

# THE MISSISSIPPI WESTERN FIVE

AN INVENTORY OF THE REGION'S RESOURCES



## ABOUT THIS REPORT

*The Mississippi Western Five: 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 State of Illinois program to enhance nature protection and outdoor recreation by reversing the decline of the state's ecosystems.

Conservation 2000 grew out of recommendations from the 1994 CTAP report, *The Changing Illinois Environment*, the 1994 Illinois Conservation Congress, and the 1993 *Water Resources and Land Use Priorities Task Force Report*.

The Critical Trends report analyzed existing environmental, ecological, and economic data to establish baseline conditions from which future changes 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 the 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.

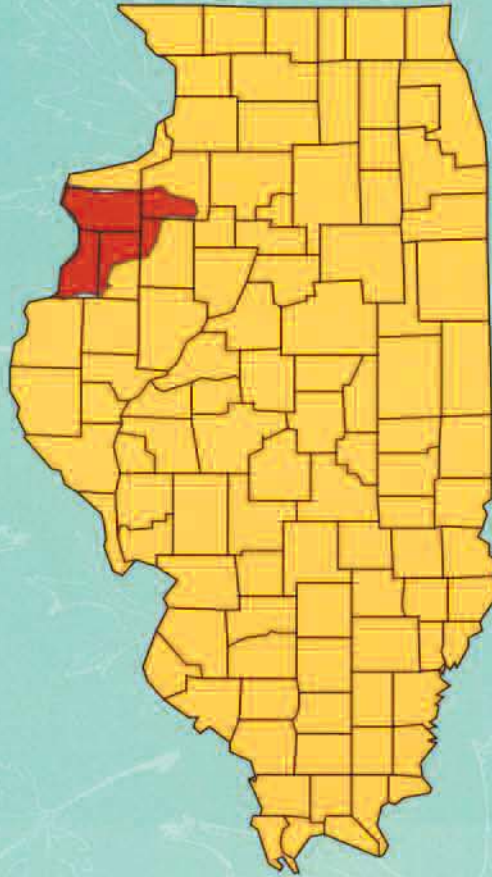
CTAP described the reality of ecosystem decline in Illinois, while the Congress and the Task Force laid out principles for new approaches to reversing that decline. Conservation 2000, designed to achieve that reversal, has implemented a number of their recommendations by funding several programs, one of which 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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Until they were defeated and driven from Illinois in the Blackhawk War in 1832, the Sauk and the Fox Indians originally held "title" to lands east of the Mississippi River to the Rock River, including the MWFAA. They hunted, fished, and even farmed the area, and had contact with many of the earliest white explorers, including Marquette and Jolliet. The Blackhawk War brought a 21-year-old Abraham Lincoln to the MWFAA, where he led 2,000 militiamen in the conflict, although the battle that made the biggest impact on the young man was "a good bloody struggle with the musketoes." One can still experience those mosquitoes while hiking on the same path Lincoln traversed during the war at Big River State Forest in Henderson County. Lincoln would return to the Mississippi River town of Oquawka in the MWFAA in 1858 during the Lincoln-Douglas debates.

Many written histories of the MWFAA region remark upon the landscape. In 1841, Ebenezer Welch enthusiastically wrote his brother from the Warren County town of Monmouth of "the black soil so hot that I could hardly bear my hand on it..." Knox County's native son Carl Sandburg took a more poetic tack when he wrote, "I was born on the prairie and the milk of its wheat, the red of its clover... The prairie sings to me in the forenoon and I know in the night I rest easy in the prairie arms, on the prairie heart."

The defeat of Chief Blackhawk opened the region to white settlement. Written portraits of early immigrants referred to the region as the "West." Immigrants listed places of birth in countries that included Bohemia, Sweden, Scotland, Ireland, England, and the more "settled" areas in the eastern United States. An idealistic mix of hope, curiosity, wanderlust, and opportunity drove them westward, and the land would sustain their dreams. Visionaries like Reverend Gale brought an entire community of abolitionists

to the Galesburg region from New York State in the 1830s. Gale founded Knox College, which incorporated anti-slavery into its overall philosophy.

In 1846, Eric Janson would lead a group of religious parishioners from Sweden to establish a communal religious society at Henry County's Bishop Hill. Fourteen years later the Jansonists would own 12,000 acres of Illinois land and create a lucrative broomcorn market. They tended 1,000 hogs, 500 cattle, and 100 horses. They found the deep topsoil superior to Sweden's and they planted shade trees, plums, apples, and berries.

Other groups and individuals would come and make their mark upon the Mississippi Western Five, but the landscape—albeit much altered and denuded—remained. Today, although only a minuscule remnant of Sandburg's singing prairie still exists, even the casual observer cannot deny the influence of this gently rolling region's topography, punctuated by wild forest, tended fields, and a mighty river. This is good country, a place worthy of knowing and caretaking.



Courtesy Knox College

*George W. Gale, founder of Galesburg and Knox College.*

## AN OVERVIEW

"Dear Brother Milton:  
...Poor Souls how I pity you, contented to drag out a miserable life in a land where grasshoppers can hardly live, where toads can be seen crying for a little sorrell, and even the poor weevils had to emigrate in order to get a little wheat, & I don't blame them for it...."

Here in the west things grow allmost spontaneously...A few days since I visited a field of corn containing 60 acres, and as I strolled through it, I could but laugh heartily, for it seemd as though I was in a world of corn."

