wildlife species. Brush piles designed to attract larger mammals such as cottontail rabbit and woodchuck should be 12 to 14 feet in diameter and five feet high, and spaced 75 to 100 feet from edge to edge, with brush supported by several logs of varying length positioned crosswise on top of one another (see Figure 2). The construction of an artificial burrow underneath the brush pile is suggested as a futher means of encouraging use of the brush pile by mammals. Finally, a nest box for house wrens may be placed on top of the railroad tie supporting the brush pile, as brush piles provide excellent foraging habitat for these birds. However, it is important not to place bluebird houses on brush piles (see Appendix A).

Raptor perches may be of two types--dead tree "snags" or telephone pole sections. Aspen and pine snags can provide ideal hunting perches because of their growth form. This type of raptor perch should be 14 to 16 feet in height. All branches except those near the top of the snag should be removed. Remaining branches should extend no more than 16 inches from the trunk. These snags can be expected to last approximately one to two years without creosote treating of the base. Telephone pole sections or elongated fence post raptor perches should extend 12 feet above the ground surface and should have a minimum diameter of five inches. This type of raptor perch can be expected to last approximately four to five years without creosote treating of the base. The positioning of raptor perches in relation to brush piles is critical to their effectiveness as a hunting aid. Perches should be situated approximately 5 to 25 feet off center of an imaginary line connecting adjacent brush piles, as shown in Figure 3. Proper positioning should provide hunting raptors with a cone of coverage that includes brush piles, maintenance trails, and adjacent fields. Brush pile and raptor perch locations are shown on Maps 6, 7, and 8.

Bird Nest Boxes

Many species of birds use abandoned tree cavities for nest sites. These birds are collectively known as secondary cavity nesters because they breed in abandoned cavities that had been excavated and occupied by primary cavity nesters, such as woodpeckers, or created by some other natural phenomenon. Natural tree cavities can act as a limiting factor controlling the abundance of secondary cavity nesting species in an area. Areas that contain suitable foraging habitat but lack appropriate nesting sites are often bereft of cavity nesting species. The placement of artificially constructed nest boxes can help to ameliorate this situation by providing potential nesting sites for species such as eastern bluebirds and tree swallows.

It is recommended that a system of nest boxes be established at the Nicholson Wildlife Center to enhance breeding habitat for cavity nesting species. Suggestions for design, construction, and placement of nest boxes have been taken from the University of Wisconsin-Extension publication <u>G2091-Shelves</u>, <u>Houses and Feeders for Birds and Squirrels</u>, and are provided in Appendix A of this report.

Prairie Restoration and Dense Nesting Cover

Prairies once covered extensive portions of southeastern Wisconsin. Since presettlement times, native prairies have been reduced to small remnants scattered throughout the Region. Reestablishment of native grassland habitat types on fallow fields and in areas currently used for the production of row crops will return portions of the Nicholson Wildlife Center to presettlement-like vegetation conditions. Mammal and bird species such as meadow vole, upland sandpiper, kestel, and northern harrier should benefit from the cover and quality nesting habitat that these plantings and restoration efforts will provide. In addition, these vegetative cover types will add aesthetic amenities to the area while contributing to soil stability, thereby reducing erosive potential. In designated areas, row crops can be maintained to provide a supplementary food source for resident and migratory wildlife.

Prairie establishment on former agricultural lands and upland areas should follow a prescribed series of steps. Prairie establishment may occur as prairie species seeded on "source strips" gradually establish themselves on "invasion strips." This alternating pattern of plowed source strips and unplowed invasion strips should be established on all plots designated for prairie restoration.

general literature			-
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BRUSH PILE AND RAPTOR PERCH DIAGRAM

Source: Retzer Nature Center and SEWRPC.

Plowing should occur in late fall prior to the spring planting on 12-foot-wide source strips and to a depth of five inches. The source strips should be left in a plowed condition over winter. A 45-foot-wide unplowed invasion area should separate source strips. Establishment of an oats or annual ryegrass (Lolium sp.) cover crop on plowed source strips along with the prairie seed will reduce their erosion potential at planting time the following spring. Spring discing should occur on source strips on two occasions prior to the spring planting. Seed broadcasting should take place during the end of May to mid-June. In order to ensure an even distribution of prairie seed over source strips, the seed mix should be combined with fine moist sand in a one-to-one volumetric ratio. The seed-sand mixture can be mixed in a cement mixer, and broadcasting can be accomplished with cyclone principle fertilizer spreaders. Cultipacking may be done on source strips after seeding to prevent seed and soil loss from erosion. Source strips should be mowed to a height of one-half foot two to three times during the first year to facilitate weed control. Invasion strips should be mowed biennially and burned biennially in alternating years to allow invasion of prairie species from source strips. Mowing and burning should occur from the middle to the end of April. After prairie species are adequately established, a biennial to triennial controlled burning program

Reestablishment of native grassland habitat and dense nesting cover plantings in upland areas adjacent to wetlands will enhance wildlife habitat conditions while contributing to soil stability and thereby reducing erosion and runoff from surrounding agricultural lands.

