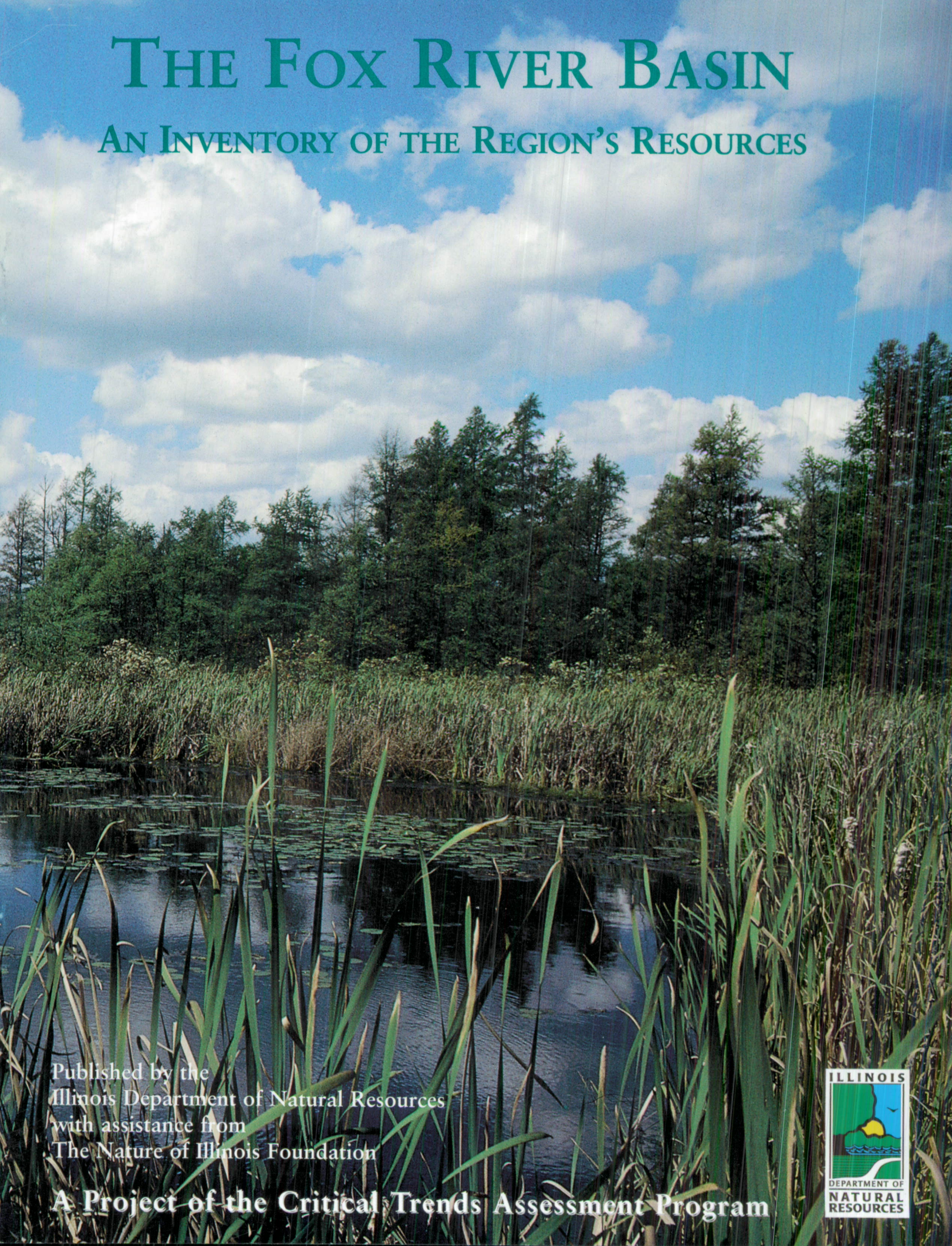
The Fox River Basin

An Inventory of the Region's Resources



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The Nature of Illinois Foundation

A Project of the Critical Trends Assessment Program

ILLINOIS
DEPARTMENT OF
NATURAL
RESOURCES

About This Report

The Fox River Basin: An Inventory of the Region's Resources is a product of the Critical Trends Assessment Program (CTAP) and the Ecosystems Program of the Illinois Department of Natural Resources (IDNR). Both are funded largely through Conservation 2000, a six-year State of Illinois initiative to enhance nature protection and outdoor recreation by reversing the decline of the state's ecosystems.

Conservation 2000 is the culmination of recommendations from CTAP, the Illinois Conservation Congress, and Governor Edgar's Water Resources and Land Use Priorities Task Force. The CTAP recommendations came out of its 1994 report on the state of the Illinois environment. CTAP investigators inventoried and analyzed existing environmental, ecological, and economic data to establish baseline conditions from which future changes in ecological conditions might be measured. The report concluded that:

- the emission and discharge of regulated pollutants over the past 20 years has declined in Illinois, in some cases dramatically;
- existing data suggest that the condition of natural systems in Illinois is rapidly declining as a result of fragmentation and continued stress;
- data designed to monitor compliance with environmental regulations or the status of individual species are not sufficient to assess ecological health statewide.

The Illinois Conservation Congress and Governor Edgar's Water Resources and Land Use Priorities Task Force came to broadly similar conclusions. For example, the Conservation Congress concluded that better stewardship of the state's land and water resources could be achieved by managing them on an ecosystem basis. Traditional management and assessment practices focus primarily on the protection of relatively small tracts of land (usually under public ownership) and the cultivation of single species (usually game animals or rare and endangered plants and animals). However, ecosystems extend beyond the boundaries of the largest parks, nature preserves, and fish and wildlife areas. Unless landscapes are managed on this larger scale, it will prove impossible to preserve, protect, and perpetuate Illinois' richly diverse natural resource base.

Because more than 90% of the state's land area is privately owned, it is plainly impossible for Illinois governments to acquire resources on the ecosystem scale. Therefore, the Task Force and the Congress called for public agencies and private landowners to cooperate in a new approach to natural resource protection and enhancement. If landowners can protect, enhance, or restore precious natural resources through enlightened private management, the need for public acquisition can be reduced.

The Congress and the Task Force agreed that this new approach ought to be:

- organized on a regional scale;
- voluntary and based on incentives;
- guided by comprehensive and comprehensible ecosystem-based scientific information;
- initiated at the grassroots rather than in Springfield.

Finally, the Congress and the Task Force agreed that natural resource protection need not hamper local economic development but can enhance it through tourism and outdoor recreation.

CTAP described the reality of ecosystem decline in Illinois, while the Congress and the Task Force laid out principles for new approaches to reversing that decline. And Conservation 2000, designed to achieve that reversal, has implemented a number of their recommendations, drawing on $100 million to fund nine programs in three state agencies.

One of these program is IDNR's Ecosystems Program. The program redirects existing department activities to support new resource protection initiatives such as Ecosystems Partnerships. These partnerships are coalitions of local and regional interests seeking to maintain and enhance ecological and economic conditions in local landscapes. A typical Ecosystem Partnership project merges natural resource stewardship (usually within a given watershed) with compatible economic and recreational development.

(continued on inside back cover)

A Project of the Critical Trends Assessment Program

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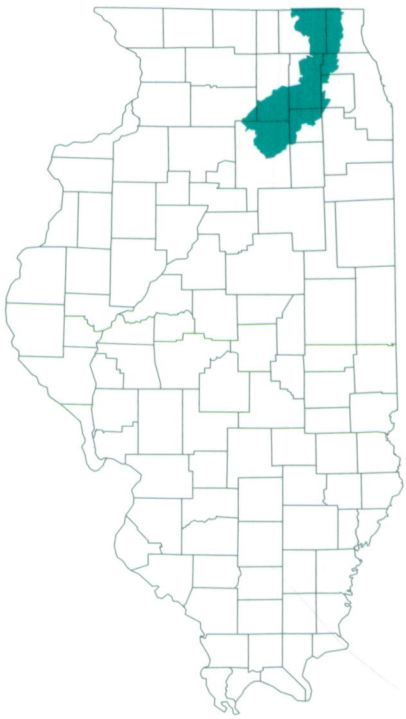
1997



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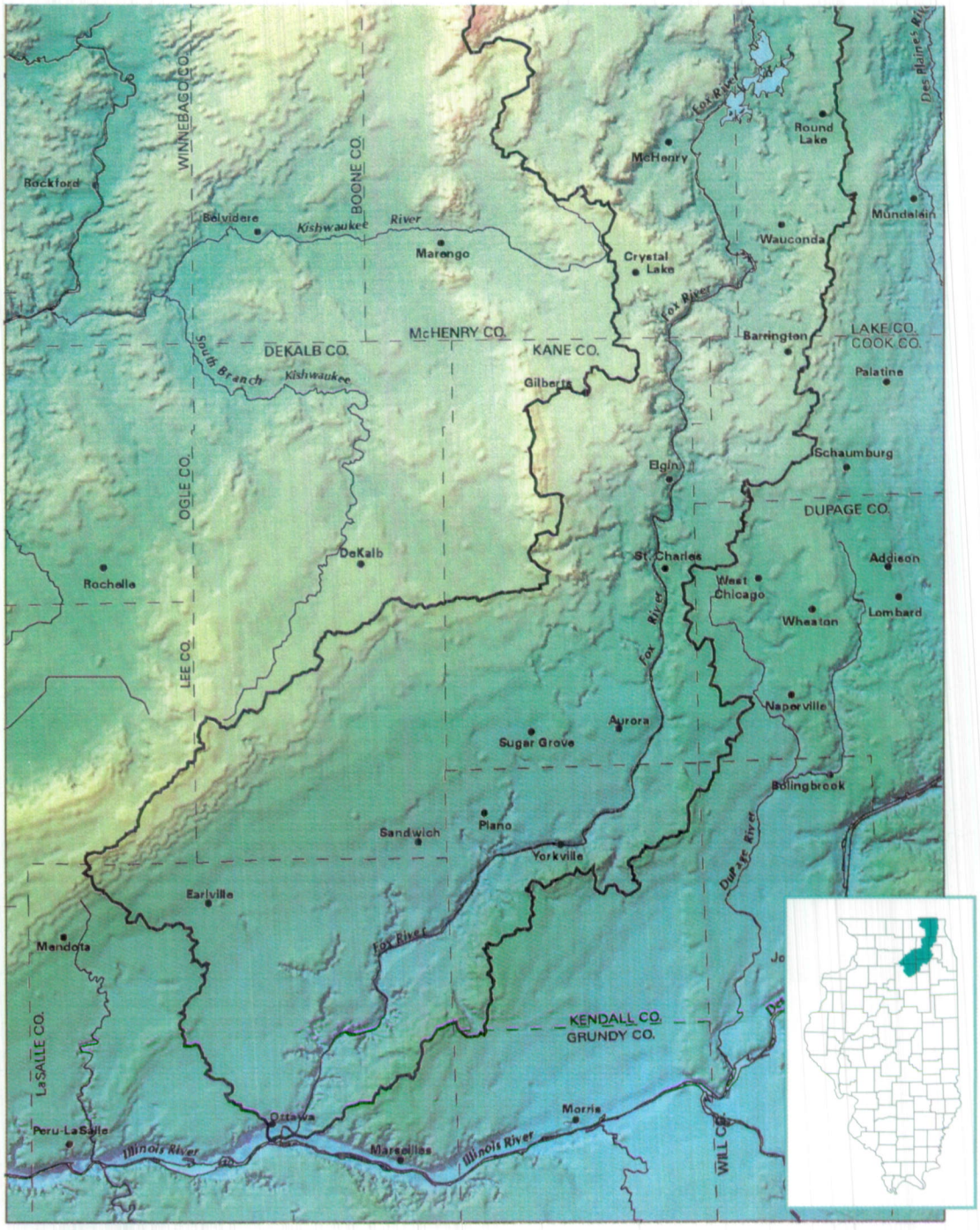


