

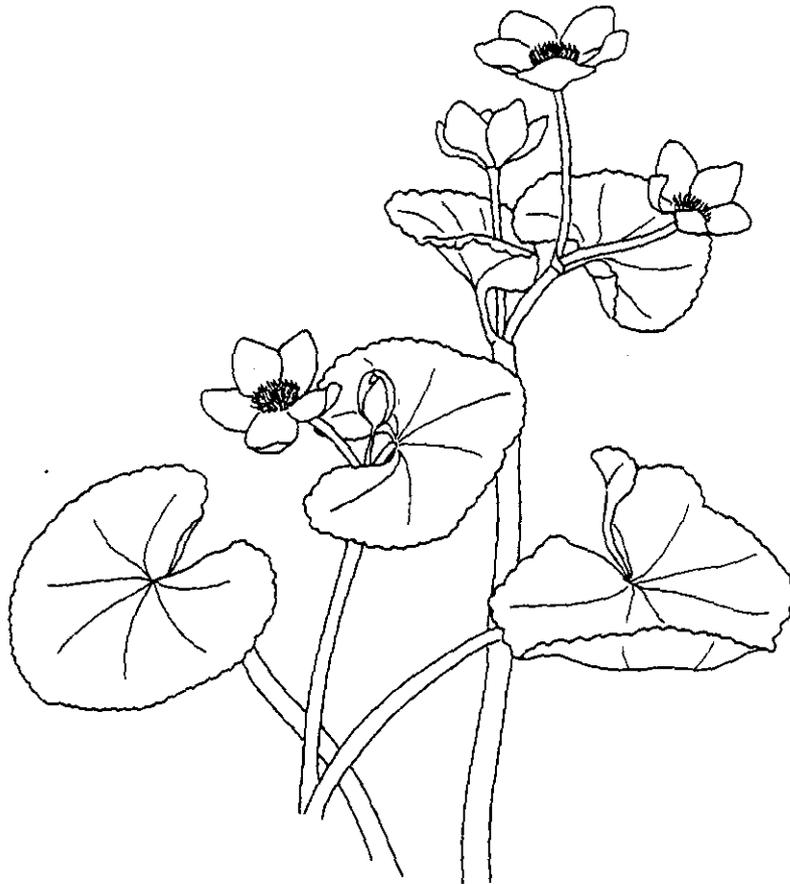
PAGE PARK WETLAND

ROCKFORD PARK DISTRICT 1401 North Second Street Rockford IL

RESOURCE INVENTORY

and

FIVE YEAR MANAGEMENT PLAN



prepared by

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**Funded by the Rockford Park District and the Illinois Department
of Conservation Nongame Wildlife Conservation Fund**



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August 4, 1991

Mr. Rick Strader
Rockford Park District
1401 N. Second St.
Rockford IL 61107-3086

Dear Mr. Strader:

Enclosed please find two copies of the report **Page Park Wetland**, prepared for the Rockford Park District with partial funding from the Illinois Department of Conservation Nongame Wildlife Conservation Fund. Terms of the IDOC grant require that 20 copies of the final report be submitted prior to final payment of the grant. To this end, one of the two reports is left unbound to facilitate copying.

Please contact me with any comments or questions you or other staff may have after reading the report. The wetland complex will benefit greatly from management, particularly application of prescribed fire this fall and next spring, as indicated in the five year management plan. If requested by the Rockford Park District I will be pleased to work with Curt Johnson and other personnel to implement the recommended management activities.

Sincerely,

Victoria A. Nuzzo

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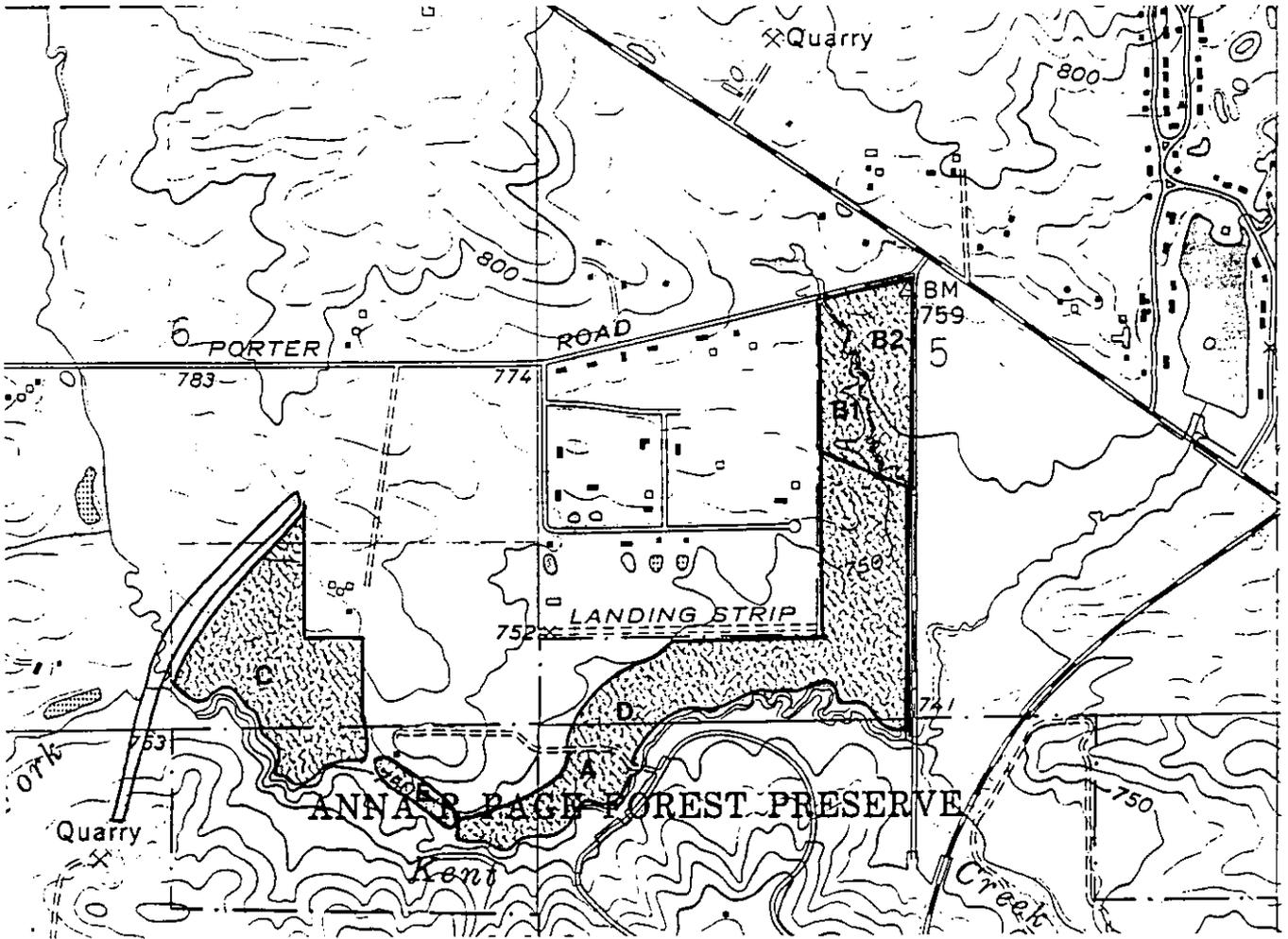
GENERAL SUMMARY

Page Park Wetland is a 110 acre complex located on the north branch of Kent Creek in Anna Page Park, a 317 acre park on the northwest side of Rockford, Illinois. The wetland contains mid to low quality sedge meadow, marsh, oldfields and early successional floodplain forest. Four habitat-restricted butterflies (silver bordered fritillary, eyed brown, mulberry wing and aphrodite fritillary) occur in the sedge meadows. All lands are owned and managed by the Rockford Park District.

Historically, the wetland complex was an open herbaceous community that bordered Kent Creek. Since settlement, the sedge meadow has decreased in size and natural quality as a result of landuse activities, including grazing, draining, and fire exclusion. Native species composition has been modified, and woody vegetation and alien herbaceous species have invaded the wetland.