Portions of the Nicholson Wildlife Center uplands, traditionally maintained as cropland, should be restored to native grassland habitat and planted to dense nesting cover to enhance wildlife values. However, designated areas may be maintained as row crop to provide a supplementary food source for resident and migratory wildlife.

is suggested to maintain the prairie condition on specified plots. It will take approximately 10 years for prairie plots to develop into mature prairie. Prairie seed mixtures and suggested application amounts are listed in Table 2.

Restoration may also be accomplished for smaller areas by planting "plugs" of prairie plants. Spring or fall planting of plugs is recommended, with optimum planting periods occurring between April 25 and May 25, and between August 25 and October 7. Plugs should be planted in staggered rows at distances equal to the average foliage height of the species in question, and at depths equal to one and one-half times the diameter of the plug. Plugs should be watered once weekly for three to four weeks after planting. A companion crop of annual ryegrass should be planted on associated disturbed areas. The maintenance regime is the same as that recommended for the invasion strip/source strip prairie restoration technique.

Areas designated to be planted to dense nesting cover should be plowed and then disced. Seed broadcasting should occur over the entire site. Mowing should occur twice during the first year to suppress weeds and encourage the establishment of desirable grasses and forbs. Maintenance practices should be limited to annual mowing well after the nesting season. Seed mixture and application strategies are listed in Table 2.

Berm Construction

The construction of a berm will allow the manipulation of water levels in wetland areas. Water-level manipulation can be used as an additional wildlife management tool in the Nicholson Wildife Center for species closely associated with deep marsh or pond habitats. The presence of a berm will also add to the diversity of habitat types by providing a localized upland site in an area predominantly covered by wetlands. The recommended berm location is shown on Maps 7 and 8.

Plant community management recommendations include using water level manipulation to control invasions of undesirable monotypic stands of reed canary grass and sand bar willow.

Table 2

PRAIRIE RESTORATION AND DENSE NESTING COVER PLANTINGS

I. Recommended Prairie Seed Mixture 8 A. Grasses Big Bluestem Indian grass Switch grass Canadian wild rye Andropogon gerardi Sorghastrum nutans Panicum virgatum Elymus canadensis B. Forbs Silphium terebinthinaceum Ratibida pinnata Monarda fistulosa Asclepias Syriaca Rudbeckia hirta Coreopsi palmata Aster novae-angliae Heinanthus occidentalis Liatris aspera Solidago rigida Baptisia Prairie dock Prairie coneflower Bergamot Common milkweed Black-eyed Susan Coreopsis Coreopsis New England aster Western sunflower Blazing star Stiff goldenrod White baptisiab C. Comments Volumetric Ratio of Seed Mixture: 1/2 - 2/3 grasses: 1/3 - 1/2 forbs Application Amounts: 1/4 acre at 15 pounds of seed mix/acre Remaining acreage at 7 pounds mix/acre ⁸All seed should be obtained from local genotypic seed sources. ^bSeeds of White baptisia (<u>Baptisia leucantha</u>) should be scarified before planting. II, Dense Nesting Cover Mixture A. Grasses Timothy grass Orchard grass Barnyard grass Oats <u>Phleum pratense</u> <u>Dactylis glomerata</u> Echinochioa crusgalli Avena sativa B. Forbs Red clover Trifolium pratense C. Comments Each of the grass and clover species should be planted at 3 pounds of seed per acre. Oats should be applied at 1-1/2 bushels per acre. Source: SEWRPC.

The recommended berm would be approximately 820 feet long, 12 feet wide at the top, and three feet high, with a one-on-three side slope (see Figure 4). To facilitate water level control, berm construction should include the installation of two 34-foot-long, 24-inchdiameter corrugated metal pipe drop inlet spillways. The pipe located at the west end of the berm should be fitted with a manually operated floodgate (see Figure 5). The pipe located at the east end of the berm should be fitted with a four-foot-long, 36-inchdiameter full section of pipe riser with stoplogs, as shown in Figure 4. The stoplogs and manually operated floodgate should be fitted with padlocks to preclude unauthorized manipulation of water levels. This spillway would serve as the primary means of water level control. Both pipes should be fitted with anti-seep collars to help maintain the stability of the structures. In addition, after construction, the berm should be seeded with the recommended dense nesting cover seed mix (Table 2).

It is recommended that both spillways remain completely open until the end of the first week in June. At that time, the spillway located at the west end of the berm should be completely closed and stoplogs should be placed in the riser of the second spillway up to the desired water level, approximately 2.5 feet.

Public Access Recommendations

An evaluation of the public facilities presently available at the Nicholson Wildlife Center was conducted by the Commission staff to determine the types and number of modifications that should be considered to facilitate public access to and use of the Center by residents. All recommendations are intended to enhance existing opportunities for passive outdoor recreation while providing protection of the existing natural resource base. Accordingly, the Commission staff recommends that the following modifications be implemented.