—Letter home from Ebenezer Welch, Monmouth, September 19, 1841

The mix of gently sloping cropland, scattered timber, floodplain, pasture, and steep river bluffs that currently make up the MWFAA encompasses approximately 1,630 square miles or 1,043,423 acres. This surface area, which makes up 2.9 percent of the total land mass in the state, falls within five Illinois counties: Henderson, Henry, Knox, Mercer, and Warren, and also touches small portions of Hancock and Rock Island counties.

The watershed of the MWFAA comprises 2,200 miles of rivers and streams that drain into the Mississippi River between Dallas City, Illinois, to the south and Copperas Creek, across from Muscatine, Iowa, to the north. This reach of the Mississippi is approximately 60 miles in length and falls within three pools of the Mississippi formed by Lock and Dam 17 near New Boston, Illinois, Lock and Dam 18 near Gladstone, Illinois, and Lock and Dam 19 at Keokuk, Iowa.

The 61 lakes that dot the landscape cover a total surface area of 2,284 acres. The larger lakes are backwater lakes located along the Mississippi



Charles Warwick

*Old Main on the campus of Knox College in Galesburg, site of the fifth of eight Lincoln-Douglas debates in 1858.*

River, but there are hundreds of other small lakes and ponds that have surface areas less than two acres. Some lakes, such as Lake Storey near Galesburg, were originally built as reservoirs for water supply, but are now used primarily for recreation.

The highest elevation is approximately 880 feet above mean sea level (msl), three miles west of Kewanee on the eastern edge of the assessment area in Henry County. The land gradually slopes toward the west. The lowest point is 518 msl, the normal pool elevation of the Mississippi River's Pool 19 near Dallas City in the southwest corner of the assessment area.

About 9.9 percent (102,943 acres) of the land is forested, slightly lower than the state average of 11 percent. According to Government Land Office records, the region was once 19.1 percent forested. At the present, only 177 acres at a single site within the MWFAA remain high-quality and undegraded forest. Forests in the area belong to the Prairie Peninsula Section in the Northern Division of the Oak-

Hickory Forest Region and occur on the slopes, ravines, and bottomlands that accompany the major drainages.

About 2.6 percent (26,755 acres) of the MWFAA is classified as wetlands. High-quality and undegraded wetlands make up just 310 acres, or 1.2 percent of the total wetlands in the assessment area. These include shrub-scrub, forested, and emergent wetlands; lacustrine (lake) wetlands; and riverine wetlands. Bottomland forest accounts for 66.6 percent of the wetland acreage, emergent wetlands of marsh and wet meadow account for 13.4 percent, open water wetlands account for 8.7 percent, and shrub-scrub wetlands comprise 5.5 percent.

#### BETWEEN THE ROCKS AND THE HARD PLACES

"Of the five geological eras, the third, the Paleozoic, was by far the most important both geologically and economically. Beginning some 600 million years ago, it was characterized by repeated submergence and uplifts.

#### The Area at a Glance

Δ The Mississippi Western Five Assessment Area (MWFAA) encompasses approximately 1,630 square miles. The area falls within five Illinois counties: Henderson, Henry, Knox, Mercer, and Warren, and also includes small portions of Hancock and Rock Island counties.

Δ About 9.9 percent of the assessment area is forested but only 177 acres at one site remain high quality and undegraded.

Δ The watershed of the MWFAA comprises 2,200 miles of rivers and streams that drain into the Mississippi River between Dallas City, Illinois, to the south and Copperas Creek opposite Muscatine, Iowa, to the north.

Δ Sixty-one lakes dot the landscape and cover a total surface area of 2,284 acres.

Δ About 2.6 percent of the MWFAA—26,755 acres—is classified as wetlands. High-quality and undegraded wetlands make up just 310 acres, or 1.2 percent of the total wetlands in the assessment area.

Δ Bedrock strata within the assessment area are generally flat-lying or dip gently toward the east and southeast. As a result, the bedrock surface is progressively younger as one travels from the northwest corner toward the east-southeastern border of the area.

What is now Illinois was then covered by a series of shallow seas. In great cycles, the seas advanced, covered the land for millions of years, and then retreated to expose the surface again to weathering and erosion. The strata laid down during each submergence differ sharply from each other, the degree depending upon the depth of the sea and the nature of the land at its shoreline."

—*The Land Itself, The WPA Guide to Illinois, 1939*

Often overlooked, the fascinating nature of the geologic framework under our feet plays a key role in where flora and fauna grow, where streams flow, where we build our homes, factories, and cities, and where land might be set aside for parks and natural areas. The bedrock that lies beneath the MWFAA consists of sedimentary rocks laid down hundreds of millions of years ago during the Silurian, Devonian, Mississippian, and Pennsylvanian periods of the Paleozoic Era.

Bedrock strata within the assessment area are generally flat lying or dip gently toward the east and southeast. As a result, the bedrock surface strata are progressively younger from the northwest corner toward the east-southeastern portion of the area. The small Media Anticline in the southern reaches of the area interrupts this structure. Along the crest of this small upfold of rocks are Devonian strata exposed at the bedrock surface and younger Mississippian strata are present on the flanks to the north and south of the fold's axis.

Silurian rocks—primarily dolomite—form the bedrock surface only in the northwestern most tip of the assessment area. In the eastern part lies evidence of the Pennsylvanian strata, relatively thin layers of sandstone, siltstone, shale, limestone, and coal. Dominant rock types are sandstone, siltstone, and shale. Devonian rocks—layers of limestone and shale—and

Mississippian rocks form the bedrock surface in the western portion. The bedrock surface in the southern landscape is predominantly from the Mississippian Period.