J. Hester and L. Smith, ISGS

0 5 10 15 20

Miles

400 500 600 700 800 900

Elevations in feet above mean sea level

Fox River Basin

Landforms

The Fox River Basin

An Inventory of the Region's Resources

Michael R. Jeffords

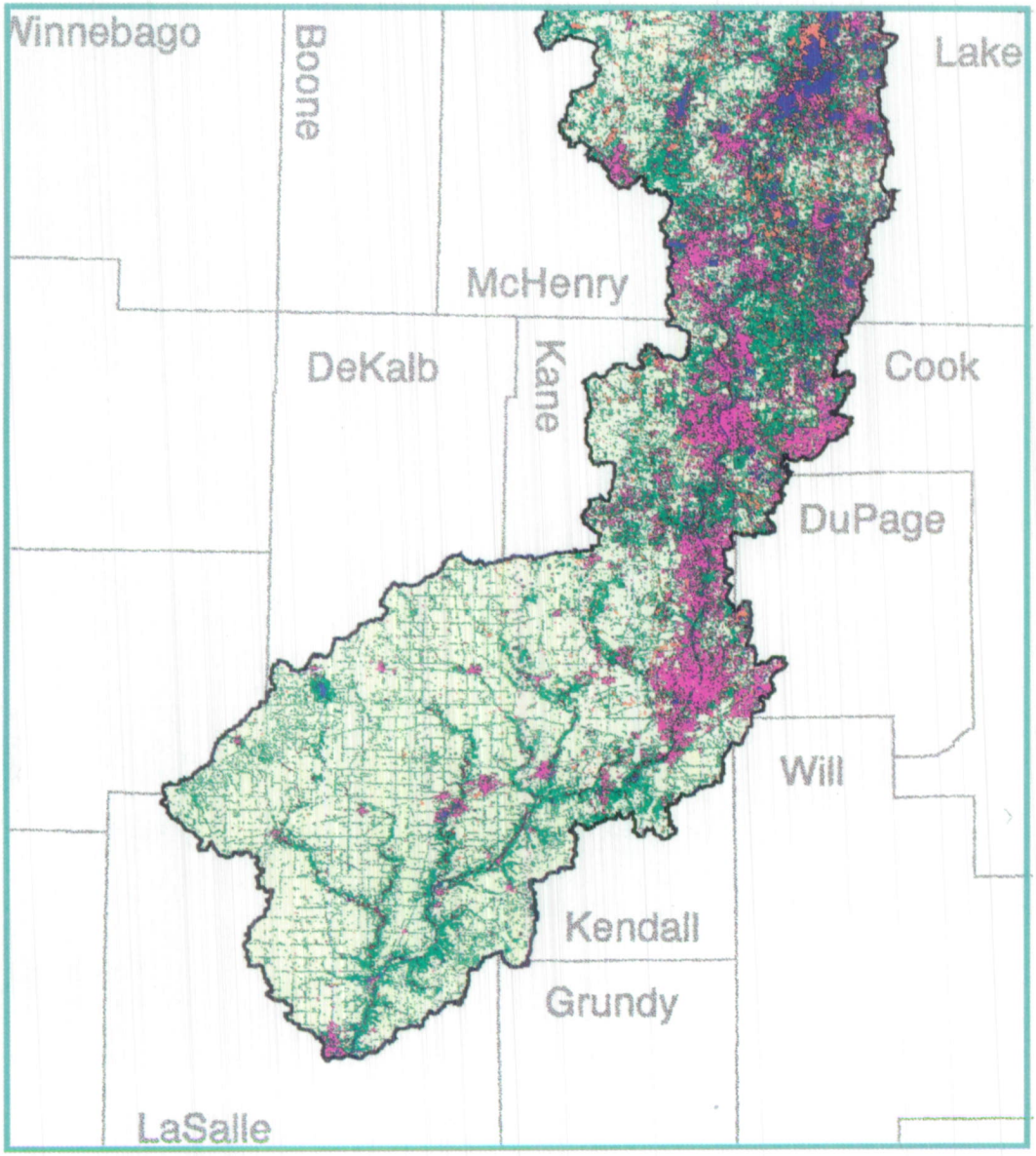
Prolific Canada geese show off their family in one of the Fox River basin's many marshes; the red fox, once plentiful in the area, is seen but rarely.

The mask of a red fox peered out of the autumn foliage and gazed down into the valley below. There was movement between the trees and then the fox saw the spotted ponies as three Indians rode slowly by. They were Potawatomi, Miami, and Fox, all part of the Winnebago. The year was 1837 and these were some of the last tribes along the Fox Valley before they moved west beyond the Mississippi. White settlers were beginning to arrive.

George Van Hagen
1993 Charter Member of
The Fox Valley Hunt Club

One hundred and sixty years later any descendant of that wiley old fox who gazes out at the same location will have to be very careful to avoid being hit by a speeding car! Gone are the tepees, replaced by masses of square buildings; gone are the horses of Native Americans, replaced by a different sort of horsepower. The plentiful woods have also disappeared, and even the fox itself is more likely seen in bronze statues on town bridges along the river that bears its name.

Yet descendants of that early fox, should they find a corridor of refuge, may experience the distant memories of past generations. Silent V's of migrating cormorants still fly overhead; in the distance the throaty rattle of sandhill cranes is commonly heard. Through patches of starry false Solomon's seal they may spy chipmunks cavorting over logs in an oak opening, fighting over last year's stash of acorns. At a nearby marsh geese are showing off their new goslings and the rusty call of the yellow-headed blackbird signals its arrival and readiness for a female. In a hidden spot, a fox settles down for a midday nap. It is home and another generation has begun



County Boundaries
Basin Boundary
Urban
Crops
Grassland
Upland Forest
Water
Marsh
Bottomland Forest

Fox River Basin
Land Cover

The Setting

The Fox River, the third largest tributary of the Illinois River, rises in the northern part of Waukesha County, Wisconsin, enters Illinois in the northwestern corner of Lake County, and flows 115 miles southward to empty into the Illinois River at Ottawa. The Fox River basin encompasses 1,720 square miles and includes portions of eleven counties —(from north-to-south) McHenry, Lake, DeKalb, Kane, Cook, DuPage, LaSalle, Lee, Kendall, Will, and Grundy. The portion of each county within the basin varies from less than 1% (Grundy County) to 74% (Kane County).

Within these counties is a diverse land cover; 19 of the 20 major state land-cover categories are represented with only swamps not found in the assessment area. Compared to the rest of the state, the Fox River basin has fewer forests and less land devoted to agriculture. A greater portion of the land here is

Michael R. Jeffords

Kettlehole marsh, Moraine Hills State Park

various types of wetlands, with the greatest concentration in the upper portion of the Fox. Wetland cover generally decreases southward through the assessment area.

The Fox River watershed's land cover, like its population and economy, is one of contrasts. At one extreme are DeKalb, Kendall, and LaSalle counties with 89–94% of the land agricultural and 4–6% urban. Contrast Lake County, where agriculture takes up less than 25% of the land and urban sprawl encompasses 42%. Despite its urban character, Lake County has more wetland acreage than all but three counties in Illinois.

The Fox River

The basin is about 130 miles long, from north to south, and rarely exceeds 25 miles in width. Due to its linear shape, only four large tributaries contribute to the Fox River. The three found in Illinois are Indian, Big Rock, and Nippersink creeks.

One of the unique characteristics of the Fox is the glacially formed lakes in the northern part of the basin, particularly in Lake and McHenry counties. Four hundred and six lakes occur along the river with Chain O'Lakes in northeastern Lake County the largest. Glacial lakes in the basin were sculpted in two ways: interlaced morainic ridges produced cups or kettles within which lakes formed, or large chunks of ice that broke off the receding glacier were buried in the upper basin and melted to form lakes. Although most originated as natural lakes, many now have impounding structures installed at the lake outfall to prevent the water levels from

The Area at a Glance

Δ The Fox River Basin encompasses 1,720 square miles and includes portions of 11 counties.

Δ The basin is about 130 miles long from north to south and rarely exceeds 25 miles in width.