Figure 4

CROSS-SECTION OF BERM WITH CORRUGATED METAL PIPE DROP INLET SPILLWAY

Source: SCS Engineering Field Manual--1969 and SEWRPC.

Figure 5

CORRUGATED METAL PIPE DROP INLET SPILLWAY WITH MANUALLY OPERATED FLOODGATE

Source: SCS Engineering Field Manual--1969 and SEWRPC.

Access Roads and Parking Lots: Use of the Nicholson Wildlife Center is presently limited because of the lack of improved roads and parking facilities. Access roads and parking lots are necessary to allow both individual and group use of the Center. Presently, three parking lots and two access roads are being proposed for the Center. An access road and parking lot proposed to be located on the east boundary of the Center will provide for access from Nicholson Road and provide parking facilities accommodating 10 to 12 automobiles. An access road and two parking lots located on the north side of the Center will allow for bus and automobile access from Five Mile Road. The existing parking lot, north lot 1 adjacent to Five Mile Road, is proposed to be improved to provide parking facilities accommodating 24 automobiles and four buses, or may be modified to accommodate 24 automobiles without provisions for bus parking. Two options should be considered for north parking lot 2. Option 1 provides 25 nine-foot-wide stalls for automobile parking. Lot design for option 1 necessitates that school buses utilize the access road while executing a "Y" turn. Turning radii were estimated assuming a 54-passenger bus. Option 2 provides 25 nine-foot-wide stalls for automobile parking. Lot design for option 2 includes a half circle to allow buses to maneuver. Both options will accommodate handicapped viewing of the Nicholson Wildlife Center wetlands by providing an observation area adjacent to the parking lot. Access road and parking lot locations are shown on Maps 6, 7, and 8. Parking lot designs are shown in Figures 6, 7, and 8.

Hiking Trails and Observation Platforms

A network of hiking trails and observation platforms is intended to encourage passive outdoor recreational use of the Nicholson Wildlife Center by providing

Figure 6

PARKING LOT DESIGN--NORTH LOT 1

Source:

SEWRPC.

ing their protection.

Figure 7

PARKING LOT DESIGN -- NORTH LOT 2

Source: SEWRPC.

opportunities for close contact with wildlife and other natural resource amenities at the Center. Hiking trails will serve a dual function by guiding the public to unique or interesting natural resource amenities within the Center while limiting access to other areas considered to be fragile or susceptible to disturbance, and thus ensur-

The trail network will consist of cleared and maintained wood chip and/or mowed trails in suitable upland areas connected by elevated boardwalks in lowlying wetland areas. Boardwalks will permit hiking and nature study at the Center during periods of high water levels and will facilitate travel through habitat that, under normal circumstances, is difficult to traverse.

Two wildlife observation platforms would be included as part of the boardwalk trail system and would provide opportunities for close, and in some instances, concealed, observation of wildlife throughout the year. A third observation platform located adjacent to the pine plantations near the north boundary of the property would facilitate handicapped access to and use of the Center. A typical observation platform design is illustrated in Figure 9. Trail and boardwalk locations are shown on Maps 6, 7, and 8.

Figure 8

PARKING LOT DESIGN--EAST LOT 1

A system of elevated boardwalks through wetland areas will provide access to upland areas such as the upland woods shown in the center of this photograph, which is presently inaccessible during all but the driest weather.

In addition to elevated boardwalks through wetland areas, the recommended trail network would include maintained wood chip-surfaced trails and mowed trails in upland areas of the Nicholson Wildlife Center.

PLAN IMPLEMENTATION

The alternative improvement proposals represent attempts to provide various levels of wildlife habitat enhancement and opportunities for passive outdoor recreational activities at the Nicholson Wildlife Center. Basic differences between the alternatives are, in most instances, quantitative. While variations of the three alternative proposals are possible, they are believed to represent the basic choices practically available to the Town of Caledonia for the provision of an area with enhanced wildlife habitat amenities and facilities for passive outdoor recreational use.

Selection of a final plan from among the alternatives should be based upon analysis of which proposal best meets the wildlife habitat enhancement and passive outdoor recreational use objectives presented in this report.

The Town of Caledonia has the legal authority and the financial capability to implement all of the various elements of a recommended plan for the Nicholson Wildlife Center. Accordingly, the Caledonia Park Commission and the Caledonia Town Board will have a significant impact upon the successful implementation of the recommended plan for the Nicholson Wildlife Center.

Land Acquisition

Each of the three phases recommends land acquisition. Such acquisition is intended to serve three purposes. First, it is intended to facilitate management practices at the Nicholson Wildlife Center by providing continuous tracts of land on which to implement habitat management or restoration techniques. Second, it is intended to provide protection for important wildlife habitat areas, such as wetlands, which are adjacent to the Center, and which would enhance the value of the Center as a wildlife habitat management area. Third, it is intended to facilitate the provision of public access to the Center. Proposed uses of the parcels recommended for acquisition are shown on Maps 6, 7, and 8.