The only natural site in the assessment area with a recorded geologic feature of interest is in Henderson County. Named the Delabar-Snodgrass Hill Prairies, it features a limestone outcrop.

As of 1997, the mining of mineral resources consisted of two limestone quarries and one sand and gravel pit. Future potential for limestone mining exists primarily among the Mississippian rocks of the southwestern part of the assessment area. Additional sand and gravel resources are likely to be found in major stream and river valleys. Sand and gravel found in this region were in part deposited by streams of melt water flowing from glaciers of the Wisconsin Episode, which occurred 25,000 and 12,000 years ago.

Hundreds of small coal mines once operated in the five-county area, reaping the Pennsylvanian coal-bearing rocks of the Colchester, Rock Island, and Herrin seams, among others. Henry County alone once had 129 working mines that produced nearly 23 million tons during the period from approximately 1875 to the mid-1950s. Currently, there are no operating coal mines in the assessment area.

## HUMAN RESOURCES

"George W. Noble, who resides on section 14, township 12 north, range 4 west, is one of the honored pioneers of Henderson County. Few, if any, have longer resided in this county than he, for he dates his arrival from 1836. When he came to the West, the land was wild and uncultivated... There were very few settlements, and many of the now thriving towns and villages were unmarked by even a single

building... Wild game of all kinds was plentiful, including deer, which frequently roamed over the prairie. Mr. Noble began life in the West with a cash capital of only fifty cents, but he possessed a young man's bright hope of the future and a determination to succeed... In this way, he made a start of life, and soon, as a result of his industry, perseverance and economy, he had accumulated enough capital to purchase eighty acres of land. After a time he sold that tract and purchased one hundred and sixty acres, in 1864. The following year he located thereon and has since made that farm his home. With characteristic energy he began its development, and in the course of time the richly cultivated fields yielded to him abundant harvests, and he thereby secured a good income."

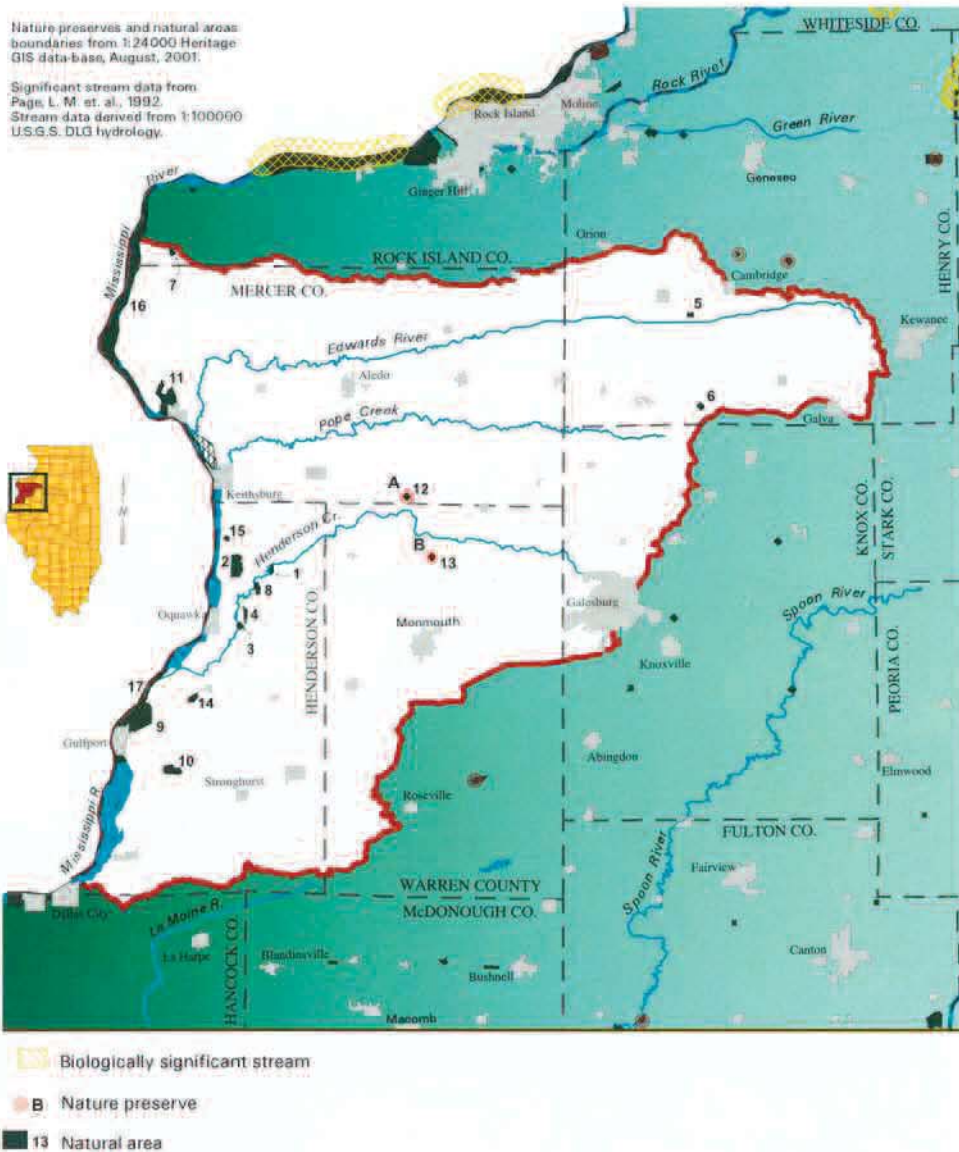
—*Portrait and Biographical Record of Hancock, McDonough and Henderson Counties, Illinois, 1894*

Today, the economies of the five counties that compose the Mississippi Western Five offer more opportunities than at the time of George W. Noble and the many white settlers that arrived from the eastern United States, Europe, and Scandinavia. Even with earnings down in recent years, farming is integral to the area's commerce and identity. The service and wholesale/retail sectors have increased. Together the two provide almost half of all jobs in the MWFAA, with government and manufacturing providing a little more than one-fourth of the jobs.