The integrity of the wetland complex is threatened by woody invasion, fire exclusion, alteration of the hydrologic regime, and potential degradation of water quality. Potential invasion of purple loosestrife is a significant threat; several populations are established in the county, including a large (>1 ha) stand along Kent Creek three miles downstream from the park. Long-term management to restore natural conditions include protection and restoration of the hydrologic regime, restoration of herbaceous species composition, and connection of the fragmented wetlands. Recommended immediate management includes prescribed fire and woody plant removal to maintain and/or increase natural quality of the mid-quality wetlands. Acquisition of agricultural land east of the wetland complex will provide a physical buffer for the north sedge meadow, and limit impact of agricultural activities and potential residential development on water quality.

FIGURE 1: Page Park Wetland Management Units



PART 1: SITE DESCRIPTION

Status of Natural Features

Page Park wetland contains approximately 10 acres of Grade C sedge meadow in two locations, and 35 acres of Grade D sedge meadow and marsh. The sedge meadows and adjacent forest edges support 33 species of butterflies and moths, four of which are habitat-restricted to the wetland complex. More than 150 species of native herbaceous and woody plants occur within the complex. Sixty-six bird species have been recorded from the wetland and adjacent uplands in the park. Two state endangered bird species were recorded near the wetland: In 1989 a non-breeding adult great egret (*Casmerodius albus*) was observed feeding in Kent Creek, and a pair of Cooper's hawk (*Accipiter cooperii*) nested in the woods south of the sedge meadow. No other state or federal designated threatened or endangered species are known from the site.

The remainder of the wetland area consist of approximately 65 acres of former agricultural fields and oldfield, reverting to upland and wetland conditions, and early successional disturbed floodplain forest (Figure 1).

Degradation, Management Potential

The wetland complex has been impacted by past landuses, including fire exclusion, grazing, crop production, and alteration of the hydrologic regime by draitile installation and capping of the 'artesian spring'. Woody invasion, and alien grass and forb invasion, are secondary impacts of agricultural landuses and fire exclusion.

Long-term survival of the Grade C natural communities is dependent upon effective management of these communities, restoration of the adjacent degraded areas to expand the physical size of the natural communities, removal of draitiles, protection of the local watershed, and elimination of negative impacts of adjacent landuses.

Sedge Meadow--Management Unit A

The 10 acre sedge meadow was identified in the Illinois Natural Areas Inventory as a Grade C inventory site (number 260) in 1976. The site was reassessed and biological surveys were conducted 1990/91. One hundred species of plants were identified in the sedge meadow. Eightytwo are native wetland species, nine are native woody invaders, and nine are alien species.

Prior to settlement this area was part of an extensive linear wetland complex that bordered Kent Creek. Grazing, woody invasion and fire cessation have fragmented the large wetland system, and reduced the natural quality of this sedge meadow. The hydrologic regime remains relatively intact, with water entering the sedge meadow as surface and subsurface flow, and as groundwater seepage at the base of the wooded hillside.

The sedge meadow is undergoing invasion by woody plants, in particular willow and glossy buckthorn, and by reed canary grass. Surrounding this sedge meadow are oak forest, Grade D sedge meadow and wet prairie, and early successional floodplain forest.

This sedge meadow provides habitat for all four restricted butterflies, and is the only location in the park where the mulberry wing butterfly has been observed.

This area has good potential for a positive response to management (prescribed fire and woody species removal). The sedge meadow received a prescribed burn in November 1990 (see Appendix). Areas that retain a graminoid groundlayer have good to moderate potential for restoration to sedge meadow/prairie. Species introduction will be appropriate to increase natural quality and stability of these degraded areas. Wooded areas lacking a graminoid or native herbaceous groundlayer have low potential for restoration.

Long-term protection of this sedge meadow will be enhanced by restoration of the adjacent wetland/oldfield (management unit D) to a sedge meadow/prairie complex.

Sedge Meadow--Management Unit B

The 6 acre Grade C sedge meadow is located on both sides of a small stream. The west sedge meadow (B1) is raised 6 to 10 feet above, and slopes down to, the stream. The east sedge meadow (B2) is relatively level. Prior to settlement this area was a fen/sedge meadow complex, fed by groundwater discharge and surface flow. Several calciophilic plant species occur in the site. The sedge meadow is undergoing invasion by woody plants (especially buckthorn, gray dogwood and willow) and reed canary grass. Surrounding this sedge meadow are 14 acres of Grade D sedge meadow, oldfield, and early successional floodplain forest.

This wetland complex has been degraded by grazing, draitiling, ditching, plowing, fire exclusion, capping of the natural spring, and parking lot construction. Unbroken draitiles function as designed, resulting in drier than normal soil conditions, and enhancing growth of undesirable weedy and woody species. Spoil piles near the parking lot support native and alien trees and shrubs. A eutrophic pond is adjacent to one spoil pile.

The sedge meadow has good potential for a positive response to management (prescribed fire, breaking of drain tiles, and woody species removal). Long-term protection of the sedge meadow will be enhanced by restoration of the low quality sedge meadow and oldfield to sedge meadow and prairie communities.

The oldfield is dominated by brome grass, bluegrass, and reed canary grass, with native and alien forbs. Native and alien shrubs and small trees (*Cornus racemosa*, *Crataegus sp.*, *Rhamnus cathartica*) are invading. Open areas of the oldfield have good potential for restoration to prairie vegetation if woody invasion is halted. Densely invaded areas have low to moderate potential for restoration to prairie.

The early successional woods is an unnatural community that has developed following drain tile installation and grazing. The woods is dominated by alien trees and herbs, and lacks a native herbaceous groundlayer. The wooded areas have low potential for restoration without large inputs of time, labor and money.

Wetland/oldfield--Management Unit C

This 30 acre site contains grade D sedge meadow, marsh, and oldfield. Native species diversity is higher than in the other wetlands, reflecting the variety of habitats and larger size of this site, but natural quality is low.

The wetland has been degraded by draitile installation, grazing, plowing, and fire cessation. Several draitiles have broken near the creek, but the remainder function as designed.

The wetland is bounded on the west by the Kent Creek dry dam. The dam is designed to retain a 100 year storm event, and to discharge water over the spillway into the wetland in the event of a larger storm.

The sedge meadow and marsh have good potential for a positive response to management (prescribed fire, breaking of drain tiles, and woody species removal). The oldfield has good potential for restoration to prairie if woody and aggressive alien forb invasion is halted. Introduction of native species of prairie forbs and grasses is appropriate.

Wetland/oldfield--Management Unit D

This 45 acre oldfield contains a relatively small area of grade D sedge meadow. Native species diversity is low. The majority of the wetland area is dominated by reed canary grass, cattail and some sedges, with early-successional native and alien forbs. Like the other wetlands, this area is undergoing woody invasion. The site has been degraded by past plowing, grazing, and draining. Draitiles may be present. The perennial stream that enters from the north (wetland B) is channelized, and the original stream channel eliminated.

The oldfield has good potential for restoration to prairie and sedge meadow if woody invasion is halted. Restoration of this area will link the two higher quality sedge meadows (A and C) and restore part of the large prairie/wetland complex that originally bordered Kent Creek. Introduction of native prairie and wetland species is appropriate.

Early Successional Forest--Management Unit E

A degraded early successional forest covers most of the area between the south sedge meadow (management unit A) and the west wetland/oldfield (management unit C). Small wetland pockets totaling approximately 2 acres occur along the base of the wooded hill, fed by surface flow and groundwater seepage. Prior to settlement and grazing, this area was part of the open herbaceous wetland community that lined the north side of Kent Creek. The wetland pockets retain some native herbaceous species, but have low natural quality.

The area has been degraded by grazing and invasion of woody vegetation. Hiking and horse trails compact the wet soil, and are frequently muddy, resulting in widening of the trails as users avoid mud.