Figure 9

OBSERVATION PLATFORM DESIGN

Source: Sarett Nature Center and SEWRPC.

It is important to note that, while the usual manner of acquisition is the purchase of fee simple interest, there are alternative methods of acquiring less than fee simple interests in the land. Acquisition may involve one or more of the following methods: purchase or dedication in fee simple, purchase or dedication of easements, and purchase or dedication of development rights.

Purchase:

- 1. Purchase of Fee Simple Interest: Purchase of fee simple interest is perhaps the surest way to preserve open space lands. It is what most people normally conceive of when the word "purchase" is used and includes the acquisition of the highest type of estate in land, the complete private bundle of rights which is immune from the control of other persons and is unlimited in duration, disposition, and descendibility.
- 2. Purchase and Lease Back: Under this method, the Town would purchase the fee simple interest in the parcel and then lease use of the parcel back to either the seller or some other party. The lease-back arrangements would provide an income to the Town, yet the Town would maintain control of the land with respect to subsequent use. The lease could contain conditions for future open space uses which could be enforced.

3. Acquisition Subject to Life Estate: Under this method, the Town would acquire the land but allow the present owner to remain on the land for the duration of his/her lifetime. Upon the owner's death, the Town would take possession of the land. The advantage of this method is that the parcel can be acquired for a reasonable purchase price, while at the same time ensuring future public access to the property.

Easements:

1. Conservancy Easements: Under this method, the Town would buy the rights of public access to private land in order to provide for a public purpose, such as nature study, or for open space

This seasonally flooded basin, north of and adjacent to the Nicholson Wildlife Center, provides excellent feeding and resting habitat for migratory waterfowl and shorebirds. This basin is proposed as a high-priority acquisition area in phase 3 of the management plan.

preservation purposes. Such easements may also prohibit the current landowner from removing vegetation or filling in wetland areas.

2. <u>Scenic Easements</u>: The Town can purchase scenic easements to maintain control of scenic areas and vistas. The easements could include provisions which restrict the landowner's right to build structures, dump trash, or cut timber or brush, or otherwise impair or modify scenic areas.

Other Forms of Acquisition :

- 1. Acquisition of Development Rights: Under this method, the Town would purchase only the right to develop the land. The ownership of the land remains with the original landowner and, therefore, remains on the tax roll. Stipulations can be made which assure that virtually no change in the existing use of the land could occur. Acquisition of such development rights may run for a given number of years or in perpetuity.
- 2. <u>Gifts or Donations</u>: The Town may acquire interest in land through gifts or donations. In many instances, such gifts or donations are made because of the tax advantages which accrue to the owner.
- 3. <u>Dedication</u>: The Town may also acquire the land pursuant to the Town's land dedication requirements.

Zoning

Lands presently contained within the Nicholson Wildlife Center are zoned A-2, general farming and residential, and A-3, general farming and holding. It is recommended that Racine County and the Town of Caledonia consider rezoning the Nicholson Wildlife Center lands to C-1 resource conservancy, which would serve to protect and preserve the character of the existing natural resource base, permit the provision of compatible outdoor recreational facilities, and prohibit urban and other incompatible uses.

Shoreland Regulation: Section 59.971 of the Wisconsin Statutes requires each county of the State to enact ordinances to regulate all shoreland areas within the unincorporated areas of the county. The regulations apply to strips of land 1,000 feet from a lake, pond, or flowage, and 300 feet from a river or stream or to the landward side of the floodplain, whichever distance is greater. The standards and criteria for the ordinances are set forth in Chapter NR 115 of the Wisconsin Administrative Code. They include restrictions on lot sizes, building setbacks, filling, grading, dredging, and sanitary regulations. Counties are required to keep their regulations current and effective in order to remain in compliance with the Statutes and the minimum standards established by the Wisconsin Department of Natural Resources (DNR). In the event that a county fails to meet the established standards, the DNR will adopt and administer the required zoning ordinance.

In accordance with NR 115, all counties in the State must place wetlands five acres or larger in size and located within the statutory shoreland zoning jurisdiction area in a shoreland-wetland zoning district to ensure their preservation. Wetlands that lie within 300 feet of a navigable stream and/or to the landward side of the floodplain, whichever distance is greater, adjacent to the unnamed stream flowing through the Nicholson Wildlife Center are subject to NR 115 zoning regulations.

Plan Costs

Implementation of the recommendations directed at the Town of Caledonia under the recommended Nicholson Wildlife Center plan presented herein would require a total capital expenditure of \$306,433 for phase 1, an additional \$49,603 for phase 2, and an additional \$68,076 for phase 3. Table 3 provides more detailed cost analyses for various elements contained in all three phase plans. It should be noted that, to the extent that acquisition and development proposals become eligible for state or federal aid, costs to the Town could be reduced.