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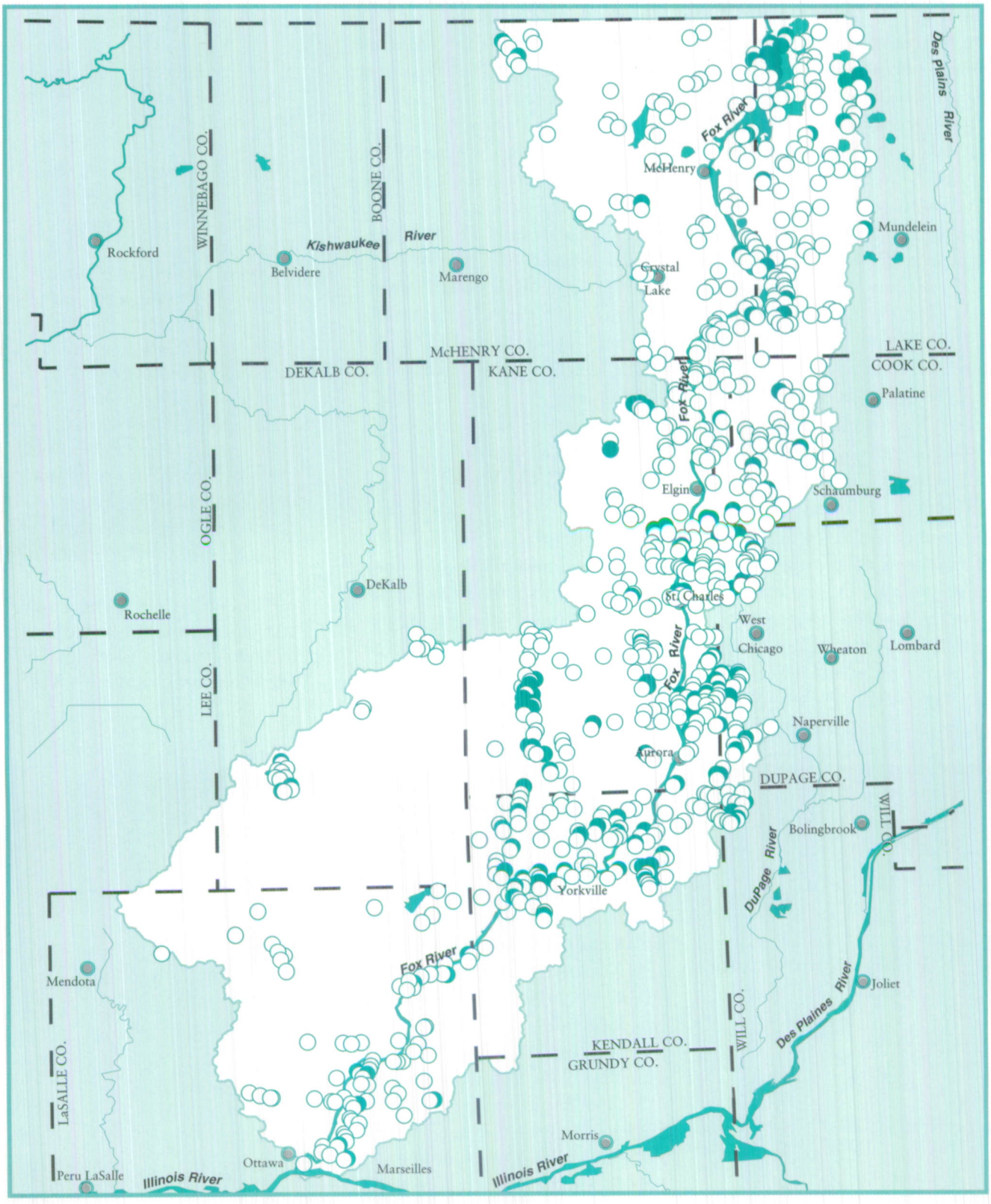
Δ Between the Illinois-Wisconsin state line and Algonquin, Illinois, the slope of the river is very flat and the main channel of the Fox is ill-defined as it passes through a series of lakes and marshes.

Δ From Algonquin to Aurora the valley is narrow, sharply defined by bluffs, and the floodplain is either narrow or absent entirely.



Archeological Sites in the Fox River Basin

○ Archeological sites (number = 1268)

dropping too low. Today, most of these natural lakes behave much like the man-made lakes found throughout Illinois.

Between the Illinois-Wisconsin state line and Algonquin, Illinois, the slope of the river is flat, averaging less than 0.5 foot per mile. Due to the mild slope and low-lying areas, the main channel of the Fox is ill-defined as it passes through a series of lakes and marshes. While exploring the area on August 23, 1833, Colbee Benton described the main channel of the Fox River between Grass Lake and Fox Lake. "On our right and left were two extensive marshes or lakes grown up with high grass, and through the centre was a river which I learned from the Indians to be the head of the Fox River, which runs into the Illinois. In front was a little neck of water about sixty rods across, which connected the two marshes."

From Algonquin to Aurora the valley is narrow, sharply defined by bluffs, and the floodplain is either narrow or absent entirely. The bed of the river is alternately rock and mud. Downstream from Algonquin the slope of the river has begun to increase as it starts down-cutting through several layers of limestone bedrock. The stream profile of the Fox is thus atypical since its channel slopes are greatest in the downstream reaches of the stream.

Below Aurora the floodplain broadens as the river begins a rapid descent to the low plain that lies on the outer boarder of the Marseilles moraine. It follows this moraine until it empties into the Illinois River. On August 28, Benton reached the mouth of the Fox and was spellbound. He wrote,"When I arrived in sight of the Illinois and the mouth of the Fox River, I thought that I had never beheld anything so splendid before. I felt a peculiar sensation when viewing so much magnificence. It seemed to me the whole world centered to this very spot & I was astonished with the richness and splendor of the scene." His description continues with the vegetation and concludes with, "The prairies from the north seemed to have been growing larger and more beautiful, and had been rolling on, clothed with their rich and beautiful garbs to this very spot, here to display all their magnificence and splendor at one view."

In 1908, C.W. Rolfe described the Fox. "The waters of the upper reaches of the river are usually clear except in times of flood, but the lower part of the stream is often impure." In 1971, Philip Smith, Natural History Survey scientist, rated the Fox as "good to excellent." The Illinois Water Quality Report (IEPA 1990) rated 55% of the river-miles of the Fox River as "full support" and Buck Creek was rated an "A" stream by the Biological Stream Characterization (BSC). Four segments of the river and 14 of the glacial lakes are recognized as Biologically Significant Streams because they support threatened or endangered species or have high mussel and fish diversity. These segments include an unnamed tributary of the Fox at Yorkville, Buck Creek, Morgan Creek to its confluence with the Illinois River, North Branch Nippersink Creek from Wisconsin border to Nippersink Creek, and the glacial lakes of Bangs, Cedar, Cross, Crystal, Deep, East Loon, Grays, Lily, McCullom, Round, Sullivan, Turner, West Loon, and Wooster.

The Area at a Glance

Δ Below Aurora the floodplain broadens as the river begins a rapid descent to the low plain that lies on the outer boarder of the Marseilles moraine. It follows this moraine until it empties into the Illinois River.

Δ The Fox River watershed's land cover is one of contrasts. At one extreme are DeKalb, Kendall, and LaSalle counties with 89-94% of the land agricultural and 4-6% urban. Contrast Lake County, where agriculture takes up less than 25% of the land and urban sprawl encompasses 42%.

Δ Despite its urban character, Lake County has more wetland acreage than all but three counties in Illinois.

Δ More than half of the Fox River has been rated as "full support" and Buck Creek was rated an "A" stream by the Biological Stream Characterization by the IEPA.

Wetland Habitats

Although wetland habitats make up only 4.9% of the assessment area, most of them are unique areas and some are found nowhere else in the state. Wetlands can be defined rather simply as areas that are part land and part water, where water is the controlling environmental factor. Based on this simple definition, wetlands can be classified into a variety of forms, each with its own special profile. In the Fox River area are floodplain forests, wet prairies, marshes, bogs, seeps, and fens.

Turtlehead, although more typical of seep communities, may be found in a fen community with grass-of-Parnassus.

Floodplain forests usually occur along streams and rivers. Because these forests are flooded frequently, they have a lower diversity of tree species than forests on higher ground. In spring the understory may be carpeted with Virginia bluebells, but by early summer it is often choked with nettles and vines. Rotting logs and woody debris deposited by floodwaters are abundant. Typical trees of Fox River floodplain forests include cottonwood, silver maple, black walnut, and sycamore.

Wet prairies have a soil that is almost always organic and almost always saturated. Some standing surface water is usually present during winter and spring. As a result, the plant diversity of wet prairies is less than that of drier prairie sites. Typical wet prairie plants in the Fox River area include blue joint grass, prairie cord grass, blue flag iris, Culver's root, and water parsnip.

Marshes are characterized by having water at or near the surface during most of the growing season. They are dominated by emergent plants that grow with their stems partly in and partly out of the water; these include great bulrush, cattail, and arrowhead. Water depth in marshes ranges from zero (saturated soil) to perhaps six feet.

Bogs are usually found in glacial depressions with restricted drainage. They have no inflowing or outflowing streams and are highly acidic. Therefore, carbon dioxide accumulates in the water and inhibits the growth of decomposer organisms. Decomposition is almost nonexistent in a bog and large quantities of dead plant life accumulate in ever-thickening layers to form peat. Bogs may be forested or grassy or have tall or short shrubs. Bog plants include sphagnum moss, tamarack, pitcher plant, and sundew.

Seeps are wetland communities characterized by a constant diffuse flow of groundwater. They may be acidic or basic depending on the materials through which the groundwater flowed before reaching the surface. Seeps are common along the edges of moraines, ravines, and terraces where the groundwater meets a layer of material impervious to the downward movement of water. As a result, the water flows outward over a wide area until it reaches the surface, often at the base of a bluff or in a ravine. Typical seep plants include marsh marigold, skunk cabbage, bottlebrush sedge, and white turtlehead.

Fens are a type of wet meadow fed by alkaline water (basic) usually from a spring or a seep. Fens occur on organic soils and can be shrubby, grassy, or even forested. Fen vegetation forms a unique community of calcium-loving plants such as bush cinquefoil, Ohio goldenrod, Kalm's lobelia, and grass-of-Parnassus. Fens are extremely sensitive to disturbance because any change in the groundwater, either by pollution or changes in the water level, drastically alters the habitat.

Michael R. Jeffords

Mary Ochsenschlager

A circular kame owned by the Kane County Forest Preserve

Geology

"Welcome to the Dundee Field Trip. As part of the 75th anniversary celebration of the present Illinois Geological Survey, we are pleased to revisit the same area where the newly formed Educational Extension Section of the Survey conducted one of its first field trips in 1930."

A Guide to the Geology
of the Dundee Area
Geological Survey Field Trip 1980

The Fox River basin is perhaps the best place in Illinois to see evidence of glacial activity. The kames, kettle holes, and eskers found in the northern portion of the basin are highly visible, if you know where to look and what you are looking at. In 1930 the Illinois State Geological Survey began its educational field trip series, and the Dundee Area, located in the Fox River basin, was one of the first of many "earth history field trips" to introduce local citizens to this geological wonderland.

Between 22,000 and 14,000 years ago, the Pleistocene glaciers flowed west and south across the basin from Wisconsin. These glaciers and their meltwaters forever changed the area's landscape. As the glaciers advanced repeatedly across the land, they destroyed many of the earlier stream systems by partially filling their valleys with drift. When they receded, their rapid melting gave rise to meltwater torrents that swept southward, down-cut the valleys, and eroded new river channels. The Fox River is presently located in the remnants of one of these torrent channels. West of Bull Valley in McHenry County, Boone Creek flows in what appears to be the ancestral Fox Valley. Boone Creek is a tiny stream found in a wide valley and is categorized as an "underfit stream", one too small to have eroded the valley in which it flows. Here lies a major clue to the ancestral Fox.

As the glaciers scraped and smeared the landforms they overrode, the ice picked up and carried along colossal amounts of rock and earth; when the ice melted, it dumped what-

The Area at a Glance

Δ Four segments of the river and 14 of the glacial lakes are recognized as Biologically Significant Streams because they support threatened or endangered species or have high mussel and fish diversity.