The woods has low potential for restoration to a natural community. The small wetlands have moderate potential for a positive response to management if woody invasion is halted, and if the small wetlands are connected to each other and to the larger wetlands.

Topography and Hydrology

Topographic elevation is approximately 750 feet above mean sea level. The wetland complex is relatively level except in the northern raised sedge meadow, which is some five to eight feet higher than the rest of the landscape.

The wetland watershed covers approximately 400 acres on the north and west sides of the park. (Figure 2). Four subwatersheds are present within the park.

The south sedge meadow (management unit A) receives surface and subsurface run-off from within a relatively small watershed, primarily within Anna Page Park. Some groundwater discharges from seepage areas at the base of the wooded hill, and collects in small pools in the sedge meadow.

The north sedge meadow (management unit B) receives water from a small pond north of Porter Road, from surface and subsurface runoff within a relatively small area to the north and west, and from groundwater discharging from the 'artesian well'. The well channels the natural spring. Groundwater that flows to the surface provides hydrologic conditions suitable for development of a fen community. The water forms a low-gradient perennial stream that is channelized south of the sedge meadow. A road swale on the east side of the wetland diverts water to the channelized stream.

The two wetland/oldfields (Management units C and D) receive surface flow from upland areas north of the park.

Soils

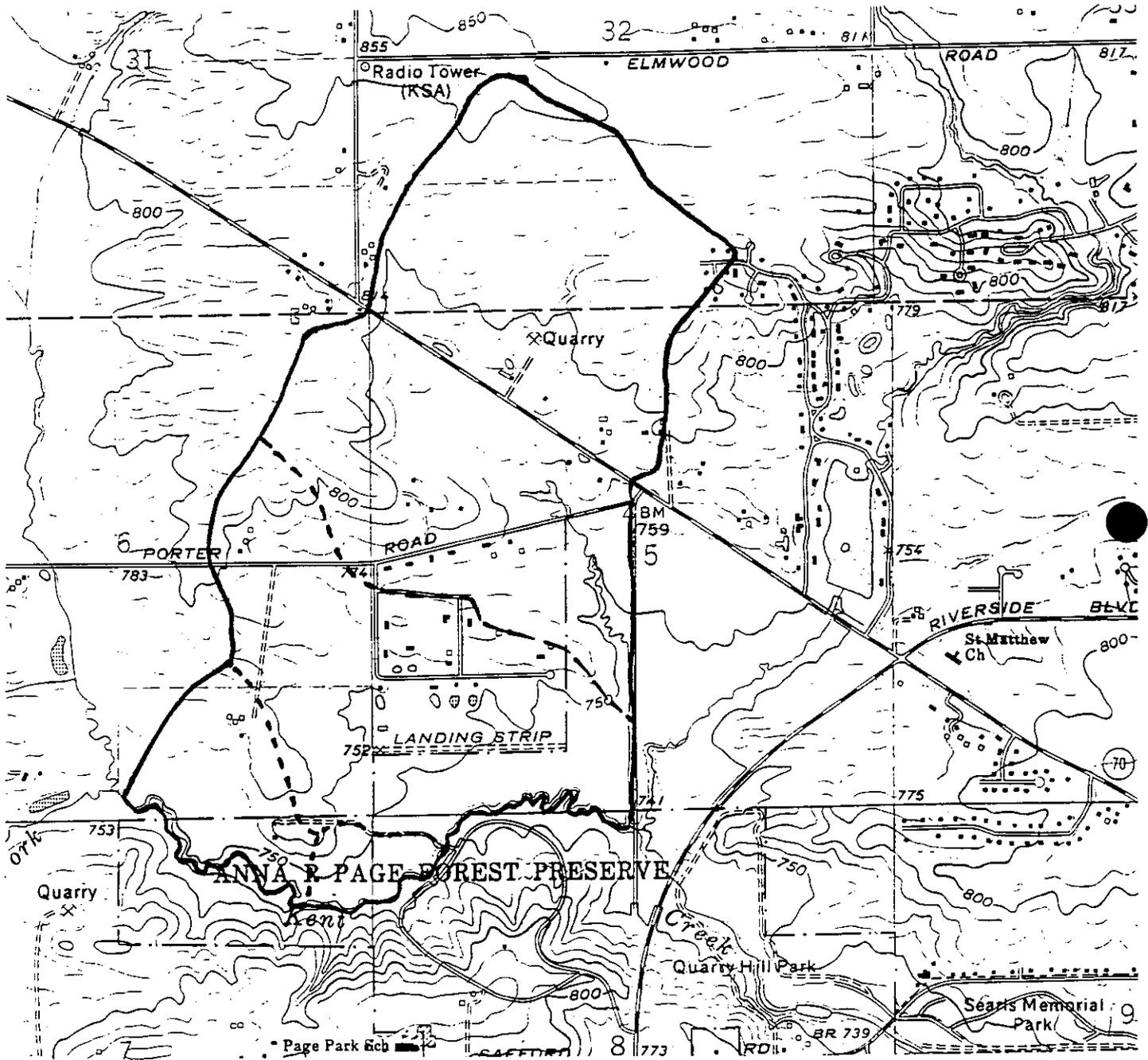
The wetland communities are underlain by Adrian Muck and Comfrey Loam in the south, and by Houghton Muck in the north (Grantham 1980). The oldfields are underlain by loam and siltloam soils.

Adrian Muck is a deep, very poorly drained organic soil that is subject to long periods of flooding in winter and early spring. The upper 25" consists of a black organic muck (highly decomposed sedges, grasses, and other herbaceous wetland plants). Underlying the muck is a 7" layer of gray brown mucky peat, which in turn is underlain by a gray-brown calcareous loamy sand. The water table is at or near the surface during much of the growing season.

Comfrey loam is a deep, poorly drained mineral soil that is subject to flooding in spring. The upper 6" is a black loam, overlying 20" of black clay loam, in turn overlying a gray brown loam and sandy loam. The water table is at or near the surface in spring, and generally within 1-3 feet of the surface the remainder of the year.

Houghton Muck is a deep, very poorly drained organic soil that is

FIGURE 2: Page Park Wetland Watershed and Subwatersheds



subject to frequent and prolonged flooding in winter and spring. The upper 51 or more inches consists of black muck, overlying dark gray sandy loam. The water table is at or near the surface much of the year.

Past Management

Active management of the Anna Page wetland was initiated in November 1990 with a controlled burn of the south sedge meadow (A).

Visitor Use

The wetland complex receives low levels of visitor use. Nature enthusiasts hike through the west wetland/oldfield on an overgrown rutted trail, and visitors to the artesian well occasionally walk through portions of the north sedge meadow. Rock Valley College botany students utilize the area for field studies.

The two mid-quality sedge meadows (A and B) are intolerant of any visitor use due to wet soils and fragile vegetation. No trails or other types of development should be located in these wetlands, and the sites should not be used for hands-on environmental education activities.

The trail to the artesian well should be redesigned to minimize damage to the sedge meadow. The redesign could incorporate a boardwalk over a portion of the sedge meadow, and an interpretive trail through restored prairie on upland soil, to provide universal access and educational opportunity without damaging the wetland community.

The two wetland/oldfields (C and D) are tolerant of low use in wet areas, and low to moderate use in upland areas. Both sites are suitable for environmental education activities.

Linkage with Other Natural Areas

Page Park wetland lies 1.5 miles northwest of Searls Prairie Nature Preserve, connected by the north branch of Kent Creek. The Rockford Park District owns land on both sides of Kent Creek in Page Park and Lockwood Park, and north of Kent Creek in Searls Park. The two wetlands could be linked by purchase of intervening land, and restoration to a prairie/sedge meadow complex.

The City of Rockford owns, or has an easement on, land on both sides of Kent Creek and along a drainage way to the creek northwest of Anna Page Park. The land provides a flood retention area behind the dry dam. Although this floodplain is not actively managed as a natural area, it protects open space along Kent Creek.