Park and Outdoor Recreation Aids: Local units of government, including towns, are eligible to apply for and receive state and federal aid for the acquisition and development of park and open space lands and facilities. The most important aids program for outdoor recreation site acquisition and development is the Land and Water Conservation (LAWCON) fund, created by the federal Land and Water Conservation Act in 1965. Requirements for aids under this program, which cover up to 50 percent of the total acquisition or development costs, include the following: the project must be in accord with a comprehensive park plan adopted by the local government body and approved by the Wisconsin Department of Natural Resources; the local unit or agency must have adopted a resolution which constitutes a formal request for the outdoor recreation aids grants; and the local unit must allocate local funds for the project and maintain the area or facility upon acquisition.

27

Table 3

NICHOLSON WILDLIFE AREA COST ANALYSIS

						·	
		Phase	€ I	Phase	2	Phase	3
item	1985 Dollars	Number/Size	Cost	Number/Size	Cost	Number/Size	Cost
Ponds (blasted) Ponds (excavated) Raptor Poles	\$ 35/pond 12,000/pond 15/pole	27 17 7	\$ 945 204,000 105	27 17 7	\$ 945 204,000 105	27 19 7	\$ 945 228,000 105
Seed Bed Preparation Nest Cover Planting	105/acre 100/acre 23/acre	22.6 acres 22.6 acres 16.3 acres	2,373 2,260 375	33.6 acres 33.6 acres 16.3 acres	3,528 3,360 375	40.6 acres 40.6 acres 33.3 acres	4,263 4,060 766
Berm	10/foot			1 .	8,200	1	8,200
24 inch	15/foot			2-34 foot sections	1,020	2-34 foot sections	1,020
36 inch	29/foot			1-4 foot section	116	1-4 foot section	116
Berm Seeding Boardwaik	23/acre			0.5 acre	12	0.5 acre	12
Single Double Observation Platform	10/foot 20/foot 325/platform	300 feet 700 feet 3	3,000 14,000 975	800 700 3	8,000 14,000 975	800 700 3	8,000 14,000 975
Parking Lots							
Option 1 ("Y" turn) Option 2 (half circle)			28,900 31,200		28,900 31,200		28,900 31,200
Option 1 ("Y" turn) Option 2 (half circle) Land Acquisition			67,700 71,400		67,700 71,400		67,700 71,400
Near Future Agricultural Land Wetland	3,000/acre 500/acre	1.5	4,500	1.5	4,500	1.5 15.5	4,500 7,750
Agricultural Land Wetland	3,000/acre 500/acre	5.0	2,500	11.0 5.0	33,000 2,500	22.5 5.0	67,500 2,500
Estimated Total Maximum Cost	\$		\$306,433		\$356,036		\$424,112

Source: SEWRPC.

Chapter IV

SUMMARY AND CONCLUDING RECOMMENDATIONS

The wildlife habitat management plan for the Nicholson Wildlife Center, as herein documented, was prepared in response to a request received by the Regional Planning Commission from the Town of Caledonia Park Commission on June 25, 1984. The plan is intended to provide recommendations for wildlife habitat enhancement and improvement of existing facilities for passive outdoor recreational use.

The wildlife habitat management plan is intended to provide protection to one of the largest remaining wetlands in the Town of Caledonia. As shown on Map 2 in Chapter II, the planning area considered in this report encompasses 123 acres, with 77 acres, or 63 percent of the total area, being classified as wetlands.

As shown on Map 3 in Chapter II, approximately 31 acres, or 25 percent of the Nicholson Wildlife Center, are classified as wildlife habitat. Of this total, approximately 28 acres are classified as high-value wildlife habitat and the remaining three acres are classified as low-value wildlife habitat.

About 110 acres, of 89 percent of the planning area, are covered by soils with high water tables and poor drainage. The remaining 13 acres also have developmental restrictions due to high shrink-well potential, low bearing capacity, and high erosive potential, as shown in Table 1 in Chapter II.

Environmental corridors in the planning area are shown on Map 5 in Chapter II. Approximately 86 acres, or 70 percent of the study area, are contained within secondary environmental corridors.

The fundamental objective of the wildlife habitat management plan presented herein is the enhancement and management of an area designated for wildlife use. The base objectives are set forth in Chapter III. Based upon those objectives, it is recommended that the Town of Caledonia Park Commission and the Caledonia Town Board act to enhance, protect, and manage the Nicholson Wildlife Center by:

- 1. Establishment of wildlife habitat amenities, including ponds and potholes, brush piles and raptor poles, prairie and dense nesting cover, and water level control structures.
- 2. Provision of public access and use facilities, including access roads and parking lots, and a trail system which includes a boardwalk, wildlife observation platforms, and viewing facilities for the handicapped.
- 3. Placement of lands currently within the Nicholson Wildlife Center into the (C-1) Lowland Conservancy District.