In 1990, per capita income was one-fourth less than the state average, but the poverty rate was the same as the state average of 12 percent.

Two interstate highways—I-74 and I-80—aid commerce by connecting the area to the larger regional cities of Chicago, Peoria, and the nearby Quad-Cities. Two Amtrak passenger train lines serve Galesburg, as well as four high-density rail freight lines and one light-density line. The Mississippi

THE MISSISSIPPI WESTERN FIVE



**Illinois Nature Preserves**

- A Brownlee Cemetery Prairie
- B Spring Grove Cemetery Prairie

**Illinois Natural Areas Inventory Sites**

- 1 Bald Bluff Hill Prairie
- 2 Big River Natural Area
- 3 Bailey Hill Prairie
- 4 Delabar-Pruett Hill Prairie
- 5 Roy Reppert Prairie
- 6 Keener Prairie
- 7 Nussbaum Prairie
- 8 Henderson Creek Hill Prairie
- 9 New Crystal Lake Club
- 10 Ellison Creek Prairie
- 11 New Boston Marsh
- 12 Brownlee Cemetery Prairie
- 13 Spring Grove Cemetery Prairie
- 14 Gladstone Lake
- 15 Putney's Landing
- 16 Mississippi River—Muscatine
- 17 Mississippi River—Drew Chute

## *The Lasting Legacy of Norma Jean*

Norma Jean was a 6,500-pound elephant and the biggest attraction of the Clark and Walters Circus. On July 17, 1972, during a storm she was struck and felled by lightning. "Possum Red," her friend and trainer was thrown 30 feet by the blast, but survived.

Moving the dead elephant was impractical for obvious reasons, so Norma Jean was buried where she fell—in Oquawka's town park. Local druggist Wade Meloan had a soft spot for the pachyderm and commenced to raise money to commission a twelve-foot-tall limestone tombstone for Norma Jean. "I just didn't think that ending seemed proper for someone who had been a circus star," Meloan later explained.

The inscription on the tombstone reads: "This memorial is dedicated in memory of an elephant named Norma Jean, who was killed by lightning at this location, and lies buried here."

A festival in Oquawka each August celebrates the legacy of Norma Jean by featuring an elephant walk, white elephant sale, and, of course, elephant ears.



Thomas Rice

*Norma Jean's memorial constructed by the citizens of Oquawka.*



River serves as a conduit to the entire commercial navigable waterway system of the continental United States. There are four general aviation airports and two private airports, but travelers using commercial airline flights must drive to the airports at Rock Island or Peoria.

The region is blessed with higher education opportunities, including Monmouth College in Monmouth, and Carl Sandburg College and Knox College in Galesburg. The colleges are also important employers and venues for lectures and entertainment. However, the percentage of college-educated adults in the assessment area was only 12 percent, compared to 21 percent statewide.

The MWFAA counties contain 1.2 percent of Illinois' total population, or 150,761 people. During the 130-year period of 1870 to 2000, the area's population grew only 16 percent, while the state's population grew 389 percent. The growth during those years only occurred in two of the area's counties—Henry and Knox, which increased by 44 percent and 41 percent, respectively. There are good reasons

for those increases. Henry County is part of the Davenport-Rock Island-Moline, Iowa-Illinois Metropolitan Statistical Area (MSA), and Knox County contains Galesburg, the largest city in the MWFAA. During the 1980s, however, both Henry and Knox counties actually lost population: 12 percent and 8 percent, respectively.

Population declined in the other three counties over the 130-year period. Henderson County lost 1 in 3 residents; Warren County almost 1 in five; and Mercer County 1 in 10 residents. In the last census period—1990–2000—only Henderson County added population, a 1 percent increase, or 117 people.

Only two communities in the assessment area have more than 10,000 residents, according to the 2000 US Census: Galesburg has 33,706, and Kewanee in Henry County has 12,944. Monmouth in Warren County was just under 10,000 with 9,841.

As with most of the state and nation, the elderly population is on the rise in the region. In 1970 the elderly comprised 13 percent of the general population. By 2000 that number