PART 2: MANAGEMENT

Management Goals:

1. Preserve and enhance natural quality of Grade C sedge meadows.
2. Restore natural quality of Grade D sedge meadows and marsh.
3. Restore oldfields and other degraded portions of the wetland complex to natural communities that are representative of presettlement landscape, compatible with adjacent natural communities, and tolerant of impacts resulting from offsite landuse and development.
4. Preserve and manage natural communities to maintain habitat suitable for habitat-restricted animal species, as compatible with management of the wetland complex as a whole. Single species management is not a management goal.

Threats to the Integrity of the Wetland Complex:

Internal Treats:

1. Woody invasion in wetland and oldfield communities.
2. Continued functioning of unbroken draintiles.
3. Expansion of alien grasses and forbs in wetland and oldfield communities.
4. Continued fragmentation of the wetland complex.
5. Decrease in native species diversity in sedge meadow and marsh as the herbaceous wetland complex becomes smaller.
6. Potential invasion by purple loosestrife.
7. Increased visitor use and trampling of wetland areas.
8. Altered hydrologic regime in north sedge meadow (capped artesian well, spoil piles, eutrophic pond).

External Treats:

1. Decrease in groundwater quantity and/or quality if upland areas in the watershed are urbanized.
2. Increased visitor impact on north sedge meadow if adjacent agricultural land developed for residential uses.

MANAGEMENT OBJECTIVES

High Priority:

1. Maintain and improve natural quality of Grade C sedge meadows.
2. Restore natural hydrologic regime.
3. Remove invading woody vegetation from Grade C sedge meadows.
4. Prevent purple loosestrife invasion in all wetlands.
5. Obtain official protected status for the wetland complex, and for the watershed within Park District ownership.
6. Protect wetlands from adjacent developmental and urbanization impacts.

Mid Priority:

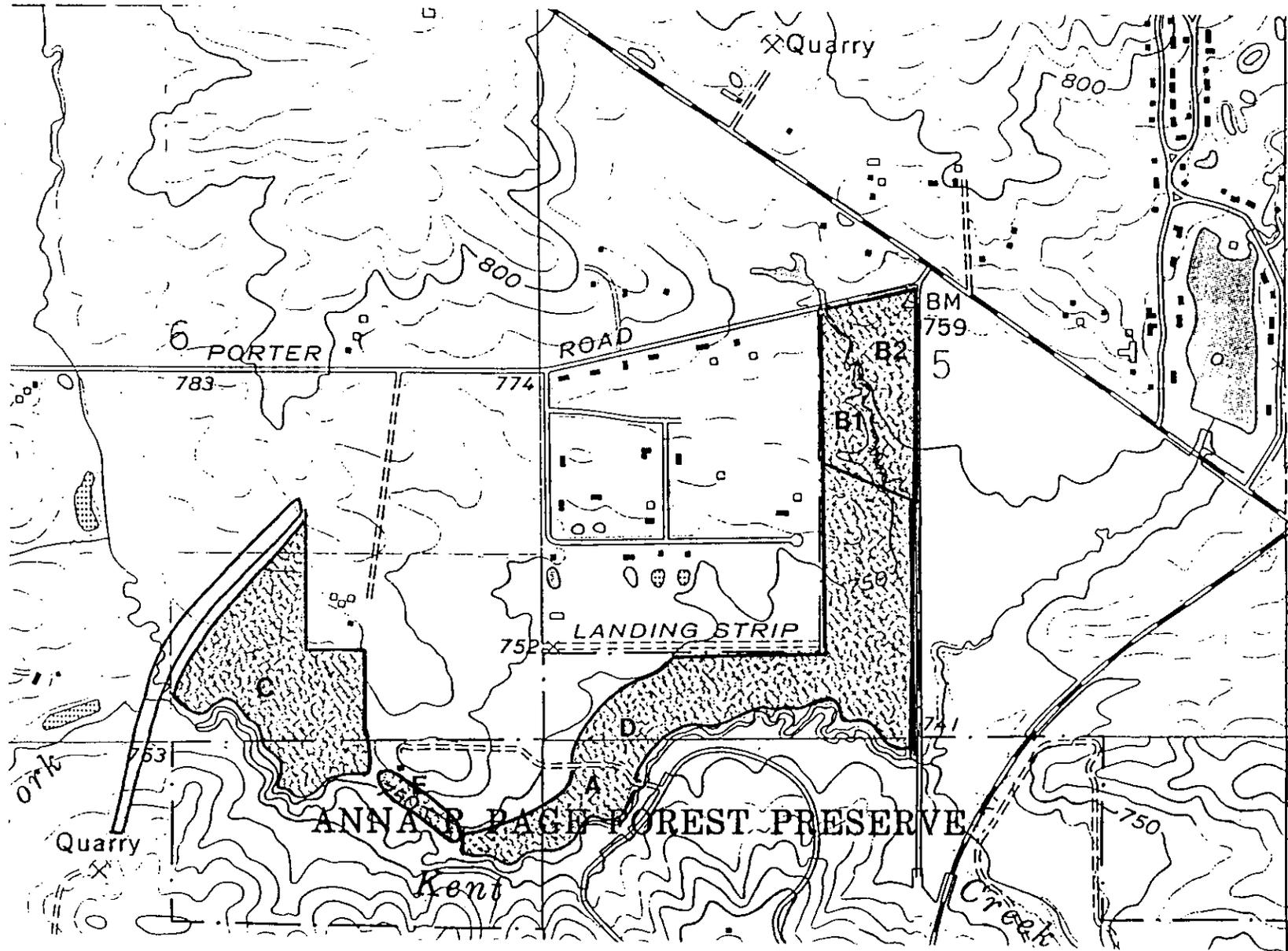
7. Protect wetlands from internal development impacts.
8. Remove woody vegetation from Grade D wetlands.
9. Maintain and increase quality and quantity of habitat suitable for use by habitat-restricted species.
10. Maintain oldfields as open herbaceous communities pending restoration to prairie.

Low Priority:

11. Connect isolated wetlands.
12. Restore oldfields to Grade C wetland and prairie complex.

PAGE PARK WETLAND MANAGEMENT SCHEDULE 1991-1995

Page Park Wetland Management Units



PAGE PARK WETLAND MANAGEMENT SCHEDULE 1991-1995

HIGH PRIORITY

MID PRIORITY

LOW PRIORITY

1991

All Units:	Prevent purple loosestrife invasion	C:	Break draitiles
A, B1, D, E:	Fall Burn	B:	Limit development east of park
B:	Break draitiles		
A:	Remove woody vegetation		
B1:	Remove woody vegetation		
B:	Protect watershed west of park		

1992

B2, C:	Spring burn	B:	Collect quantitative data	D:	Break draitiles if present
All Units:	Prevent purple loosestrife invasion	B:	Redesign entrance and trails, develop restoration plan		
B1, D, E:	Fall Burn	A:	Develop restoration plan		
A:	Remove woody vegetation				
B2:	Remove woody vegetation in wetland				

1993

A, B2:	Spring burn	A:	Implement restoration plan	D:	Remove woody vegetation
All Units:	Prevent purple loosestrife invasion	B2:	Remove woody vegetation from oldfield	E:	Remove woody vegetation
C:	Fall Burn	C:	Remove woody vegetation		
A:	Remove woody vegetation and replant				

1994

B1, D, E:	Spring burn	B:	Implement entrance and trial redesign, implement restoration plan	C:	Develop restoration plan
All Units:	Prevent purple loosestrife invasion			D:	Develop restoration plan
A, B2, C:	Fall Burn			E:	Reestablish sedge meadow

1995

B1, D:	Spring burn	A:	Remove reed canary and replant	C:	Implement restoration plan
All Units:	Prevent purple loosestrife invasion	A:	Collect quantitative data	D:	Implement restoration plan
A, B2:	Fall Burn				