4. Eventual acquisition of up to 45 acres of land adjacent to the Nicholson Wildlife Center for wildlife management purposes.

As summarized in Table 3 in Chapter III, implementation of the recommended wildlife habitat management plan would require a public expenditure of \$306,433 for phase 1, an additional \$49,603 for phase 2, and an additional \$68,076 for phase 3. To the extent that federal funds are available, actual costs to the Town of Caledonia may be reduced. In addition, to the extent that volunteer help is available for activities such as trail clearing and brush pile construction, costs for specific items may also be reduced. It is envisioned that the recommended actions would serve to enhance, protect, and manage the Nicholson Wildlife Center and, by doing so, would serve to maintain a high level of environmental quality in the area, protect the natural scenic beauty of the area, and provide invaluable recreational and educational opportunities for the citizens of the Town of Caledonia. APPENDICES

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Appendix A

NEST BOX CONSTRUCTION GUIDELINES

All nest boxes should be constructed from wood. Number 2 or 3 grades of pine or spruce are the most economical overall, and are generally considered easy to work with and durable. The wood should not be treated with creosote, pentachlorophenol, or greenish water-borne salts, as these preservatives may be injurious to wildlife. It is not necessary to finish the interior or exterior of the nest boxes. Unfinished structures made of pine or spruce typically turn a gray color and last for years. Assembly with rust-resistant nails or screws can be augmented by the use of waterproof glue, preferably liquid resorcinol with catalyst.

Appendix A-1

WREN, BLUEBIRD, OR TREE SWALLOW NEST BOX

FRONT VIEW

To attract house wrens, place the box near or actually in the cover of a bush or small tree. Wrens seek the shade and protection of thick bushes where mated pairs find nesting materials and food for themselves and their young. The box may be placed 3 to 10 feet from the ground. Studies conducted by the University of Wisconsin recommend that the wren boxes be placed at a height of about 5 feet. If cover is available, wrens will nest as high as 15 feet from the ground.

Bluebird and tree swallows are more exacting. Bluebird nest boxes should be located in shrubby fence rows or in semi-open areas, at least five acres in size, where undergrowth is not thick and shade is not too heavy. Areas of heavy pesticide use or high English sparrow populations should be avoided. Where raccoons are frequent, predator guards should be placed on fence posts or trees, or nest boxes may be placed on single steel posts located 10 feet from fence rows or woody cover. Typically, nest boxes should be placed 5 to 6 feet above the ground. If vandalism is a problem, nest boxes should be placed 8 to 10 feet high.

33

The tree swallow feeds on the wing and seeks open agricultural fields and meadows or treeless and shrubless wild areas as its nesting place. A nest box for the tree swallow should be placed in the open on a fence post or special box support. A broad sweep of open country in front of the box opening is the best inducement for the tree swallow to accept the box. This swallow is not particular about the height of its nest cavity, provided the above requirements are met. It is recommended that tree swallow boxes be placed 5 to 6 feet above the ground.

Nest box spacing depends on the arrangement of the food and cover and the degree of isolation this arrangement affords. In farmyards or in rural areas, a tree swallow box should be at least 30 feet away from any other box. Boxes 150 feet apart are recommended for bluebirds. Nest boxes for both species should face away from the prevailing wind.

Nest boxes should be in place by March 15, prior to the birds' arrival from the South. Occasionally, unwanted birds such as the English sparrow or European starling take over boxes. You can discourage them by repeatedly removing their nests. A periodic check will tell you if you have desirable tenants to encourage, or undesirable ones to evict. Always clean out the nest boxes as soon as the young have fledged as this will encourage both species to renest.

It may take several boxes placed in the most likely sites to attract one pair of birds.

Source: University of Wisconsin-Extension.

Appendix A-2

KESTREL OR SCREECH OWL NEST BOX

SIDE VIEW

Sparrow hawks are birds of open fields and meadows. Therefore, locate houses on isolated living or dead trees, or possibly on poles. Houses should be at least 12 to 15 feet above the ground, with no obstructions in front of the hole. Place an inch or two of coarse sawdust in the house before putting it up.

Unlike sparrow hawks, screech owls are primarily woodland birds. Therefore, locate houses in wooded areas. Attach them to trees 15 feet or more above the ground. The owls use the houses for shelter during all seasons of the year, as well as for nesting sites during spring. During the winter, the owls often sun themselves at the entrance hole, so a small cleat should be nailed to the inside of the box 5 inches below the hole. Face the house in a direction where it will get the winter sun. Place several inches of sawdust or dry leaves in the house to make it more attractive to the birds.

Source: University of Wisconsin-Extension.

Appendix A-3

WOOD DUCK NEST BOX

Erect a nest box in marshes by attaching it to a sturdy pole set 4 or more feet above the high water level. Nest boxes may also be placed in trees up to one-quarter mile from a suitable water area. When placed in a tree, the house should be no more than 30 feet above ground level. Care should be taken to ensure that the box is plainly visible and that the entrance hole is not obstructed by leaves and branches. The box should be in a vertical position, but if it slants, it must slant forward. A backward slant prevents the young from climbing the sides and leaving the nest box after hatching. Three or four inches of coarse sawdust or shavings should be placed in the house when it is erected.