Δ Two types of kames may be found in the basin—delta and circular. The camelback kames of Glacial Park in McHenry County are delta kames. Johnson's Mound Forest Preserve and Bald Mound, both located in Kane County, are examples of circular kames.

Δ The Kaneville Esker, located in Kane County near mile marker 124 of the East-West Tollway, is the longest esker in Illinois.

Δ Both kames and eskers are now rare finds in Illinois as many have become gravel pits, mined for their valuable construction materials.

Michael R. Jeffords

A natural pothole pond near Volo Bog

ever it was carrying in place. New landforms were created—moraines, kames, kettles, glacial lakes, and eskers. When an ice sheet reaches its maximum extent and begins to stagnate, sand and gravel washes out of its melting edge. Outwash deposits (a mixture of sand and gravel) collect, either along the glacier's margins in meltwater valleys or in depressions in the ice. The last become kames. Two types of kames may be found in the basin—delta and circular. Delta kames form when meltwater spills over the edge and deposits the outwash as a ridge. The camelback kames of Glacial Park in McHenry County are delta kames. Circular mounds that resulted when holes in the glacial ice were filled with debris from streams that flowed along the surface of the glacier are called circular kames. Johnson's Mound Forest Preserve and Bald Mound, both located in Kane County, are examples of circular kames.

Small streams develop on, in, and under the ice as a glacier is melting. These streams carry sand and gravel and drop them as streambed deposits. When the glacier melts away the stream disappears, but its sand and gravel bed is left behind as a narrow, continuous ridge, sometimes several miles in length. This long, linear deposit is called an esker. The Kaneville Esker, located in Kane County near mile marker 124 of the East-West Tollway, is the longest esker in Illinois. Both kames and eskers are now rare finds in Illinois as many have become gravel pits, mined for their valuable construction materials.

When large chunks of ice broke off from the main glacier, they were surrounded by, and perhaps even covered with, glacial drift that insulated the ice. In time, the ice melted to leave a large depression in the drift called a kettle. Kettles usually became self-contained ponds with no surface outlet. Depending on topography, vegetation, and drainage, a kettle is the foundation for one of three types of wetlands found in northern glaciated terrain—a marsh, fen, or bog. (See sidebar, page 6.). If the kettle develops an ingress and egress, a glacial lake forms because it is below the water table. Moraine Hills State Park in McHenry County has examples of a bog, marsh, and glacial lake, while Chain O'Lakes State Park in Lake County offers several glacial lakes and a fen and marsh community.

Not all of the geology of the region is as recent and as visible as these glacial landforms. In the southern part of the basin major structural features are found in the bedrock. The Sandwich Fault Zone trends in a northwesterly direction. This feature is composed of high-angle faults (fractures in the earth's crust resulting in displacement of rocks on either side of the breaks) and includes the associated Ashton Anticline (a fold in which the rocks have been folded upward). Three natural areas highlight the geology of the southern reaches of the Fox—Sheridan Red Pine Site, Wedron Palisades, and Marsh Relicts—and all have sandstone cliff outcrops.

MICHAEL R. JEFFORDS

The Kaneville Esker, the longest esker in Illinois, is mined for valuable construction materials.

Human Resources

As early as 1834 the beauty of this location [St. Charles] and the evident fertility of its soil attracted Rice Fay, who settled and long resided upon Section 3, and subsequently erected thereon the fine substantial stone dwelling . . . Soon a blacksmith shop was opened by the river roadside, two or three small stone houses were built and a little store established...

JOHN S. WILCOX, 1904
HISTORY OF KANE COUNTY

Most of the Fox River municipalities were established and settled during the mid-1830s. These settlements began as service centers, providing weary travelers a meal and bed or a place to trade. The towns were usually platted adjacent to the river which provided energy for the grist mills, sawmills, and factories. Main Street of many towns ran perpendicular to the river. In addition to its close proximity to the Fox River, the area had many advantages provided by abundant natural resources—rich prairie soil, well-drained areas for town sites, and the availability of timber for fuel and building material. Its geographic location west of Chicago was also very much an influence on early settlement. The settlers of St. Charles in Kane County provide a prime example of how the area's resources were first used. The forested areas of the valley, located primarily in Big Woods and Little Woods, provided timber; locally quarried Niagara limestone provided high quality building stone. Even mussel shells from the river were used to supply lime for mortar.

The six main counties through which the Fox River and its tributaries flow—Lake, McHenry, Kane, Kendall, DeKalb, and LaSalle—form one of the most dynamic areas in the state. Prior to World War II most of the towns in this region were quiet, small, well-dispersed, and rural in character; woodlands, fields, and farms still occupied large areas of the six counties. Summer cottages of

The Area at a Glance

Δ During low flow conditions more than one-third of the Fox River flow in the Kane County area and farther downstream can be attributed to wastewater effluents. During a normal summer, the cumulative amount of discharges from the basin can account for more than 20% of the total flow along most of the Illinois portion of the river.

Δ The six main counties through which the Fox River and its tributaries flow—Lake, McHenry, Kane, Kendall, DeKalb, and LaSalle—form one of the most dynamic and populous areas in the state. It is home to 11% of the state's population. Lake, Kane, and McHenry counties all rank among the top ten in population.

Chicago residents lined the banks of the Fox River. The post World War II population explosion and the classic "flight to the suburbs" changed the composition of the counties. The populations of Lake and Kane counties expanded rapidly, and even the largely rural counties of DeKalb and Kendall are now considered part of the Chicago Consolidated Statistical Metropolitan Area.

The six-county area is now one of the most populous in the state and is home to 11% of the state's population. Lake, Kane, and McHenry counties all rank among the top ten in population. Population density ranges from 1,200 persons per square mile in Lake County to only 94 persons per square mile in LaSalle County. The area is highly urban with only 15% of the residents living in rural areas.

In 1990, four of the six counties were among the top ten in Illinois for per capita income: Lake County was second, McHenry was third, Kane fifth, and Kendall seventh.

During the period of 1969–94, the Fox River economy grew twice as fast as the rest of the state. At present the economy of the Fox River area supports 12% of the state's employment (722,014 jobs in 1994), generates 13% of its personal income ($36.3 billion), and is characterized by strong manufacturing income along with employment in the service and trade sectors. The area's largest employers are Great Lakes Naval Center, Abbott Laboratories, and W.W. Grainger. With the area's top six employers located in Lake County, it is of little surprise that Lake County accounts for 43% of employment and 51% of personal income.

Agriculture

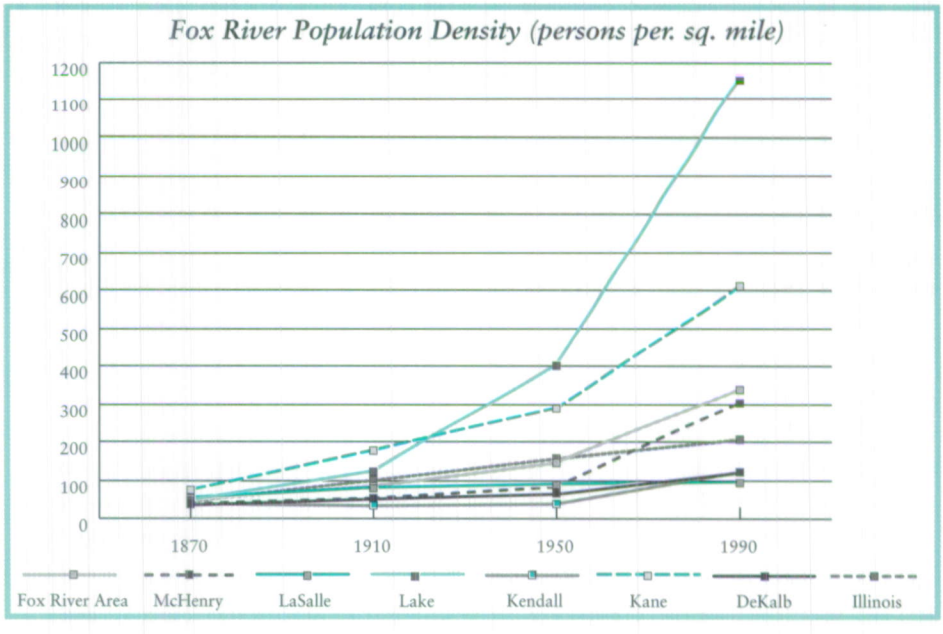
For a number of years after the first breaking [1830s], the land produced very fine crops of plump heavy winter wheat of most excellent quality . . . There are few rural sights more lovely than a large field of clean wheat, its long full heads of ripening grain standing thick and even over the land, swaying gracefully in the summer breeze. . .

JOHN S. WILCOX, 1904
HISTORY OF KANE COUNTY

Within fifteen to twenty years wheat was no longer king. Yields began to decline and crop failures were frequent. By 1850 the settlers of the area were looking for new ways to generate income from their land. The area's close proximity to the young and ever-growing city of Chicago, with its fondness for fresh foodstuffs, provided a new industry—the dairy. John Wilcox wrote, "The effort to supply this daily necessity opened a new industrial era in the Fox River Valley. On February 12, 1852, Mr. Phineas H. Smith shipped from Elgin to the landlord of the 'Adams House' in Chicago the first can of milk ever sold out of Kane County." In Kane County, the cow soon became "the gentle queen of safe and profitable investments."

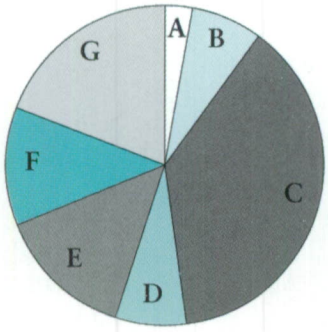
Agriculture in the region no longer relies on one commodity or enterprise to sustain it. Like the diverse natural areas found here, its agricultural production is equally diverse. Three of every four acres of land is considered agricultural. The percent varies from 93% in DeKalb County to only 25% in Lake County. As in most of the state, corn and soybeans are the leading cash crops, but they are just one part of the agricultural economy. The Fox River region has one-fifth of Illinois truck farms that encompass one-fourth of the state's acreage in sweet corn and vegetables.