PAGE PARK WETLAND MANAGEMENT SCHEDULE 1991-1995

MANAGEMENT UNIT A: SEDGE MEADOW

Management Objective	Management Activity	Schedule
Improve natural quality of sedge meadow.	Conduct prescribed burn of entire wetland and adjacent oak forest.	Fall 1991 Spring 1993 Fall 1994 Fall 1995
Prevent purple loosestrife invasion.	Monitor for presence; remove immediately if seen. Dig or pull out, put in plastic bags and remove from park, or apply 1.5% Rodeo with wick applicator to individual stems.	July/August 1991 July/August 1992 July/August 1993 July/August 1994 July/August 1995
Remove invading woody vegetation from center of sedge meadow, and on northwest by oak woods (especially buckthorn, viburnum, willow). Remove willow clone on south side.	Cut and stump-treat with 50% Rodeo. Remove cut willows from wetland.	Winter 1991 (ground frozen)
Remove invading woody vegetation in northeast area from sedge meadow to gravel road on north, and to dirt trail on east (especially willow, elm, cottonwood, ash).	Girdle large trees. Cut and stump-treat shrubs and small trees with 50% Rodeo.	Spring 1992 Winter 1992 (ground frozen)
Develop restoration plan for degraded areas of sedge meadow.	Compare species composition to nearby high quality sedge meadows. Determine what species to add, and in what quantities, to restore sedge meadow to Grade C or higher.	1992
Implement restoration plan.	Collect seed as per restoration plan and plant in low quality areas.	1993

Remove invading woody vegetation on west from sedge meadow to dirt trail (especially buckthorn, dogwood, elm).	Cut and stump-treat shrubs and small trees with 50% Rodeo.	Winter 1993 (ground frozen).
Reestablish herbaceous vegetation.	Sow seeds of native forbs, sedges and grasses collected on-site or locally, or a covercrop mix of annual polygonum, oats, and <u>Echinochloa crusgalli</u> into areas of bare soil where brush thickets have been removed.	Spring 1994
Remove reed canary grass.	Control-spray reed canary patches with 2% Rodeo when native vegetation dormant.	Early Spring 1995
Reestablish sedge meadow vegetation.	Sow seeds of native forbs, grasses and sedges collected on-site and in vicinity into areas where reed canary sprayed. Plant immediately after burning, and tamp into soil.	Spring 1995
Assess species composition and community structure of sedge meadow.	Collect frequency and percent cover data by stratified random 1/4m ² quadrats. Compare to 1990/91 data.	Summer 1995

PAGE PARK WETLAND MANAGEMENT SCHEDULE 1991-1995

MANAGEMENT UNIT B: SEDGE MEADOW B1 = west of stream
 OLDFIELD B2 = east of stream
 LOW GRADIENT STREAM

Management Objective	Management Activity	Schedule
Improve natural quality of sedge meadow.	Conduct prescribed burn of west half of wetland (B1).	Fall 1991 Fall 1992 Spring 1994 Spring 1995
	Conduct prescribed burn of east half of wetland and adjacent oldfield (B2).	Spring 1992 Spring 1993 Fall 1994 Fall 1995
Prevent purple loosestrife invasion.	Monitor for presence; remove immediately if seen. Dig or pull out, put in plastic bags and remove from park, or apply 1.5% Rodeo with wick applicator to individual stems.	July/August 1991 July/August 1992 July/August 1993 July/August 1994 July/August 1995
Prevent inundation by beaver activity.	Monitor annually for presence of dam; if sedge meadow inundated, remove dam and/or beaver.	Summer, annually
Break draintiles.	Locate draintiles. Beginning at the creek and working upslope on both sides, break draintiles with rebar or larger tool; insert in soil, smash clay draintiles until the top part collapses. Fill in draintile with soil to plug the tile. Avoid damaging vegetation. Remove exposed metal draintiles.	Fall/Winter 1991 (vegetation dormant, ground firm)
Assess species composition and community structure of sedge meadow.	Collect frequency and percent cover data by stratified random 1/4m ² quadrats.	Summer 1992

Protect watershed.	Acquire conservation easement or purchase wetland property on west side of park.	1991-1994
Expand openspace, limit potential visitor impact.	Acquire conservation easement or purchase upland property on east side of park.	1991-1994
Remove invading woody vegetation from west side (B1); from road on north to woods on south (especially gray dogwood, buckthorn, hawthorn, willow, elm).	Cut and stump-treat shrubs and small trees with 50% Rodeo.	Winter 1991 (ground frozen)
	Girdle large trees.	Spring 1992
Reestablish herbaceous vegetation.	Sow seeds of native forbs, sedges and grasses collected in park, or a covercrop mix of annual polygonum, oats, and <u>Echinochloa crusgalli</u> into areas of bare soil where brush thickets have been removed.	Spring 1992
Reduce visitor and development impacts.	Redesign entrance, parking lot, trailhead, and trail to artesian well. Restore topography and hydrology; remove spoil piles, artificial topographic changes, eutrophic pond. Design universal access and trail to provide educational access to prairie and north part of wetland; use boardwalk in wetland area. Integrate with restoration plan.	1992
Develop restoration plan for oldfield and degraded sedge meadow.	Prepare planting list and methods to restore oldfield, entrance area, and degraded sedge meadow to prairie and sedge meadow communities, similar to nearby high quality prairies and sedge meadows.	1992
Remove invading woody vegetation from sedge meadow on east side (B2); from spoil pile on north to woods on south (especially gray dogwood, buckthorn, boxelder, willow).	Cut and stump-treat shrubs and small trees with 50% Rodeo.	Winter 1992 (ground frozen)
	Girdle large trees.	Spring 1993
Reestablish herbaceous vegetation.	Sow seeds of native forbs, sedges and grasses collected in park, or a covercrop mix of annual polygonum, oats, and <u>Echinochloa crusgalli</u> into areas of bare soil where brush thickets have been removed.	Spring 1993

Remove invading woody vegetation from oldfield on east side (B2); from road on north to woods on south (especially buckthorn, crabapple, black cherry, elm, wild plum, honeysuckle, boxelder).

Cut and stump-treat shrubs and small trees with 50% Garlon 3A. Basal bark application to trees with 50% Garlon 4, or girdle large trees.

Fall/Winter 1993
Fall/Winter 1993
Spring 1994

Reestablish herbaceous vegetation.

Sow seeds of prairie forbs and grasses collected locally, or a covercrop mix of oats, blackeyed susan, and frost aster, into areas of bare soil where brush thickets have been removed.

Spring 1994

Implement trail and hydrology plan

Rebuild as per restoration plan.

1994

Implement restoration plan.

Collect seed and plant as per restoration plan.

1994

PAGE PARK WETLAND MANAGEMENT SCHEDULE 1991-1995

MANAGEMENT UNIT C: SEDGE MEADOW
 MARSH
 OLDFIELD

Management Objective	Management Activity	Schedule
Prevent purple loosestrife invasion.	Monitor for presence; remove immediately if seen. Dig or pull out, put in plastic bags and remove from park, or apply 1.5% Rodeo with wick applicator to individual stems.	July/August 1991 July/August 1992 July/August 1993 July/August 1994 July/August 1995
Improve natural quality of wetland/oldfield complex and maintain as open herbaceous community.	Conduct prescribed burn of entire area.	Spring 1992 Fall 1993 Fall 1994
Break draitiles.	Locate draitiles. Beginning at the creek and working upslope, break draitiles with rebar or larger tool; insert in soil, smash clay draitiles until the top part collapses. Fill in draitile with soil to plug the tile. Avoid damaging vegetation.	Fall/Winter 1991 (vegetation dormant, ground firm)
Remove invading woody vegetation in wetland areas (especially willow, redosier dogwood, gray dogwood, buckthorn)	Cut and stump-treat with 50% Rodeo.	Winter 1993
Develop restoration plan for wetland/oldfield complex.	Determine what species to add, and in what quantities, to restore sedge meadow to Grade C, and develop mesic to wet prairie complex, compatible with drydam use.	1994
Implement restoration plan.	Collect seed and plant as per restoration plan.	1995