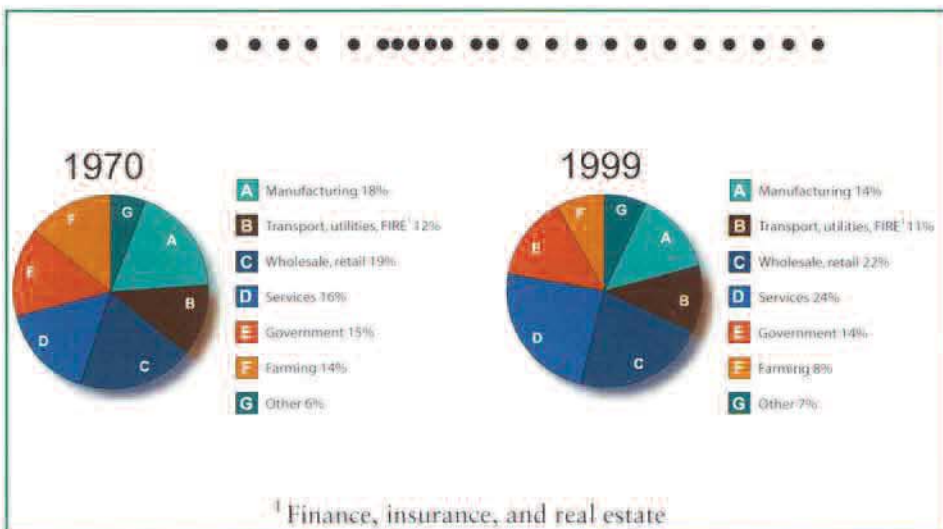
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Δ A total of 73,464 people are employed in the area, comprising 1 percent of the state's employment and 1 percent of the state's income. The majority of those employed worked in Henry and Knox counties. Those two counties accounted for 76 percent of the area's employment and 74 percent of the area's income.



had increased to almost 17 percent. The median age (38–41 years in each county) in the MWFAA is higher than the state average of about 35 years.

Compared to the state as a whole, the MWFAA is not overly populated, nor is it heavily urbanized. Satellite imagery taken between 1991 and 1995 shows only 2.5 percent of the land used for urban purposes, less than the statewide percentage of 5.8 percent. The region has 50 people per square mile compared to 224 statewide. Knox County has 78 people per square mile and 4 percent of its land in urban use. Henry County has 62 people per square mile and 3 percent of its land in urban use. In contrast, Henderson County has 22 people per square mile and just 1 percent of its land in urban use.

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In 1995, according to Dun and Bradstreet, the largest employers in the MWFAA were the Burlington Northern Santa Fe Railroad, the Maytag Corporation, and the Methodist Medical Center—all in Knox County. Other significant employers were the Farmland Foods meat packing plant in Warren County's Monmouth, and Kewanee Hospital and Wal-Mart in Henry County.

However, in a sign of the times and a significant blow to the regional and state economy, Maytag Corporation closed its Galesburg plant in November, 2004, and shifted part of its company's operations to Reynosa, Mexico. Consequently, some 1,600 employees in the MWFAA lost their jobs.

## AGRICULTURE

"This mile prairie [has] thin soil [and is] not fit for cultivation."

—Isaac Robertson, 1816,  
United States Federal Land Surveyor,  
written near what is now downtown  
Galesburg.

As we all know, Robertson's dire survey was erroneous. Today, as with much of Illinois, fertile agricultural lands dominate the landscape. In 2000, the MWFAA yielded 102 million bushels of corn and 20 million bushels of soybeans: not a bad output for "thin soil." Indeed, if the surveyor stood on the banks of the Mississippi River almost 200 years later, he would see part of that harvest headed south on the thousands of barges that wind their way through the river's locks and dams. Eighty-five million tons of grain from the Midwest annually travel downriver to New Orleans to be sold overseas. In addition to corn and soybeans, the area grows lesser amounts of wheat and a variety of fruit and vegetables, including sweet corn and melons.

Farmland accounts for 85 percent of the land use in the assessment area. The statewide average is 77 percent. However, the number of farms in the area is down 31 percent for the years 1978 to 1997, in line with the statewide decline of 30 percent. Farm acreage itself has fallen 5.9 percent during that same time, less than the 7.7 percent decline statewide. Henry County saw the greatest decline in agricultural acreage at 8.1 percent.

Three of the counties in the assessment area—Henderson, Mercer, and Warren—receive the largest share of their tax base from farm property. (Residential property accounts for the majority of the tax base in Henry and Knox counties.) In 2000, total area farm cash receipts were \$451 million, or 6.5 percent of the state's total farm receipts. Henry and Knox counties had the greatest receipts.

Agricultural crops covered 68 percent of the assessment area in 1999—an increase from 1925, when 52 percent of the land was planted in crops. In the last century there was a significant change in the types of crops grown on the land. In 1999, corn and soybeans dominated the agricultural landscape, accounting for 96 percent of all crop acreage in the assessment area. Of note, the dominant crop in 1925 was corn with 301,405 acres. Seventy-four years later in 1999 corn acreage was 371,274 acres. Small grains during that same period decreased from 245,902 acres to 24,409 acres. During a similar period—1927–1999—soybean acreage increased from 266 acres to 314,231 acres.

Agricultural producers also raise hogs and cattle. Sixty percent of all livestock receipts come from sale of hogs and 35 percent from cattle. The region's livestock inventory accounts for 7 percent of the state's cattle population and 12 percent of its hogs. The average annual inventory for the years 1996–2000 was 551,000 hogs and 126,000 cattle.

## OUTDOOR RECREATION

"Keithsburg Division...is a mosaic of wetland and bottomland forest habitat complex including sloughs surrounded by bottomland timber stands....forested stands suffered from the Flood of 1993 and subsequent wind storms, and many snags now exist. Woodpeckers, Wood Ducks, Hooded Mergansers, and Prothonotary Warblers use dead and dying trees. Bald Eagles also use the area during migration, and several nesting attempts have occurred on the division."