McHenry County is third and Lake County is fifth in the state in the amount of acreage in orchards and nurseries. In fact, the region has 25% of Illinois' nurseries and green-



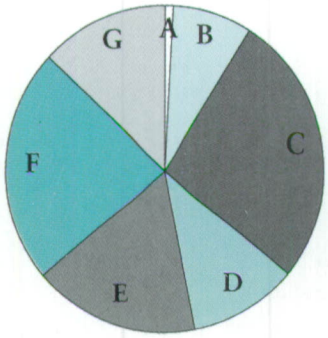
Comparison of earnings distribution in the Fox River Valley 1969 and 1993

1969



A Farming (3%)
B Other (7%)
C Manufacturing (38%)
D Transport., utilities, *F.I.R.E (7%)
E Wholesale/retail (14%)
F Services (12%)
G Government (19%)

1993



A Farming (1%)
B Other (8%)
C Manufacturing (27%)
D Transport., utilities, *F.I.R.E(11%)
E Wholesale/retail (17%)
F Services (23%)
G Government (13%)

*F. I.R.E. = finance, insurance, real estate

houses. Thirty-six percent of the total covered square footage (greenhouses) for growing crops is here with Lake and Kane counties ranked first and third in the amount of covered square footage in the state.

Dairy cattle are no longer the queens of the livestock industry, but have been replaced by mink. Lake, Kane, and McHenry counties produce the most mink in a state that ranks 12th in the country in mink production. The region is also a leader in horses and ponies. McHenry County has the largest inventory of horses and ponies in the state, with Kane County second, and Lake County fourth.

Outdoor Recreation

"Enough has been said and is now known of Fox and its adjacent lakes, to justify further allusion to the topography of this favorite suburban resort of Chicago and other sportsmen in northern Illinois. Not only to the hunter and angler do these neighboring lakes afford the most alluring charms, but also to the tourist and invalid, who can find here new springs of life, without incurring the expense and jarring inconvenience of long journeys..."

—CHICAGO FIELD MAGAZINE, 1880

The Fox River and its surrounding lakes and wetlands provide an array of recreational opportunities for a large number of Illinois residents and those from nearby states.

The Area at a Glance

Δ Population density ranges from 1,200 persons per square mile in Lake County to only 94 persons per square mile in LaSalle County. The area is highly urban with only 15% of the residents living in rural areas.

Δ In 1990, four of the six counties were among the top ten in Illinois for per capita income.

Δ During the period of 1969–94, the Fox River economy grew twice as fast as the rest of the state.

Δ During the last 20 years, nearly 1,100 miles of new roads have been built in the Fox River area; the population has grown 30% and employment and vehicle miles traveled have grown by 75%. The urbanized acreage has expanded by 25% in just the last 10 years.

Δ Three of every four acres of land in the six counties is considered agricultural. The percent varies from 93% in DeKalb County to only 25% in Lake County.

No Place Like This—Volo Bog

In Illinois, a few scattered bogs can be found in northern Lake and McHenry counties with names like Cedar Lake, Wauconda, Wilson, Brandenburg, and Volo. These habitats contain plant communities more familiarly associated with the northeastern states and Canada. In Illinois, the only example of a quaking bog—a bog with an "eye" of open water—is Volo Bog, located approximately 45 miles northwest of Chicago. Illinois' other bogs are much older and have filled in with peat so they no longer quake.

Volo Bog was formed during the Wisconsinan glaciation about 15,000 years ago. Large blocks of ice broke away from the main mass of the glacier and were surrounded by sediment and rock debris that melted out of the ice as it retreated. As these blocks of ice melted, they left depressions called kettles. Volo Bog comprises two kettles left after the glacier receded. The kettles slowly filled in with partially decomposed plant material called peat. The deeper kettle was 50 feet deep, still contains open water, and is called the "eye of the bog". The smaller kettle, however, has filled in.

Winterberry and sunflowers at Volo Bog

Michael R. Jeffords

Volo Bog, an Illinois Nature Preserve and National Landmark, is lush and green with ferns, orchids, elderberry holly, tamaracks, and poison sumac. It is hard to believe that with all the water, the bog is really a dry habitat for plants; most have trouble getting water and essential nutrients into their roots because of the high acidity. However, many species of plants have evolved strategies for living in the bog. Tamaracks grow here because they are able to tolerate the acid waters of the bog, something other trees cannot do. Leatherleaf has a woody stem and thick, leathery, elliptical leaves. These tough leaves protect against excessive water loss and wilting. Orchids such as the grass pink and rose pogonia, both found at Volo, ride the spongy hummocks, cradled in the feathery arms of the tamaracks. They thrive due to a remarkable relationship that exists between their roots and specialized soil fungi called mycorrhizae. The fungi live symbiotically upon or within the feeding roots of the orchids, decomposing organic materials in the acid mat, and sharing the food with their hosts in exchange for a home.

Carnivorous plants such as the pitcher plant also make Volo their home. Pitcher plants are classified as carnivorous rather than insectivorous because they consume not only insects but also isopods, mites, spiders, and the occasional small frog. While carnivory helps the plants to remain vigorous, grow larger, and produce more flowers, it does not appear essential for their survival. This unusual life style has evolved as a means to obtain nutrients in habitats otherwise deficient in them. To attest that this habitat is limited and extremely rare, the grass pink and rose pogonia orchids and pitcher plants are state-endangered species. Leatherleaf and the tamarack are threatened species in Illinois.

At one time the eye of Volo Bog was 50 feet deep; today it contains only 10 feet of water and 40 feet of muck, marl, and peat. Although the eye is slowly disappearing, it is alive with activity. Kingfishers survey the edges, pollywogs appear to pave the peaty bottom, dragonflies canvas the open water for mates and food, and frogs (camouflaged from the kingfishers) enjoy the sunshine. An eight-year-old being coaxed to leave the boardwalk perhaps summed up Volo Bog the best: "Dad, there's no better place than this!"

James P. Rowan

The Fox River and its surrounding lakes and wetlands provide an array of recreational opportunities.

More than eight million people live within 100 miles of the Fox River. The state operates five major sites in the area—Chain O' Lakes, Shabbona Lake, Silver Springs, and Moraine Hills state parks, and Volo Bog Natural Area—with a total attendance in excess of three million visitors annually. These sites generate $37 million in economic output and 500 jobs are attributable to annual state site visitation. The most visited site is Chain O'Lakes State Park. In addition, the area also includes 48 nature preserves, 118 natural areas, numerous county conservation areas, forest preserves, and hiking and biking trails. All offer a place to get away from it all and find "the new springs of life."

Boating, hunting, and fishing are all popular outdoor pursuits here. The six main Fox River area counties account for 15.4% of the state's boat registrations. Deer is the most popular game animal and archery hunters outnumber firearm hunters. Firearm deer hunting is not permitted in Lake and Kane counties due to the dense human population.

In 1837 it was said that with a four-rod seine a man could catch, dress, and salt ten barrels of pickerel in one day. While in 1922, E. E. Richards lamented about the good ol' days. "Fishing like hunting, 'is not what it used to be.' Fox Lake, Pistaqua Lake, Crystal Lake, Fox River, all furnished good fishing, with pickerel, pike, black bass, river bass, rock bass, silver bass, and muskalonge abundant in those days. I saw a forty-two pound muskalonge that was caught in Pisakee Bay thirty years ago."

Fishing today, although still a major pastime in the region, is also "not what it used to be"—there are many regulations. Bass, muskie, and pike must be a minimum size in order to be kept, and there is a daily creel limit for walleye, largemouth bass, and catfish; all muskie catches must be reported. Even with all the rules and regulations, fishing is enjoyed all year and record size fish are still a distinct possibility—a 22.75 pound pike was caught in the late 1970s.

Vegetation Communities

Soon after leaving the village we came onto a beautiful and very rich prairie, covered with grass and flowers, and surrounded by oak openings.

Colbee Benton,1833

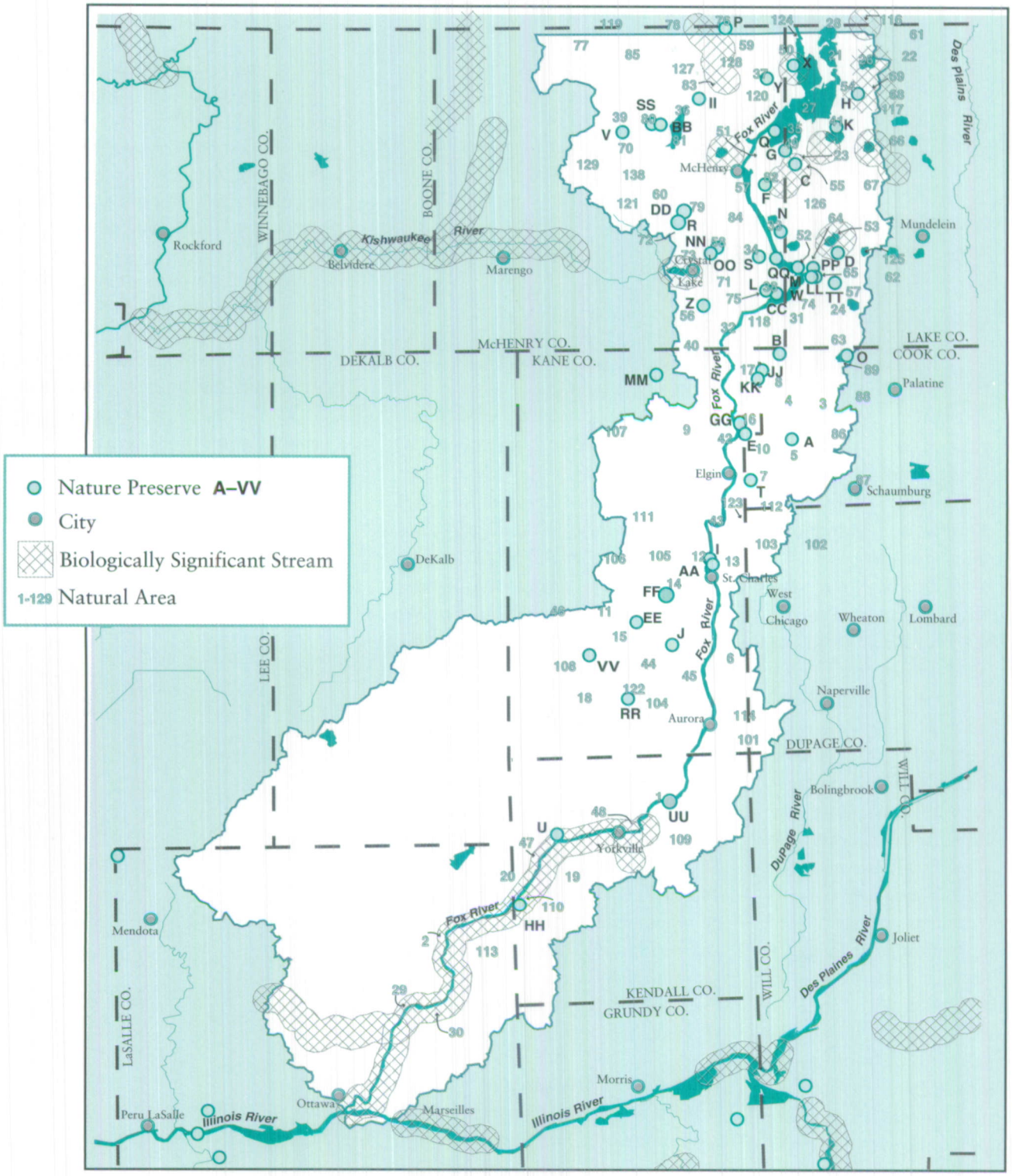
Traveling through an area in McHenry County later to be known as English Prairie

The Area at a Glance

Δ The state operates five major sites in the area, with a total attendance in excess of 3 million visitors annually. These sites generate $37 million in economic output and 500 jobs are attributable to annual state site visitation.