PAGE PARK WETLAND MANAGEMENT SCHEDULE 1991-1995

MANAGEMENT UNIT D: OLDFIELD
 SEDGE MEADOW

Management Objective	Management Activity	Schedule
Improve natural quality of oldfield/wetland complex and maintain as open herbaceous community.	Conduct prescribed burn of entire area.	Fall 1991 Fall 1992 Spring 1994 Spring 1995
Prevent purple loosestrife invasion.	Monitor for presence; remove immediately if seen. Dig or pull out, put in plastic bags and remove from park, or apply 1.5% Rodeo with wick applicator to individual stems.	July/August 1991 July/August 1992 July/August 1993 July/August 1994 July/August 1995
Break draintiles if present.	Locate draintiles. Beginning at the creek and working upslope, break draintiles with rebar or larger tool; insert in soil, smash clay draintiles until the top part collapses. Fill in draintile with soil to plug the tile. Avoid damaging vegetation.	Fall/Winter 1992 (vegetation dormant, ground firm)
Remove invading woody vegetation in wetland areas (especially willow, redosier dogwood, gray dogwood, buckthorn)	Cut and stump-treat with 50% Rodeo.	Winter 1993
Develop restoration plan for wetland/oldfield complex.	Determine what species to add, and in what quantities, to restore sedge meadow to Grade C, and develop mesic to wet prairie complex.	1994
Implement restoration plan.	Collect seed and plant as per restoration plan.	1995

PAGE PARK WETLAND MANAGEMENT SCHEDULE 1991-1995

MANAGEMENT UNIT E: WETLAND POCKETS IN SUCCESSIONAL WOODS

Management Objective	Management Activity	Schedule
Improve natural quality of wetland/oldfield complex and maintain as open herbaceous community.	Conduct prescribed burn of all wetlands in conjunction with adjacent oak forest on north.	Fall 1991 Fall 1992 Spring 1994 Spring 1995
Prevent purple loosestrife invasion.	Monitor for presence; remove immediately if seen. Dig or pull out, put in plastic bags and remove from park, or apply 1.5% Rodeo with wick applicator to individual stems.	July/August 1991 July/August 1992 July/August 1993 July/August 1994 July/August 1995
Remove woody vegetation in and between wetland pockets, and on north by oak woods, to connect the two large sedge meadows (Units A and C) (especially buckthorn, willow, boxelder redosier dogwood, gray dogwood)	Cut and stump-treat shrubs and small trees with 50% Rodeo. Basal bark application of 50% Garlon 4 to large trees or girdle trees.	Winter 1993 Winter 1993 Spring 1994
Reestablish sedge meadow vegetation.	Sow seeds of native forbs, grasses and sedges collected on-site into bare soil where dense woody vegetation removed.	Spring 1994

APPENDIX

Impact of Prescribed fire on the South Sedge Meadow
(Management Unit A)

Plant Species in Anna Page Wetlands

Butterflies in Anna Page Wetlands

Birds in and near Anna Page Wetlands

IMPACT OF PRESCRIBED FIRE ON THE SOUTH SEDGE MEADOW
(Management Unit A).

BACKGROUND

Sedge meadows are herbaceous communities dominated by sedges (*Carex* sp) in association with forbs and grasses (White and Madany 1978, Curtis 1955). Prior to settlement the sedge meadows in the midwest, including northern Illinois, burned on a periodic basis in late fall and/or early spring. Impact of a single prescribed fire on vegetational structure of the south sedge meadow at Anna Page Park was assessed in 1990/91. The sedge meadow had not been previously burned for at least 20 years, possibly more than 50 years.

METHODS

Vegetation data were collected July 10 1990 prior to fire treatment in November 1990, and July 9 1991 after treatment. Parallel transects were randomly established within each of four 25m wide units, bisecting the wetland in an east/west direction. Transect length varied from 50 to 115 meters, relative to the width of the sedge meadow. Plant species frequency and percent cover in seven cover classes (<1, 1-7, 7-25, 25-50, 50-75, 75-93, >93) were recorded from 1/4m² quadrats randomly located along each transect. Quadrats were located within 10m intervals along the two east transects, and within 5m intervals along the two west transects, in both years. Data were collected in 39 quadrats in 1990, and in 1991 within 43 quadrats rerandomized along the original transects. Importance values were prepared for each species by summing relative frequency and relative mean cover, and dividing by 50. Mean species diversity was prepared by summing number of species/quadrat and dividing by the total number of quadrats. Mean cover was prepared by summing midpoints of cover classes within each quadrat, summing total cover of all quadrats and dividing by the total number of quadrats. Data were compared between years using independent t-tests.

RESULTS

Total number of recorded species was comparable between years (53 in 1990 [Table 1] and 52 in 1991[Table 2]). Thirtytwo species were recorded in both years. Species that were recorded in only one of the two years were generally low in abundance or had a clumped distribution.

Prescribed fire had no significant impact upon species diversity or percent cover. Mean species diversity/0.25m² increased non-significantly from 7.3 in 1990 to 8.3 in 1991 (t= -1.3316, P=0.1868), and mean total cover/0.25m² increased non-significantly from an average of 161.13% in 1990 to 167.54% in 1991 (t= -.0783, P=0.4361).

Dominant species were the same in both years, consisting of *Carex stricta*, *Aster puniceus*, and *Impatiens biflora* (combined I.V.'s of +44% both years), and *Solidago gigantea*, *Hypericum sphaerocarpum*, and *Pycnanthemum virginianum* (combined I.V.'s of ±15% both years). Importance values of other species were generally low (<2%).

DISCUSSION

The impact of a single fire had no significant effect upon composition or structure of the sedge meadow community. Woody vegetation within the wetland was reduced in stature by the fire (personal observation).

Continued burning is recommended as a management activity for this wetland. Repeated fires will discourage woody invasion, reduce cover of existing woody vegetation, stimulate flower production of native wetland species, and should result in a gradual decline in alien species cover.

The wetland should be resampled along the same transects after two additional fires (3-4 years) to assess impact of repeated burns upon community structure.

LITERATURE CITED

Curtis, J.T. 1955. The vegetation of Wisconsin. University Wisconsin Press. Madison, WI.

White, J. and M. Madany. 1978. Classification of natural communities in Illinois. in J. White, ed., Illinois Natural Areas Inventory Technical Report. Vol. 2, Survey methods and results. Illinois Natural Areas Inventory. Urbana, IL.