—US Fish & Wildlife Service

Located along the Mississippi River in Mercer County, the Keithsburg Division is part of the Mark Twain National Wildlife Refuge complex

that stretches south in Illinois from the Quad Cities to Cairo. Formerly a privately owned agricultural levee district, the 1,400-acre tract was obtained by the federal government in 1945 for protection of migratory waterfowl. The division is a popular fishing area except during September 16 through December 31, when the area is closed to the public for migratory waterfowl. Other wildlife residents of the division include deer, Bald Eagles, egrets, herons, and fox.

The counties in the area, which comprise 1.2 percent of the state's population, account for 2.4 percent of boat registrations, 1.8 percent of fishing licenses, and 2.1 percent of hunting licenses statewide.

In the MWFAA, the majority of outdoor recreation opportunities such as hiking, fishing, boating, picnicking, camping, horseback riding, bird watching, winter sports, and hunting are available at three state areas: Big River State Forest, Delabar State Park, and Henderson County State Fish and Wildlife Area. Annually, the 586,000 visitors to these three sites generate about \$7.2 million in economic output, \$1.7 million in personal income, and around 100 jobs. Compared to

attendance in 1975, the number of visitors at Big River State Forest was up more than 1,000 percent in 2000, while visitors at both Delabar State Park and Henderson County State Fish and Wildlife Area increased 85 percent during that same period.

There are also two small nature preserves: Brownlee Cemetery Prairie Nature Preserve and Spring Grove Cemetery Prairie Nature Preserve. (See page 10.)

Of the approximately 1 million acres in the assessment area, only 11,689 acres, or 1.1 percent, are public lands. Big River State Forest, Delabar State Park, and Henderson County State Fish and Wildlife Area comprise the state land holdings with a combined 3,177 acres. Three federally owned sites along the Mississippi River total 8,089 acres and two county sites in Warren County account for 354 acres.

Just south of Keithsburg along the Mississippi River near the town of Oquawka is the 3,000-acre Big River State Forest. The forest is a remnant of a vast prairie woodland border landscape that once covered most of Illinois. Much of the forest has been converted from scrub hardwood to pine. The two state-endangered plants

### The Area at a Glance

△ In 2000, the MWFAA yielded 102 million bushels of corn and 20 million bushels of soybeans.

△ Farmland accounts for 85 percent of the land cover in the assessment area. The statewide average is 77 percent. Agricultural crops covered 68 percent of the assessment area in 1999—an increase from 1925, when 52 percent of the land was planted in crops.

△ Three of the counties in the assessment area—Henderson, Mercer, and Warren—receive the largest share of their tax base from farm property.

△ Located along the Mississippi River in Mercer County, the Keithsburg Division is part of the Mark Twain National Wildlife Refuge complex that encompasses parts of the Mississippi River floodplain in Illinois from the Quad Cities south to Cairo.

△ The MWFAA, which comprises 1.2 percent of Illinois' population, accounts for 2.4 percent of boat registrations, 1.8 percent of fishing licenses, and 2.1 percent of hunting licenses statewide.

△ The majority of outdoor recreation opportunities are available at three state areas: Big River State Forest, Delabar State Park, and Henderson County State Fish and Wildlife Area. Annually, the 586,000 visitors to these three sites generate about \$7.2 million in economic output, \$1.7 million in personal income, and around 100 jobs.



Michael R. Jeffords

*Egrets and Canada Geese are two bird species commonly found in the Mississippi Western Five Assessment Area.*

## Nature Preserves

"The prairie sings to me in the forenoon and I know in the night I rest easy in the prairie arms, on the prairie heart." — Carl Sandburg, 1878–1967, from, "Prairie"

Illinois currently has 300 nature preserves around the state. The goal of Illinois' nature preserve system is to protect and preserve examples of all significant natural features found in the state for purposes of scientific research, education, biodiversity conservation, and aesthetic enjoyment.

Ironic perhaps is the fact that many native plants are inadvertently preserved in graveyards. That's certainly the case in the MWFAA, where two tiny remnant prairie plots exist. Prior to European settlement, it is estimated that 79.5 percent (827,855 acres) of the assessment area was prairie.

The Brownlee Cemetery Prairie Nature Preserve in Mercer County is a 1.4-acre remnant of mesic black soil prairie. Dedicated in 1982, the Brownlee Cemetery dates back to 1842 when Thomas and Anne Brownlee deeded the land to the Associate Church of North Henderson for a church and burial ground. The last burial took place in 1942 and since then the cemetery has maintained much of its original character. Today, this mesic black soil prairie grows Indian grass, big and little bluestem, leadplant, wild bergamot, yellow coneflower, and rattlesnake master. The site is owned by the Mercer County Soil and Water Conservation District.

The 1.1-acre Spring Grove Cemetery Prairie Nature Preserve in Warren County was dedicated in 1983. Also a remnant mesic black soil prairie, the nature preserve is managed and used for occasional education programs by the faculty and students of Monmouth College. The site was originally deeded for church use in 1859, thereby protecting it from cultivation and grazing. The mesic black soil prairie is dominated by Indian grass and big bluestem, with at least 55 prairie species protected in all. Currently, the Spring Grove Cemetery Trustees own the plot.



Charles Warwick

*Brownlee Cemetery Prairie Nature Preserve in Mercer County*



Charles Warwick

*Spring Grove Cemetery Prairie Nature Preserve near Monmouth in Warren County*

## The Five Divisions of the Mississippi Western Five

"Between Viola and Monmouth, U.S. Route 67 crosses numerous tributaries of the Mississippi that have carved their wooded valleys deep in the fertile upland. The first settlers came up these streams and homesteaded in the valleys. One man, it is said, housed his family in a hillside cave, dug a vertical passageway for a chimney. One evening, while the settler's daughter was entertaining a suitor before the fireplace, a venturesome calf that had been grazing on the hill above lost its footing, tumbled down the chimney, and landed bawling at the feet of the startled lovers."