Δ The Fox River area includes 48 nature preserves, 118 natural areas, numerous county conservation areas, forest preserves, and hiking and biking trails.

Δ Early Government Land Office Survey records shows that prairie once occupied 31% of the area and forest 68%.



Illinois Natural Area Inventory Sites,
Illinois Nature Preserves,
and Biologically Significant Streams in the Fox River Area
Numbered key at right

Illinois Natural Areas Inventory Sites

1 Yorkville Prairie
2 Sheridan Red Pine Site
3 Crabtree Nature Center
4 Spring Creek Prairie
5 Shoe Factory Road Prairie
6 Fermilab
7 Bluff Springs Fen
8 Helm's Woods
9 Sleepy Hollow
10 Trout Park
11 Elburn Forest Preserve
12 Ferson's Creek Sedge Meadow
13 Norris Woods
14 Murray Prairie
15 Johnson's Mound
16 Fox River Fen
17 Carpentersville White Fringed Orchid Site
18 Kaneville Geological Area
19 Silver Springs Railroad Prairie
20 Dixon Valley Sedge Meadow
21 Grass Lake Wetlands
22 Antioch Bog
23 Stanley Road Bog
24 Barrington Bog
25 Tower Lake Fen
26 Loon Lake
27 Dunn's Lake
28 Channel Lake
29 Wedron Palisades
30 Marsh Relicts
31 Ski Hill Prairie
32 Larsen Prairie
33 Cotton Creek Marsh
34 Bates Fen
35 Weingart Road Sedge Meadow
36 Delta Kames
37 Spring Grove Fen
38 Hillside Prairie
39 Rt. 47 Balsam Poplar Site
40 Algonquin Geological Area
41 Gavin Bog and Prairie
42 Chicago Junior School Area
43 South Elgin Sedge Meadow
44 Nelson Lake Marsh
45 Mooseheart Ravine
46 Maple Park Railroad Prairie
47 Millhurst Fen
48 Yorkville Seep
49 Pistakee Bog
50 Turner Lake
51 Lac Louette
52 Lyons Prairie and Marsh
53 Wauconda Bog
54 Cedar Lake
55 Volo Bog
56 Lake-in-the-Hills Fen
57 Kettle Moraine
58 Sterne's Fen
59 Elizabeth Lake
60 Boone Creek Fen and Seep
61 Deer Lake—Redwing Slough
62 Fairfield Road Marsh South
63 Cuba Marsh
64 Roberts Road Fen
65 Rivers Bend Marsh
66 Round Lake
67 Round Lake Marsh
68 Deep Lake
69 Sun Lake
70 Bystricky Prairie
71 Hollows Conservation Area
72 Parker Fen
73 Veteran's Acres Park
74 Cary Main Street Prairie
75 Cary Junior High Prairie
76 State Line Marsh
77 Alden Sedge Meadow
78 Genoa City Sedge Meadow
79 Gladstone Fen
80 Lind Forest
81 Barber Fen
82 Lily Lake
83 Nippersink Prairie
84 Stickney Run Conservation Area
85 Streets Lake
86 Mundhank Road Marsh
87 Gray Farm Park Marsh
88 Palatine Road Marsh
89 Baker's Lake
90 Wood Dale Grove
91 Frontenac Road Marsh
92 Route 59 Marsh
93 Pratts Wayne Woods Forest Preserve
94 Carson Marsh
95 Burr Woods Marsh
96 Lily Lake Marsh
97 Kane County Swainson's Hawk Habitat
98 Lakin Hill Prairie
99 Reservation Woods
100 Millington Fen
101 Russell Fen
102 Tri-county Wetland
103 Fox River
104 Eola Marsh Road
105 Freeman Kame
106 Cross Lake
107 Windance Acres Marsh
108 Cary Old Water Tower Prairie
109 Hebron Peatland
110 Nippersink Marsh
111 Woodstock Marsh
112 Bliss Woods Marsh
113 DeSanto's Brewster Creek Site
114 Intern Seep
115 Schreiber Lake Bog
116 Black-crown Marsh
117 Long Range Marsh
118 North Branch, Nippersink Creek
119 Rose Farm Prairie
120 Frontenac Road Marsh
121 Pratts Wayne Woods Forest Preserve
122 Carson Marsh
123 Burr Woods Marsh
124 Reservation Woods
125 Russell Fen
126 Hebron Peatland
127 DeSanto's Brewster Creek Site
128 Nippersink Creek
129 North Branch, Nippersink Creek

Illinois Nature Preserves

A Shoe Factory Road Prairie
B Spring Lake
C Volo Bog
D Wauconda Bog
E Trout Park
F Kettle Moraine
G Pistakee Bog
H Cedar Lake Bog
I Norris
J Lake Marsh
K Gavin Bog and Prairie
L Cary Prairie
M Lyons Prairie and Marsh
N Cotton Creek Marsh
O Bakers Lake
P Elizabeth Lake
Q Weingart Road Sedge Meadow
R Julia M. & Royce L. Parker Fen
S Oakwood Hills Fen
T Bluff Springs Fen
U Maramech Woods
V Bystricky Prairie
W Barrington Bog
X Turner Lake Fen
Y Spring Grove Fen
Z Lake-in-the-Hills Fen
AA Ferson's Creek Fen
BB Barber Fen
CC Carl&Claire Marie Sands-Main St. Prairie
DD Gladstone Fen
EE Johnson's Mound
FF LeRoy Oaks
GG Fox River Fen
HH Tucker-Millington Fen
II Glacial Park
JJ Helm Woods
KK Kemper Park
LL Farm Trails North
MM Freeman Kame
NN Sterne's Fen
OO Wingate Prairie
PP Wagner Fen
QQ Bates Fen
RR Bliss Woods
SS Lind Forest
TT Tower Lakes Fen
UU Yorkville Prairie
VV Almon Underwood Prairie

Prior to European settlement (1820) prairie occupied 60% of Illinois and forest 40%. In the six counties that dominate the Fox River region, prairie occupied as much as 89% in Kendall County and as little as 34% in Lake County. Kane County had a prairie land cover of 65%. A look at just the Fox River assessment area using only the early Government Land Office Survey records, however, yields just the opposite proportion of prairie to forest ratios found in most of Illinois. Prairie occupied 31% of the area and forest 68%. Much of the discrepancy lies in the fact that most of the "forest" occurred as what Colbee Benton had described as large groves of oaks. Called "openings" by the early travelers, they are today known as savannas by modern ecologists—widely spaced trees with prairie vegetation growing all around.

Natural areas are abundant, if often diminutive in size. The region has 65% (12 acres) of the state's dry gravel prairies, 16% (206 acres) of the state's remaining dry-mesic upland forest, 10% (12.5 acres) of the remaining wet mesic prairie, 15% (14 acres) of the tall shrub bogs, 41% (908 acres) of the state's marshes, 42% (319 acres) of the sedge meadows, and 16% (184 acres) of Illinois' best pond communities. Ten vegetation communities found here represent 50% or more of all that community-type that remains in the state.

In this area, dry, gravel prairies

The cinnamon fern is among the plants found in the forested Volo Bog. Rose pogonia orchids grow along easily accessible board walks.

Michael R. Jeffords

are found on kames and eskers and harbor populations of pasque flower, prairie smoke, and the threatened and endangered woolly milkweed, Hill's thistle, and prairie bush clover. Shoe Factory Road Nature Preserve, dedicated as the tenth nature preserve in the state, is an example of this community type. Although the Fox has only 5.6 acres of high quality gravel hill prairies—openings in the forest rather than part of a continuous prairie—they represent 86% of this community in the state.

Wetland communities dominate the list of natural areas (See side bar, page 6.). Seventy-two percent (seven acres) of the state's graminoid bog community (a floating community and the first stage of succession for bogs) is found in the Fox River area. Kettle Moraine in Moraine Hills State Park and Volo Bog both have examples of a graminoid bog. All of the state's low shrub bogs (29 acres) and forested bogs (99 acres) are found here. A low shrub bog is composed of two layers of vegetation that may or may not be growing on a floating mat. One layer is composed of low shrubs like leatherleaf and American cranberry; the second layer contains mosses and herbaceous plants. Visit Kettle Moraine to see an example of this community. A forested bog is found on well consolidated peat with characteristic hummocks and small depressions. Volo Bog is an excellent example of this habitat. The state-threatened starflower grows here among the cinnamon fern and winterberry.

Four of the state's five fen communities occur in the Fox River area. Eighty-nine percent (149 acres) of the calcareous floating mat community is found here. Examples can be found in both Chain O'Lakes and Moraine Hills state parks. Lake-In-The-Hills Fen Nature Preserve has not only a calcareous floating mat community but also graminoid fen and low shrub fen communities. In a graminoid fen, peat is formed on a slope at the edge of a moraine; a low shrub fen may be similar to a graminoid fen, but here spring runs (small streams) serve as fire breaks and low shrubs such as shrubby cinquefoil can gain a foothold. Ninety percent (119 acres) of the state's graminoid fens and all (0.4 acre) of the low shrub fens are found in the area. Forested fens occur on fairly steep slopes and have at least 20% tree cover. Fourteen and a half acres of this community represent 97% of Illinois' forested fens.

Dry gravel prairies are associated with kames and eskers, but so are a unique kind of wetland called calcareous seeps. In this community the groundwater is so alkaline that deposits of tufa (concentrations of calcium carbonate) may occur. Fifty-nine percent (14 acres) of this community occurs in the Fox River area. Lake-In-The-Hills Fen Nature Preserve has an example of this rare community.

The final community type is

lake, and all 3,352 acres of the state's undegraded natural lakes are found along the Fox River. Cedar Lake is one of the larger glacial lakes in Lake County and four endangered plant species (water marigold, white stemmed pondweed, fern pondweed, and grass-leaved pondweed), and four threatened fish species (blackchin shiner, blacknose shiner, banded killifish, and the Iowa darter) occur there.