Wood duck nests are subject to predation by raccoons and tree-climbing snakes, so they should be protected by suitable guards such as metal shields around the tree trunk or post wherever these animals are apt to present a problem.

If the inside surface of the front board is smooth, attach a 3-inch by 12-inch strip of hardware cloth on the inside. Have it extend from the bottom of the hole down 12 inches. Saw-cuts one-eighth inch deep and one-half inch apart in the same area are suitable.

Occasionally birds such as starlings, flickers, and screech owls will take over wood duck houses, and squirrels may also occupy them. Check the houses periodically to evict undesirable tenants or erect additional houses for the ducks.

Source: University of Wisconsin-Extension.

Appendix B

PRELIMINARY BIRD SURVEYS NICHOLSON WILDLIFE AREA

DATES: March 9, 1985; April 23, 1985; April 28, 1985

- OBSERVERS: Craig D. Thompson, Research Analyst Southeastern Wisconsin Regional Planning Commission Jacquelyn Jarboe and Ted Singletary, the Sierra Club
- LOCATION: Nicholson Wildlife Center in U. S. Public Land Survey Section 21, Township 4 North, Range 22 East, Town of Caledonia, Racine County, Wisconsin

SPECIES LIST:

Ardeidae Ardea herodias--Great blue heron¹

Anatidae

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Olor columbianus--Whistling swan
Branta canadensis--Canada goose
Anas platyrynchos--Mallard
Anas acuta--Pintail
Anas americana--American wigeon
Anas clypeata--Northern shoveler
Anas discors--Blue-winged teal
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Rallidae

Fulica americana--American coot

Charadriidae Charadrius vociferus--Killdeer

Pluvialis squatarola--Black-bellied plover

Scolopacidae

Tringa flavipes--Lesser yellowlegs Gallinago gallinago--Common snipe Calidris melanotos--Pectoral sandpiper

Accipitridae

Circus cyaneus--Northern harrier¹

Phasianidae

Phasianus colchicus--Ring-necked pheasant

Columbidae

Zenaida macroura--Mourning dove

Alaudidae

Eremophilia alpestris--Horned lark

Corvidae

Corvus brachyrhynchos--American crow

Troglodytidae <u>Cistothorus</u> palustris--Marsh wren

Muscicapidae

<u>Turdus</u> <u>migratorius</u>--American robin

Emberizidae

<u>Cardinalis cardinalis</u>--Northern cardinal <u>Spizella arborea</u>--Tree sparrow <u>Zonotrichia albicollis</u>--White-throated sparrow <u>Melospiza melodia</u>--Song sparrow <u>Melospiza georgiana</u>--Swamp sparrow <u>Sturnella magna</u>--Eastern meadowlark <u>Agelaius phoenicius</u>--Red-winged blackbird <u>Molothrus ater</u>--Brown-headed cowbird <u>Quiscalus quiscula</u>--Common grackle

Fringillidae

Carduelis tristis--American goldfinch

Total number of bird species: 31

No threatened or endangered species were observed during the survey.

¹Wisconsin Watch List species.

Appendix C

PRELIMINARY VEGETATION SURVEYS NICHOLSON WILDLIFE CENTER

DATES:	August 10, 1984; August 24, 1984; and October 9, 1985
OBSERVER:	Donald M. Reed, Principal Biologist Southeastern Wisconsin Regional Planning Commission
LOCATION:	Nicholson Wildlife Center in U. S. Public Land Survey Section 21, Township 4 North, Range 22 East, Town of Caledonia, Racine County, Wisconsin
SPECIES LIS	ST:
Equiseta <u>Equis</u>	aceae setum spHorsetail
Pinaceae Picea Picea Picea Pinus Pinus Pinus Pinus Pinus Typhacea Typha	a <u>glauca</u> ¹ White spruce <u>pungens</u> ¹ Colorado blue spruce <u>a abies</u> ¹ ² Norway spruce <u>s strobus</u> ¹ White pine <u>s resinosa</u> ¹ Red pine <u>s sylvestris</u> ¹ , ² Scotch pine aceae <u>berus</u> sp. ¹ Juniper ae <u>a latifolia</u> Broad-leaved cat-tail
Graminea Bromu Agrop Phleu Phala Setar	ae <u>1s inermis</u> ² Smooth brome grass <u>byron repens</u> ² Quack grass <u>1m pratense</u> ² Timothy grass <u>aris arundinacea</u> ² Reed canary grass <u>cia spp</u> . ² Foxtail grasses
Cyperace <u>Cyper</u> <u>Scirr</u> <u>Scirr</u> <u>Scirr</u> <u>Scirr</u> <u>Scirr</u> <u>Scirr</u> <u>Scirr</u> <u>Scirr</u>	eae <u>rus</u> <u>esculentus</u> Chufa <u>pus</u> <u>validus</u> Softstem bulrush <u>pus</u> <u>acutus</u> -Hardstem bulrush <u>pus</u> <u>acutus</u> X validusHybrid bulrush <u>pus</u> <u>fluviatilis</u> River bulrush <u>pus</u> <u>cyperinus</u> Wool grass <u>k</u> spSedge