—*The WPA Guide to Illinois*, 1939

A keen eye can quickly see that the MWFAA lies within one of the most diverse environments in Illinois. Of the 14 natural divisions in the state, 5 of them are found in the region.

The Western Forest-Prairie Division characterizes the largest natural division in the MWFAA—covering around 35 percent of the 1,630 square miles that make up the area. Characterized by level to rolling uplands between fairly deeply cut rivers with well-developed floodplains and ravines, this division is a strongly dissected glacial till plain formed during the Illinois and earlier glacial episodes.

The next largest division is the Middle Mississippi Border Division which encompasses about 30 percent of the assessment area. This type of landscape is also greatly dissected—particularly along the major streams where there are hills and ravines—and consists of the river bluffs and other rugged terrain along the Mississippi River valley.

Examples of the Western Section of the Grand Prairie Division—the state's largest division, which makes up most of the flat terrain in central and northern Illinois—are present in the northeastern portion of the MWFAA. Some 22 percent of the assessment area is in this division, and can be described as generally level to rolling with the greatest topographic relief provided by major stream valleys and extensive moraines.

The area along the Mississippi River comprises the remaining two divisions of the assessment area—The Upper Mississippi River and Illinois River Bottomlands Division and The Illinois River and Mississippi River Sand Areas Division. The Upper Mississippi River and Illinois River Bottomlands Division covers the rivers and floodplains of the Mississippi River above its confluence with the Missouri River. These bottomlands, which comprise approximately 7 percent of the region, feature broad floodplains and gravel terraces formed by glacial floodwaters. The bottomlands and associated backwater lakes south of LaSalle also are included in this division.

Around 4 percent of the MWFAA's landscape falls in the Illinois River and Mississippi River Sand Areas Division. The division features level to rolling plains formed of sand deposited by the glacial melt waters that flowed down the river. The sand was picked up by the wind and blown into sand dunes that cover widespread areas east of the two rivers.

### The Area at a Glance

△ Public lands in the 1,043,423-acre assessment area comprise only 11,689 acres, or 1.1 percent of the MWFAA.

△ The two state-endangered plants found in the MWFAA grow in Big River State Forest: large-flowered beard-tongue (*Penstemon grandiflorus*) and Patterson's bindweed (*Stylisma pickeringii*).

△ Prior to European settlement, it is estimated that 79.5 percent (827,855 acres) of the assessment area was prairie.

△ The Western Forest-Prairie Division constitutes the largest natural division in the MWFAA—around 35 percent of the 1,630 square miles of the area.

△ Prior to 1820, the date usually associated with the first European settlement in Illinois, the landscape of the MWFAA closely matched the prairie-forest mix that covered much of the state at that time.

found in the MWFAA grow here: large-flowered beardstongue (*Penstemon grandiflorus*) and Patterson's bindweed (*Stylisma pickeringii*). It was in these same forests in 1873 that N.H. Patterson recorded the bindweed that would be named for him. Hikers and horseback riders use the 60 miles of firebreaks that wind through Big River. Also of note is Lincoln's Trail, which commemorates the 16th president's march through the area in 1832, when he led 2,000 militiamen to fight in the Black Hawk War.

Traveling south from Big River State Forest one soon reaches the much smaller 89-acre Delabar State Park. Also located on the shores of the Mississippi River, Delabar is named for Roy and Jack Delabar, who donated the land to the state in 1959. The state park is a popular destination for bird watchers. Some 50 species of songbirds have been identified in the park. Other common species include quail, woodchuck, deer, raccoon, and ground hog.

The 87-acre Henderson County State Fish and Wildlife Area is south of Delabar State Park near the town of Gladstone. The tract was purchased by the state in 1961 from the C.B. & Q. Railroad, which used the area's sand and gravel in its railroad operations.

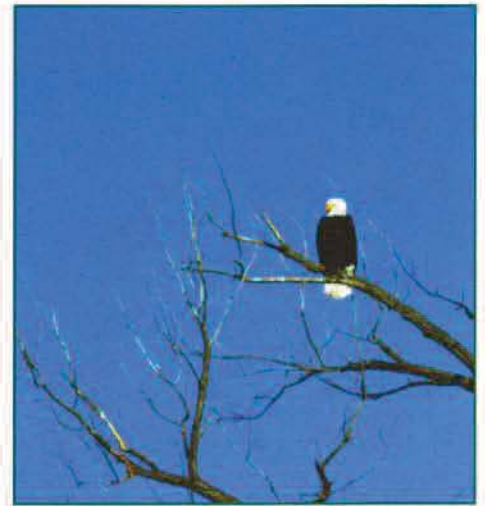
Five miles east of the Mississippi River, the area features the 27-acre Gladstone Lake, which has a 1.5-mile shoreline and a maximum depth of 25 feet. Bluegill, sunfish, crappie, channel catfish, bullhead, carp, and sauger are regularly found in the lake.

Recreational benefits in the MWFAA will increase only if environmental restoration continues and expands. Overall, habitat loss and degradation in the area's natural communities are about the same as elsewhere in the state. Loss of forest habitat is less than average state levels: 52 percent of original forests remain compared to 30 percent statewide. Wetland degradation is greater than state levels: 0.22 percent of remaining MWFAA wetlands are of high-quality compared with 0.65 percent statewide.