The area's diverse land and vegetation communities are found in the 48 nature preserves and 118 natural areas contained in the basin. Their sizes range from less than an acre (Maple Park Railroad Prairie) to over 2,000 acres (Grass Lake Wetlands). These many habitat pieces that shelter their attendant flora and fauna are a prime reason why the Fox River basin is a unique resource rich area.

Little Things That Run the World

Flora In this region, from late February to late October, a profusion of flowers may be found. Blooming begins with skunk cabbage and ends with goldenrods and gentians. Carnivorous plants such as the pitcher plant and round-leaved sundew occur on spongy hummocks. Orchids, like the grass pink and rose pogonia, grow along easily accessible boardwalks while the small yellow lady's slipper and white lady's slipper require a more diligent search. Woodlands harbor trilliums, trout lilies, and mayapples, while on the prairie are found Indian paintbrush, blazing star, and cone flowers.

Due to the area's unique ecological diversity, 44% of the state's native and naturalized plants (1,389 species) occur here. Of these, 77 are listed as state-endangered and 25 are state-threatened. These represent 25% of Illinois' endangered species and 44% of its threatened species. Two state endangered species, the prairie white fringed orchid and the prairie bush clover, are also listed as federally threatened. Of the 102 T&E species found in the Fox River area, 68 of them occur in wetlands.

Birds At least 248 of the 299 species that regularly occur in the state can be found in the Fox River basin. Of these, 152 breed or formerly bred here, including 30 state-threatened or -endangered species. The basin's wetland habitats harbor a rich bird community. Not only do herons, waterfowl, and geese provide common sitings, but this is one of the major areas in Illinois for rare wetland species such as the pied-billed grebe, double-crested cormorant, great egret, yellow-crowned night heron, king rail, Virginia rail, and common moorhen (all state-threatened species) and the

Michael R. Jeffords

Rare wetland species found in the Fox River basin include the double-crested cormorant.

The Area at a Glance

Δ The area has: 65% (12 acres) of the state's dry gravel prairies, 86% (5.6 acres) of the gravel hill prairies, 41% (908 acres) of the marshes, 42% (319 acres) of the sedge meadows, 72% (7 acres) of the state's graminoid bog community and 100% of the state's low shrub bogs (29 acres) and forested bogs (99 acres).

Δ Four of the state's five fen communities occur in the Fox River area and 89% (149 acres) of the calcareous floating mat community are found here.

Δ Ninety percent (119 acres) of the state's graminoid fens and all (.4 acre) of the low shrub fens are found in the Fox River area. Forested fens occur on fairly steep slopes and have at least 20% tree cover. Fourteen and a half acres of this community represent 97% of Illinois' forested fens.

Δ Fifty-nine percent (14 acres) of the calcareous seeps occur in the Fox River area. Lake-In-The-Hills Fen Nature Preserve has an example of this rare community.

Δ All 3,352 acres of the state's undegraded natural lakes are found along the Fox River.

Treasures Along the Fox

Perhaps the best way to experience the Fox River area is to visit one of its many natural areas, nature preserves, county conservation areas, forest preserves, or city hiking trails. Any one of these areas will reinforce why the Fox River area is unique.

Cuba Marsh Forest Preserve: From the name, you might associate Cuba Marsh only with things wet, yet the site presents a mosaic of habitats—lake, marsh, savanna, and prairie. Even a hill prairie is found on its southeast side, the only such habitat in Lake County. When the settlers came to this area they plowed, logged, and drained the land as best they could. By the 1950s and 1960s most of the land had been sold to developers. Local residents, however, wanted Cuba Marsh preserved as open space and helped the Lake County Forest Preserve District obtain it. These same local residents, called the Citizens for Conservation, have helped with tree planting and general care of the land. The drainage tiles are gone, thousands of trees have been planted, and the regenerative powers of conservationists' controlled fires have been returned.

Yellow-headed blackbird

Trout Park Nature Preserve: Trout Park's name dates from the mid-1800s, when a former owner stocked the streams with trout. In the early 1900s the park was part of a popular amusement park. A roller coaster was located on the shore of the Fox River, and a concession stand sold bottles of spring water from the park. By the 1920s the city of Elgin finally realized the unique botanical characteristics of the area and took steps to preserve it. The park's location, along the northeast side of the Fox River and nestled deep within the enveloping ravines, protected it from the prairie fires that swept the area before settlement. Over time a fen developed with a climax forest of white cedar, a tree species normally found farther to the north. Today, the area is an Illinois Nature Preserve, and although that offers it political protection, erosion from unofficial trails and runoff water remain problems.

Glacial Park: At Glacial Park, remnants of the last glacier are everywhere in evidence. Discover kames, kettle holes, erratics, and an underfit stream. Walk in the ancient bed of glacial Wonder Lake. As you climb the camelback kames and view the surrounding area, you are reminded of this ancient ice form and its role in Illinois history.

Moraine Hills State Park: The park's name is from the geologic feature known as a moraine. Moraines were formed where the ice margin temporarily stood in one place and left ridges of boulders, stones and other rock debris. In the park these moraines are evidenced by the slight hills that are encountered on the trails that encircle the park. These trails offer a wealth of wildlife viewing. Watch as proud Canadian geese parents show off their fuzzy new goslings to those geese still nesting. Look for large frogs camouflaged by the green pond scum and slider and snapping turtles basking in the sunlight. During the spring and summer listen for the rattle of the sandhill cranes that are camouflaged in the tall reeds and look for two of Illinois' rarer birds, the yellow-headed blackbird and the black tern, both visible from this area.

Fox River Trail: Perhaps the best way to see the Fox River and the surrounding area is to bike or hike the 41 miles of the Fox River Trail. In the spring of 1981, construction began on the trail; the first segment, which ran from Batavia to St. Charles, was completed in 1982. Today the trail runs from Algonquin in McHenry County to Aurora in Kane County. Not only does the trail highlight the river, but it also traverses several Forest Preserves and leads through the charming "old towns" of several cities along the river. Although the human additions to the riverscape are noted, it is the greenscape—the wildflowers and trees, waterfowl, birds, and the small mammals that share the river corridor—that keep the "trailers" coming back for more.

Michael R. Jeffords

state-endangered least bittern, black-crowned night heron, yellow-headed blackbird, sandhill crane, and red-shouldered hawk. A field trip to Moraine Hills State Park will have any birder bragging that at least four endangered or threatened species were seen that day!

John Wilcox was fascinated by the sandhill cranes and noted their arrival in the spring. It was their preparation for departure in the fall, however, that he found most curious. "In the late autumn they could be heard uttering a loud call and soon they began to assemble in pairs or groups at some chosen spot . . . In an apparent frenzy of excitement they joined in a sort of pow-wow, leaping, dancing, and screaming in the most ceaseless and curious manner." The primitive rattle of the sandhill crane is still heard in the basin, but the curious gatherings of hundreds occur no more.

Mammals In describing presettlement Kane County, John Wilcox notes, "None of the water-courses bore indication of the presence of beaver at any time, but now and then an otter was taken. These animals were observed upon the river as late as in the 50s [1850's]." Today, the opposite is true. Beaver are increasing in abundance in the watershed and their impact on the riparian corridor needs to be addressed. In contrast, only two river otter sightings in the 1980s suggest that this species may have disappeared from the Fox.

When Amos Parker visited the area in 1834 he noted, "A man on Fox River told me he made a wolf pen over a cow that got accidentally killed, and caught twelve wolves in one week. As the country becomes settled they will disappear. There are but few bears; the country is too open for them." By the 1860s both of these animals had disappeared, not only from the basin, but from the state.

Seventy-four percent of the state's mammal species are likely to occur in the area. During an outing to any of the natural areas, woodchucks, white-tailed deer, raccoons, opossum, chipmunks and gray squirrels are quite often seen. Recently, the pygmy shrew, perhaps the "rarest shrew in Illinois", has been collected in the Fox basin. Until 1994, only one collection record for this tiny shrew had been recorded for Illinois (near Palatine). Recent records from Cook and McHenry counties show the species may be somewhat more common. These small insectivores, with long flexible noses, inhabit woods with plenty of forest floor detritus. Due to their small size, they are rarely seen by humans.

Amphibians and Reptiles Fourteen amphibian and 22 reptile species occur here, representing 35% of the amphibians and 37% of the reptiles found in Illinois. No threatened or endangered species are currently known to occur in the basin. Although not on the threatened or endangered list, several species that occur in the basin are in trouble due to insufficient habitat. Wet prairies and wooded upland ponds are in short supply. Losses of these habitats may be one of the reasons the cricket frog may soon be extirpated from the region. The disappearance of the cricket frog may be the first symptom of wider problems associated with habitat degradation.

The Area at a Glance

Δ Forty-four percent of the state's native and naturalized plants (1,389 species) occur here. Of these, 77 are listed as state endangered and 25 are state threatened. These represent 25% of Illinois' endangered species and 44% of its threatened species.

Δ At least 248 of the 299 species of birds that regularly occur in the state can be found in the Fox River basin. Of these, 152 breed or formerly bred here, including 30 state-threatened or -endangered species.

Δ Beaver are increasing in abundance in the watershed, but there were only two river otter sightings in the 1980s, suggesting that this species may have disappeared from the Fox.

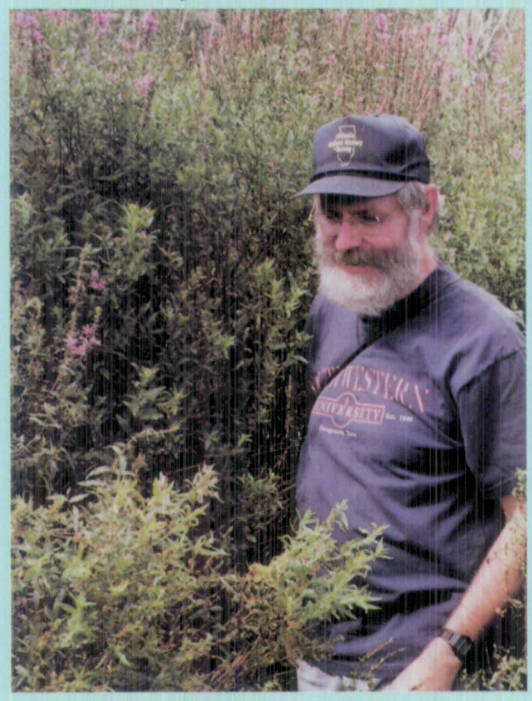
Δ Seventy-four percent of the state's mammal species are likely to occur in the Fox River basin.

Δ Recently, the pygmy shrew, perhaps the "rarest shrew in Illinois", has been collected in the Fox basin.

Δ Fourteen amphibian and 22 reptile species occur here, representing 35% of the amphibians and 37% of the reptiles found in Illinois. None are threatened or endangered.