TABLE 1: PAGE PARK SOUTH SEDGE MEADOW 1990 DATA: 39 QUADRATS

SPECIES	MEAN % COVER	ABS FREQ	REL COVER	REL FREQ	IMP VALUE
ACHMIL	0.103	1	0.07%	0.36%	0.211
ACOAME	0.410	1	0.26%	0.36%	0.308
ANECAN	0.513	2	0.32%	0.71%	0.520
ANGATR	1.128	5	0.71%	1.79%	1.250
ASTPUN	26.333	31	16.67%	11.07%	13.873
CAMAPA	0.128	3	0.08%	1.07%	0.576
CARLAN	0.103	1	0.07%	0.36%	0.211
CARSTI	0.513	2	0.32%	0.71%	0.520
CARSTR	33.923	26	21.48%	9.29%	15.383
CAREXs	1.232	6	0.78%	2.14%	1.461
CORRAC	0.103	1	0.07%	0.36%	0.211
CRAsp	0.013	1	0.01%	0.36%	0.183
DAUCAR	0.013	1	0.01%	0.36%	0.183
EUPMAC	0.103	1	0.07%	0.36%	0.211
FORB	0.205	2	0.13%	0.71%	0.422
GALBOR	1.372	2	0.87%	0.71%	0.792
GENAND	0.103	1	0.07%	0.36%	0.211
GEUALL	0.218	3	0.14%	1.07%	0.605
GLYSTR	2.180	3	1.38%	1.07%	1.226
GRAMsp	9.077	14	5.75%	5.00%	5.374
HELAUT	0.615	3	0.39%	1.07%	0.730
HELGRO	1.782	3	1.13%	1.07%	1.100
HYPSPH	5.795	16	3.67%	5.71%	4.692
IMPBIF	30.295	29	19.18%	10.36%	14.770
JUNCsp	2.115	3	1.34%	1.07%	1.205
LEEORZ	0.513	2	0.32%	0.71%	0.520
LYCASP	2.474	16	1.57%	5.71%	3.640
LYCUNI	0.410	1	0.26%	0.36%	0.308
LYRALA	0.410	1	0.26%	0.36%	0.308
MENARV	0.410	1	0.26%	0.36%	0.308
MINTsp	2.065	15	1.31%	5.36%	3.332
MOSSsp	1.232	6	0.78%	2.14%	1.461
PENDIG	0.103	1	0.07%	0.36%	0.211
PHAARU	6.141	8	3.89%	2.86%	3.373
PILPUM	0.103	1	0.07%	0.36%	0.211
POLYsp	0.205	2	0.13%	0.71%	0.422
POTSIM	0.103	1	0.07%	0.36%	0.211
PYCVIR	5.064	14	3.21%	5.00%	4.103
QUEVEL	0.103	1	0.07%	0.36%	0.211
RHAFRA	0.205	2	0.13%	0.71%	0.422
RHURAD	0.103	1	0.07%	0.36%	0.211
RUMORB	0.513	2	0.32%	0.71%	0.520
SCIATR	0.103	1	0.07%	0.36%	0.211
SILPER	0.962	1	0.61%	0.36%	0.483
SOLDUL	2.333	3	1.48%	1.07%	1.274
SOLGIG	9.102	17	5.76%	6.07%	5.917
SOLGYM	3.546	3	2.25%	1.07%	1.658
SOLsp	0.821	2	0.52%	0.71%	0.617
STAPUL	0.410	1	0.26%	0.36%	0.308
TYPLAT	0.103	1	0.07%	0.36%	0.211
VIOLA	1.910	14	1.21%	5.00%	3.105
VITIS	0.103	1	0.07%	0.36%	0.211
	157.925	280	100.00%	100.00%	100

TABLE 2: PAGE PARK SOUTH SEDGE MEADOW 1991 DATA: 43 QUADRATS

SPECIES	MEAN % COVER	ABS FREQ	REL COVER	REL FREQ	IMP VALUE
ASTPUN	34.384	39	20.11%	10.99%	15.550
BIDENS	2	8	1.17%	2.25%	1.712
CALPAL	2.291	4	1.34%	1.13%	1.234
CALCAN	4.733	9	2.77%	2.54%	2.652
CAMAPA	0.395	6	0.23%	1.69%	0.961
CARBUL	1.616	8	0.95%	2.25%	1.599
CARGRN	0.012	1	0.01%	0.28%	0.144
CARSTI	1.895	6	1.11%	1.69%	1.399
CARSTR	43.093	26	25.21%	7.32%	16.267
CARXsp	1.395	6	0.82%	1.69%	1.253
CIRSMT	0.105	2	0.06%	0.56%	0.312
CUSCAs	0.384	2	0.22%	0.56%	0.394
ELEOAC	0.419	5	0.25%	1.41%	0.827
EUPMAC	0.837	3	0.49%	0.85%	0.667
EUPPER	0.093	1	0.05%	0.28%	0.168
UNFORB	0.093	1	0.05%	0.28%	0.168
GALBOR	0.442	7	0.26%	1.97%	1.115
GENAND	0.372	1	0.22%	0.28%	0.250
GEUALE	2.337	2	1.37%	0.56%	0.965
GLYSIR	0.209	4	0.12%	1.13%	0.625
GRAMsp	0.128	4	0.07%	1.13%	0.601
HELGRO	0.093	1	0.05%	0.28%	0.168
HYPSPH	5.709	25	3.34%	7.04%	5.191
IMPBIF	26.488	34	15.50%	9.58%	12.537
JUNCS1	0.488	4	0.29%	1.13%	0.706
JUNCS2	0.023	2	0.01%	0.56%	0.288
LEEORZ	0.674	6	0.39%	1.69%	1.042
LYCAMR	1.047	13	0.61%	3.66%	2.137
LYCUNI	3.349	12	1.96%	3.38%	2.670
LYRALA	1.744	2	1.02%	0.56%	0.792
MENARV	0.651	7	0.38%	1.97%	1.176
MINTsp	0.930	4	0.54%	1.13%	0.835
MOSSsp	2.035	6	1.19%	1.69%	1.440
PENDIG	0.372	1	0.22%	0.28%	0.250
PHAARU	4.860	3	2.84%	0.85%	1.844
PILPUM	0.860	5	0.50%	1.41%	0.956
POAPAL	0.291	4	0.17%	1.13%	0.648
PYCVIR	3.674	14	2.15%	3.94%	3.046
RUBUS	0.093	1	0.05%	0.28%	0.168
RUDLAC	0.872	1	0.51%	0.28%	0.396
SCIFLU	0.465	2	0.27%	0.56%	0.418
SILPER	3.197	3	1.87%	0.85%	1.358
SOLAsp	0.105	2	0.06%	0.56%	0.312
SOLDUL	0.186	2	0.11%	0.56%	0.336
SOLGIG	12.372	23	7.24%	6.48%	6.858
STAPUL	1.488	7	0.87%	1.97%	1.421
TRIFRB	0.674	6	0.39%	1.69%	1.042
TYPLAT	0.279	3	0.16%	0.85%	0.504
ULMUS	0.035	3	0.02%	0.85%	0.433
VERHAS	0.105	2	0.06%	0.56%	0.312
VIOLA	0.547	12	0.32%	3.38%	1.850
	170.939	355	100.00%	100.00%	100

PLANT SPECIES IN ANNA PAGE WETLANDS

Achillea millefolium
 Acorus calamus
 Agrimonia pubescens
 Agrimonia parviflora
 Agropyron repens
 Agrostis sp
 Alisma plantago-aquaticum
 Ambrosia artemisiifolia
 Anemone canadensis
 Anemone cylindrica

Angelica atropurpurea
 Apios americana*
 Apocynum androsaemifolium
 Asclepias incarnata
 Asclepias syriaca
 Aster novae-angliae
 Aster praeltus
 Aster puniceus
 Aster puniceus firmus
 Aster ontariensis

Aster simplex
 Bidens cernua
 Bidens coronata
 Bromus sp
 Calamagrostis canadensis
 Caltha palustris
 Campanula aparinoides
 Cardamine bulbosa
 Carex stipata
 Carex stricta

Carex hystricina
 Carex granularis
 Carex hystricina
 Carex annectans
 Carex scoparia
 Carex cristatella
 Carex trichocarpa
 Carex lanuginosa
 Chelone glabra
 Cicuta maculata

Cirsium discolor
 Cirsium arvense
 Cirsium muticum
 Cornus obliqua*
 Cornus racemosa
 Cornus stolonifera
 Crataegus sp
 Cuscuta sp.
 Cyperus rivularis
 Daucus carota

Echinocystis lobata
 Eleocharis acicularis
 Epilobium leptophyllum
 Epilobium coloratum
 Equisetum arvense
 Erigeron strigosus
 Erigeron annuus
 Eupatorium perfoliatum
 Eupatorium maculatum
 Fragaria virginiana

Galium boreale
 Gaura biennis
 Gentiana andrewsii
 Gerardia purpurea*
 Gerardia tenuifolia
 Geum aleppicum strictum
 Geum canadense
 Glyceria striata
 Helenium autumnale
 Helianthus grosseserratus

Heracleum lanatum*
 Hordeum jubatum
 Hypericum perforatum
 Hypericum punctatum
 Hypericum sphaericarpum
 Impatiens biflora
 Iris virginiana shrevii
 Juncus dudleyii
 Juncus effusus*
 Juncus torreyi

Juncus nodosus
 Lactuca sp
 Leersia oryzoides
 Lemna minor
 Liliun michiganense
 Liparis loeselii
 Lobelia siphilitica
 Lonicera x bella
 Lycopus americanus
 Lycopus asper