Liliaceae

Allium tricoccum--Wild leek Asparagus officinalis²--Wild asparagus <u>Smilacina</u> racemosa--Solomon's plume Polygonatum biflorum--Solomon's seal <u>Trillium</u> grandiflorum--Trillium

Salicaceae

Populus deltoides--Cottonwood Salix nigra--Black willow Salix interior--Sandbar willow Salix sp.--Willow

Juglandaceae Carya ovata--Shagbark hickory

Betulaceae

Betula pendula²--European birch

Fagaceae

<u>Quercus</u> <u>macrocarpa</u>--Bur oak <u>Quercus</u> <u>borealis</u>--Northern red oak

Ulmaceae

<u>Ulmus</u> <u>americana</u>--American elm <u>Ulmus</u> <u>rubra</u>--Slippery elm

Moraceae

Morus rubra--Red mulberry

Polygonaceae

Rumex crispus²--Curly dock <u>Polygonum pensylvanicum</u>--Pinkweed Polygonum sp.--Smartweed

Chenopodiaceae Chenopodium album²--Lamb's quarters

Amaranthaceae <u>Amaranthus</u> retroflexus²--Redroot pigweed

Ranunculaceae <u>Thalictrum</u> <u>dasycarpum</u>--Tall meadow rue <u>Anemone</u> cylindrica--Thimbleweed

Berberidaceae Podophyllum peltatum--Mayapple

Cruciferae

<u>Brassica</u> <u>oleracea¹</u>²--Cabbage <u>Barbarea</u> <u>vulgaris</u>²--Yellow rocket <u>Alliaria</u> officinalis²--Garlic mustard

Saxifragaceae <u>Ribes</u> <u>americanum</u>--Wild black currant

Rosaceae

<u>Rubus occidentalis</u>--Black raspberry <u>Agrimonia gryposepala</u>--Agrimony <u>Rosa multiflora</u>²--Multiflora rose <u>Prunus serotina</u>--Black cherry <u>Pyrus malus</u>--Apple tree <u>Crataegus</u> sp.--Hawthorn

Fabaceae

Trifolium pratense²--Red clover <u>Trifolium repens²--White clover</u> <u>Melilotus officinalis²--Yellow sweet clover</u> <u>Medicago</u> lupulina²--Black medick

Geraniaceae

Geranium maculatum--Wild geranium

Aceraceae

Acer negundo--Boxelder

Rhamnaceae

Rhamnus frangula²--European buckthorn

Vitaceae

Vitis riparia--Grape

Tiliaceae

Tilia americana--Basswood

Malvaceae

Abutilon theophrasti²--Velvet-leaf

Violaceae

Viola sp. -- Violet

Onagraceae

Oenothera biennis--Evening primrose

Umbelliferae

Daucus carota²--Queen Anne's lace

Cornaceae

Cornus racemosa--Grey dogwood

01eaceae

Fraxinus pennsylvanica--Green ash

Apocynaceae

Apocynum cannabinum--Indian hemp

Asclepiadaceae

Asclepias incarnata--Swamp milkweed Asclepias syriaca--Common milkweed Verbenaceae Verbena hastata--Blue vervain Solanaceae Solanum dulcamara²--Deadly nightshade Solanum nigrum²--Black nightshade Plantaginaceae Plantago rugelii--Red-stalked plantain Caprifoliaceae Viburnum lentago--Nannyberry Viburnum dentatum--Arrow-wood Sambucus canadensis--Elderberry Compositae Helianthus strumosus--Woodland sunflower Helianthus tuberosus--Jerusalem-artichoke Bidens sp.--Beggar-ticks Ambrosia trifida--Giant ragweed Ambrosia artemisiifolia--Common ragweed Solidago ulmifolia--Elmleaf goldenrod Solidago altissima--Tall goldenrod Aster lucidulus--Swamp aster Aster simplex--Marsh aster Erigeron sp.--Daisy fleabane Arctium minus²--Common burdock <u>Carduus</u> <u>nutans</u>²--Nodding thistle <u>Cirsium</u> <u>vulgare</u>²--Bull thistle Cirsium arvense²--Canada thistle Taraxacum officinale²--Common dandelion Sonchus arvensis²--Sow-thistle Cichorium intybus²--Chicory

Total number of plant species: 97+ Number of alien, or nonnative, plant species: 31+ (32 percent) Number of hybrids: 1

¹Planted.

²Plant species is alien, or nonnative, to North America.

42