Loosestrife on the Loose

Purple loosestrife, a weed from Europe, invades wetlands and overpowers the native vegetation, ultimately forming dense stands in which little else grows. During July and August the plant produces a profusion of attractive purple flowers, yet appearances can be deceiving. These flowers produce thousands of seeds that can remain viable for several years. The sea of purple blossoms may be pretty, but the once productive wetland is now essentially a monoculture. Animals that depend on the native vegetation for food and shelter cannot find it in this loosestrife jungle. Gone are the waterfowl that used the area to nest; muskrat are missing—they do not use loosestrife for food.



Dr. Rob Weidenmann, Economic Entomologist at the Illinois Natural History Survey, examines beetle damage to purple loosestrife in the field.

Cultural (fire, mowing, water management) and chemical methods have all been used in the war against purple loosestrife. Unfortunately, these methods are very labor-intensive and costly and they have not proven effective.

A viable option is using the plant's own natural enemies against it—biological control. Five species of beetles have been found in Europe that will damage purple loosestrife but do little or no harm to other plants. The two leaf-feeding beetles are being reared at the Illinois Natural History Survey for release in Illinois, with efforts concentrated in Cook, Lake, Kane, McHenry, and DuPage counties. The leaf-feeding beetles overwinter as adults in the soil, emerge in the spring and begin to feed on loosestrife, mate, and lay eggs, up to 200 per female. The larvae emerge, feed up to a month and strip the green material off the leaves (leaving only leaf skeletons), and then pupate in the soil. They emerge again as adults who continue to feed on the plants before they overwinter. One generation is produced each year.

Beginning in 1994, 7,000 of these leaf-feeding beetles were released at seven sites in northern Illinois. These beetles successfully overwintered at these sites and reproduced the following spring. Over 165,000 beetles were released during the summer of 1996 and follow-up monitoring during the spring of 1997 found many adults mating, laying eggs, and feeding. By the early summer of 1997, over 150,000 additional beetles had been released.

Just as it took some time for the plant to become established and overwhelm our wetlands, the establishment of these biological control organisms will also take time. Ultimately, the control of purple loosestrife may require a combination of management strategies with the leaf-feeding beetles playing a major role. For an up-close look at the beetles and their larvae, plus up-to-date information on their progress in the war against purple loosestrife, visit the loosestrife web site at:

http://www.inhs.uiuc.edu/cbd/loosestrife/bcpl.html

Aquatic Biota The Fox River basin supports a large diversity of aquatic species—96 species of fish, 32 species of mussels, and 14 species of large crustaceans. State-endangered fishes found in the basin include the pugnose and blacknose shiners, greater redhorse, and Iowa darter. Threatened fishes include the blackchin shiner, river redhorse, and the banded killifish. Several of these T&E species are found only in the basin's glacial lakes and nowhere else in Illinois. One threatened species of mussel, the spike, and one endangered species, the slippershell, can still occasionally be found. Two endangered species, the sheepnose and wavy-rayed lampmussel, are considered extirpated from the drainage as no live individuals have been collected in over 50 years. Another species, the endangered rainbow mussel, although not collected alive in over 50 years, may still occur. Weathered, dead shells found as recently as 1996 leave the status of this species a question mark.

Problems

Humans and nature interact in the Fox River watershed to create three distinct segments, each with its own set of problems. The upper Fox, with its many lakes and wetlands, is the most pristine and rich in natural ecosystems, yet is experiencing the greatest population pressure from growth in the northwest Chicago suburbs. The middle Fox is very much an urban river flowing through six Kane County cities with populations of 15,000–100,000. The challenges in the area include flood control, pollution prevention, and recreation oriented toward the river. Finally, the lower Fox flows through a primarily agricultural landscape and is threatened by soil erosion and chemical runoff from farms.

Human The accessibility of the Fox River's unique natural features is a double-edged sword. Urban expansion from the Chicago metropolitan region is putting severe pressure on the natural ecosystems of the region. During the last 20 years, nearly 1,100 miles of new roads have been built in the Fox River area; the population has grown 30% and employment and vehicle miles traveled have grown by 75%. The urbanized acreage has expanded by 25% in just the last 10 years. The abundant human resources along the Fox River provide an important context for future management and preservation plans.

Not only are the natural landscapes being impacted, but also the river itself. During 1995, water use in the basin was more than 85 million gallons per day. Virtually all of this water was discharged back into the river after being used and treated. During low flow conditions more than one-third of the Fox River flow in the Kane County area and farther downstream can be attributed to wastewater effluents. During a normal summer, the cumulative amount of discharges from the basin can account for more than 20% of the total flow along most of the Illinois portion of the river.

The ability of the Fox River to assimilate wastewaters discharged into it has been a water-quality concern for many decades. The employment of wastewater treatment standards has greatly improved the quality of the river since the early 1960s, reducing phosphorous concentrations and fecal coliform counts. However, excessive algal blooms are still a concern, and if the treatment of wastewater is not changed in the upcoming decades, it is likely that the growing amount of effluents may halt or reverse the declining trends in phosphorous and fecal coliform bacteria.

Flooding During July of 1996, the area experienced a major flood event when 9–18 inches of rain fell on the basin in a twenty-four hour period. Residents of picturesque areas along the Fox's feeder streams found out how a watershed works and how a raging river uses its floodplain.

Streamflow records for the Fox River basin show a significant increase in both average and low flows. Like most streams in the state, those along the Fox display a well-defined seasonal cycle. In the northern part of the basin major flooding occurs predominantly in late winter and early spring, caused by a combination of snowmelt and rainfall. For tributaries in the southern part, flooding occurs during any season. In addition to the normal spring flood

The Area at a Glance

Δ The Fox River basin supports a large diversity of aquatic species—96 species of fish, 32 species of mussels, and 14 species of large crustaceans.

Δ State-endangered fishes found in the basin include the pugnose and blacknose shiners, greater redhorse, and Iowa darter. Threatened fishes include the blackchin shiner, river redhorse, and the banded killifish. Several of these T&E species are found only in the basin's glacial lakes and nowhere else in Illinois.

Δ One threatened species of mussel, the spike, and one endangered species, the slippershell, can still occasionally be found.

season, summer flooding can be caused by locally heavy rainfall. Low flows (a representative sample of the minimum streamflows that are measured during any given year) have also increased due to the increase in average precipitation, the continuing increase in the amount of treated wastewater discharged into the river, and to a lesser degree the change in operation policy for the Stratton Dam.

Over the past 150 years the basin's wetlands, prairies, and forests have been converted into urban and agricultural landscapes. The loss of these natural habitats has reduced the water storage and retention abilities in the basin. Urban settings increase runoff and quickly move water into the river through ditches and tributaries. Similarly, the capacity of water to infiltrate the soil is lessened by intense cultivation, increasing the rate of flow into tributaries, and ultimately, the river.

Ecosystem Partnership

During late summer, 1996, while the record-setting rains were still on the minds of the area's residents, the Fox River Ecosystem Partnership was formed. The purpose of the partnership is to help address the problems of the area that include storm water management, flooding, fisheries, stream bank erosion, water quality, and habitat loss. The boundaries of the partnership, like the river itself, extend from the Wisconsin border to the Illinois River. Like the diverse habitats of the region, the membership is also diverse and includes representatives from the county forest preserves, park districts, drainage districts, watershed management districts, citizens groups, Farm Bureau, and friends of the smaller tributaries. Each group brings a different perspective and a myriad of concerns to the table. Although still a fledgling group, they already realize that education is the main key to solving the problems found along the Fox.

With groups like the Fox River Partnership caring about the river and educating others about its uniqueness, not only will future human residents of the basin find a safe haven, but even future generations of the river's namesake, the fox, may find refuge, solace, and solitude.

The Vision of John S. Wilcox

In 1904 *The Historical Encyclopedia of Illinois* was published and within this work was a special volume featuring Kane County. At the urging of the publishers, John S. Wilcox was requested to write the text. He comments, "While keenly realizing my lack of training, and experience for such a task, I have nevertheless, complied with the request, being influenced thereto by the judgment of the leading citizens of the country long prominent in public affairs, who have urged that this was a duty which I owed to the Past, the Present and the Future."

John Wilcox came to Illinois in 1842 at the age of nine and lived on a farm homestead in Elgin Township. He became a lawyer and served the state for three years during the War of the Rebellion and participated in the "march to the sea" with General Sherman. After the War he returned to Elgin where he practiced law, held the position of mayor, postmaster, and served on the board of directors of several banks and companies.

His vision of the history was to "set forth, as concisely as the circumstances would justify, the coming of the white man and the natural features of the country as he found it; its wonderfully varied fauna and flora; the fertility of the soil and its ready availability for the purposes of the husbandman when occupied; [and] to note its political and industrial development..."

We, the 'future generation', are grateful that he took the time to record this window into the past.

James P. Rowan

(continued from inside front cover)

In addition to coordinating IDNR programs with those of Ecosystem Partnerships, the Ecosystems Program:

- provides technical assistance to the partnerships, such as resource management plans for use by participating landowners;
- assesses resources in the area encompassed by each Ecosystem Partnership, collecting data that the local partners themselves may use to set project priorities and design projects, and supplying scientific support to ecosystem partners, including on-going monitoring of Ecosystem Partnership areas;
- funds site-specific ecosystem projects recommended by each partnership. Such projects may involve habitat protection and improvement, technical assistance, and research and education, including projects that seek to expand the relationships between natural resources, economic development, and recreation.

To provide focus for the program, IDNR developed and published the *Inventory of Ecologically Resource-Rich Areas in Illinois;* detailed regional assessments are being completed for resource-rich areas in which a public-private partnership is formed.

The Fox River Basin: An Inventory of the Region's Resources is based on one of these assessments, the *Fox River Area Assessment*. The assessment was compiled by staff of IDNR's Division of Energy and Environmental Assessment, Office of Realty and Environmental Planning; the Illinois State Museum, the Illinois Natural History, State Geological, and State Water Surveys of IDNR's Office of Research and Scientific Analysis; and Ecological Services of Urbana, Illinois.

The *Fox River Area Assessment* and all other CTAP and Ecosystems Program documents are available from the IDNR Clearinghouse at (217)782-7498 or TDD (217)782-9175. Many are also available on the EcoForum Bulletin Board at (800)528-5486 or (217)782-8447. Documents also are available on the World Wide Web at

http://dnr.state.il.us/ctap/ctaphome.htm and
http://dnr.state.il.us/c2000/manage/partner.htm

For more information about CTAP, call (217)524-0500 or e-mail at ctap2@dnrmail.state.il.us; for information on the Ecosystems Program, call (217)782-7940 or e-mail at ecoprg@dnrmail.state.il.us.

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