Lycopus uniflorus
 Lysimachia quadriflora
 Lythrum alatum
 Mentha arvense
 Mentha arvensis villosa
 Mimulus ringens
 Monarda fistulosa
 Myosotis scorpioides
 Muhlenbergia mexicana
 Nasturtium officinale

Oenothera biennis
Onoclea sensibilis*
Oxalis europea
Panicum leibergii
Pastinaca sativa
Pedicularis lanceolata*
Penstemon digitalis
Phalaris arundinacea
Pilea pumila
Poa palustris

Polygonum hydropiperoides*
Polygonum pensylvanica laevigatum
Polygonum lapathifolium
Polygonum punctatum
Polygonum sp
Potentilla simplex
Potentilla norvegica
Prunella vulgaris
Prunus serotina
Prunus americana

Pycnanthemum virginiana
Pyrus sp
Quercus velutina
Rhamnus cathartica
Rhamnus frangula
Rhus radicans
Ribes americanum
Rosa blanda
Rosa carolina
Rosa multiflora

Rubus alleghensis
Rubus occidentalis
Rudbeckia triloba
Rumex altissima
Rumex orbiculus
Sagittaria latifolia
Salix discolor
Salix interior
Salix humilis*
Salix petiolaris*

Salix rigida
Sambucus canadensis
Scirpus acutus
Scirpus atrovirens
Scirpus cyperinus
Scirpus fluviatilis
Scirpus lineatus
Scirpus validus
Scutellaria laterifolia

Setaria sp
Silphium perfoliatum
Solanum dulcamera
Solidago altissima
Solidago gigantea
Solidago graminifolia nuttallii
Solidago gymnospermoides
Sonchus oleraceus
Spartina pectinata
Spirea alba

Stachys palustris homotricha
Stachys palustris nipigonensis
Thalictrum dasycarpum
Thelypteris palustris
Trifolium hybridum
Typha latifolia
Ulmus rubra
Urtica procera
Verbascum thaspis
Verbena hastata

Vernonia fasciculata*
Veronicastrum virginicum*
Viburnum lentago
Viola sororia
Viola sp
Vitis riparia
Zizia aurea

Nomenclature based on Swink and Wilhelm (1979). Nomenclature for species not in this volume are based on Mohlenbrock (1988). Species identified by Victoria A. Nuzzo, 1990/1991. Additional species, indicated with an asterix (*), were observed and identified by Alan Branagan.

Butterflies in Page Park Wetland

Common Name	Scientific name	food plant
Black swallowtail	<i>Papilio polyxenes</i>	Apiaceae
Giant swallowtail	<i>Papilio crestephontes</i>	Ptelea, Zanthoxylem
Eastern tiger swallowtail	<i>Papilio glaucus</i>	Prunus, Fraxinus, Ptelea, etc.
European cabbage butterfly	<i>Pieris rapae</i>	Brassicaceae
Clouded sulphur	<i>Colias philodice</i>	Trifolium, Medicago
Alfalfa butterfly	<i>Colias eurytheme</i>	Medicago, Melilotus, Trifolium, Baptisia
Striped hairstreak	<i>Satyrium liparops</i>	Rosaceae, Ericaceae
Eastern tailed blue	<i>Everes comyntas</i>	Fabaceae
Spring azure	<i>Celastrina ladon</i>	inflorescences Cornus, Prunus, Viburnum
Great spangled fritillary	<i>Speyeria cybele</i>	Viola
Aphrodite	<i>Speyeria aphrodite</i>	Viola
Silver-bordered fritillary	<i>Boloria selene</i>	Viola
Meadow fritillary	<i>Boloria bellona</i>	Viola
Pearl crescent	<i>Phycioides tharos</i>	Aster
Question mark	<i>Polygonia interrogationis</i>	Urtica, Ulmus, Tilia
Comma	<i>Polygonia comma</i>	Urtica, Ulmus
Gray comma	<i>Polygonia progne</i>	Ribes
Mourning cloak	<i>Nymphalis antiopa</i>	Salix, Ulmus, Celtis.....
American painted lady	<i>Vanessa virginiensis</i>	Antennaria, Artemisia, Arctium, Vernonia
Painted lady	<i>Vanessa cardui</i>	Cirsium, Althaea, Malva
Red admiral	<i>Vanessa atalanta rubria</i>	Urtica
Red-spotted purple	<i>Limenitis arthemis astyanax</i>	Prunus, Populus, Quercus
Viceroy	<i>Limenitis archippus</i>	Populus, Salix
Hackberry butterfly	<i>Asterocampa celtis</i>	Celtis
Tawny emperor	<i>Asterocampa clyton</i>	Celtis
Northern pearly eye	<i>Endonia anthedon</i>	Leersia, Hystrix
Northern eyed brown	<i>Satyroides eurydice</i>	Carex
Little wood satyr	<i>Megisto cymela</i>	Dactylis + grasses
Common wood nymph	<i>Cercyonis pegala</i>	Tridens + grasses
Monarch	<i>Danaus plexippus</i>	Asclepias
Least skipper	<i>Ancyloxypha numitor</i>	
Peck's skipper	<i>Polites coras</i>	Leersia
Mulberry wing	<i>Poanes massasoit</i>	Carex stricta

Identified by Alan Branhagan and Ruth Little 1989-90.

Birds in and near Page Park Wetland

no	SPECIES NAME	A P
	PRINCIPLE OBSERVER	BROWN, JOYCE
	BLOCK NAME	AnnaPage
6	Great Blue Heron	O
7	Great Egret	O
11	Green-backed Heron	O
15	Canada Goose	O
16	Wood Duck	O
17	Mallard	O
29	Cooper's Hawk	O
33	Red-tailed Hawk	O
34	American Kestrel	O
36	Ring-necked Pheasant	X
38	Northern Bobwhite	O
45	Killdeer	O
48	Common Snipe	O
49	American Woodcock	O
56	Rock Dove	O
57	Mourning Dove	X
61	Eastern Screech-owl	O
62	Great Horned Owl	O
63	Barred Owl	O
66	Common Nighthawk	O
69	Chimney Swift	O
70	Ruby-throated Hummingbird	O
71	Belted Kingfisher	O
72	Red-headed Woodpecker	O
74	Downy Woodpecker	O
76	Northern Flicker	O
78	Eastern Wood-pewee	O
82	Least Flycatcher	O
84	Great Crested Flycatcher	O
86	Eastern Kingbird	X
87	Horned Lark	O
88	Purple Martin	X
89	Tree Swallow	X
90	N. Rough-winged Swallow	O
93	Barn Swallow	X
94	Blue Jay	X
95	American Crow	X
97	Black-capped Chickadee	X
100	White-breasted Nuthatch	O
104	House Wren	X
108	Eastern Bluebird	X
110	Wood Thrush	O
111	American Robin	X

no	SPECIES NAME	A P
112	Gray Catbird	X
114	Brown Thrasher	O
115	Cedar Waxwing	X
116	Loggerhead Shrike	X
117	European Starling	X
122	Red-eyed Vireo	O
125	Yellow Warbler	O
138	Common Yellowthroat	O
143	Northern Cardinal	X
144	Rose-breasted Grosbeak	O
146	Indigo Bunting	O
147	Dickcissel	O
148	Rufous-sided Towhee	O
150	Chipping Sparrow	X
151	Field Sparrow	O
152	Vesper Sparrow	O
154	Savannah Sparrow	O
155	Grasshopper Sparrow	O
157	Song Sparrow	X
158	Swamp Sparrow	O
159	Bobolink	X
160	Red-winged Blackbird	X
161	Eastern Meadowlark	X
164	Common Grackle	X
165	Brown-headed Cowbird	O
166	Orchard Oriole	X
167	Northern Oriole	O
168	House Finch	O
170	American Goldfinch	O
171	House Sparrow	X
0 =	SPECIES PRESENT DURING NESTING SEASON	48
X =	SPECIES CONFIRMED NESTING	25
	total number of species	73

Birds identified by Joyce Brown 1988-90, and by Bob Severson 1987.