Trends are not encouraging for the expansion of recreation areas. Ninety-nine percent of the land in the MWFAA is degraded and altered by human activity and that activity continues to jeopardize the remaining high-quality sites. Still, additional studies in the area may identify noteworthy and/or restorable remnants of natural communities and new populations of threatened or endangered species.

#### VEGETATION HISTORY

"The gentle undulating surface of these prairies, prevents sameness, and adds variety to its lights and shades. Occasionally, when a swell is rather higher than the rest, it gives you an extended view over the country, and you may mark a dark



Michael R. Jeffords

*A Bald Eagle poised on its perch.*

green waving line of trees near the distant horizon, which are shading some gentle stream from the sun's absorbing rays... Oak openings also occur, green groves, arranged with the regularity of art, making shady alleys, for the heated traveler..."

—Eliza Steele, observations on Illinois' prairies, July 7, 1840

Prior to 1820, the date often associated with the first European settlement in Illinois, the landscape of the MWFAA closely matched the prairie-forest mix that covered much of the state at that time. Government Land Office survey records from around 1820 suggest that about 61 percent of the state was graced with prairie and 38 percent of the state with forests. The records indicate that the MWFAA had a prairie cover of 79.5 percent (827,855 acres) and a forested area of 19.1 percent (199,089 acres) in 1820.

According to the available data, presettlement wetland cover ranged from about 7 percent to 19 percent in each of the five counties that make up the MWFAA. (Rock Island and Hancock counties were not included this calculation because they represent a tiny portion of the assessment



Thomas Rice

*Big River State Forest, once predominantly scrub hardwood, is now mostly pine.*

area.) A much smaller portion of the area—1.3 percent (13,817 acres)—was open water. Only 0.024 percent of the assessment area was classified as “natural ponds,” or depressions in the prairie associated with marsh and wet prairie. Before the lock and dam system, many large, shallow backwater lakes also existed along the Mississippi River.

Harder to determine at the time was the total area of savannas and/or open woodlands. Early surveyors classified savannas as either prairies or woodlands. However, the long distances recorded between trees by surveyors may indicate that these areas were indeed savannas. Important to note is that we now view the assessment area as a transition zone between prairie and forest.

Reverend George Washington Gale, the founder of Galesburg and Knox College described the area in 1835 as, “...the finest prairie, lying in a body, rolling, well watered, surrounded with groves of the finest timber, with ravines yielding an abundance of mineral coal.”

One hundred and thirty-two years later, during the 1967 Illinois Sesquicentennial, National Geographic journalist Robert Paul Jordan portrayed a much changed landscape from Gale’s time. Traveling near the river town of Nauvoo, Jordan wrote, “In May I caught the fragrance of apple blossoms and lilacs riding the river breeze, and watched aged vineyards renewing their annual promise. In September orchards drooped with the weight of firm-fleshed Jonathans and succulent golden pears, and blue-backed Concord clusters thick on the vine.”

Currently, within the entire landscape of the MWFAA, a scant 677.3 acres, or .065 percent, remain in undegraded, original, high-quality ecological condition. This is slightly below the statewide percentage of undegraded land identified by the Illinois Natural Areas Inventory. The

acreage of high-quality, undegraded landscape in the MWFAA is scattered among 16 noncontiguous natural areas.

Similar to the history of prairie loss in Illinois, much of the prairie in the assessment area was converted to cropland. Patrick Shirreff in 1833 described the prairie as consisting of “strong-rooted grasses” that were difficult to plow for the first time. Shirreff, a Scottish farmer touring Illinois to determine if his brother should immigrate there, wrote that homesteaders paid \$2 per acre for the job of breaking up the prairie. “The plough for breaking up the prairie is furnished with a broad share, and cuts a turf seventeen or eighteen inches broad, by two or three in depth. Indian corn is dropped into every third furrow, a bushel being sufficient for ten acres, and covered with the next cut turf.”

Prairie loss and degradation in the MWFAA appear to be slightly less than statewide levels. There are 190.3 acres of undegraded prairie or about 0.023 percent of the area’s original total. The assessment area harbors large sand deposits in the Mississippi River floodplain near the town of Oquawka, as well as steep loess hills on the river’s bluffs that are undesirable for farming and contain prairie remnants.

Forest habitat loss is less than statewide levels, but rates of forest habitat degradation appear to be about the same. Around 102,943 acres (approximately 10 percent), of the area are currently forested, about 52 percent of the original forest cover of 199,089 acres prior to European settlement. Yet, only 177 acres (0.17 percent), of today’s forest cover are in an undegraded condition.

Savanna loss and degradation also appear to follow statewide averages. Only 1,299.2 acres of savanna remain in the entire state and most of them are classified as sand savanna. There are no high-quality savanna areas in the MWFAA and no figures are available on degraded remnants in part because

### **The Area at a Glance**

Δ Reverend George Washington Gale, the founder of Galesburg and Knox College, described the area in 1835 as, “...the finest prairie, lying in a body, rolling, well watered, surrounded with groves of the finest timber, with ravines yielding an abundance of mineral coal.”

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Δ Of Illinois’ flora, 993 plant taxa (38 percent) are currently found in the MWFAA. Many of those plants, (173; 17.4 percent) are not native to the area and most of these naturalized and adventure species are not even native to North America.

Δ The 275 bird species that occur in the assessment area account for 92 percent of the 300 species identified in Illinois. Of the species found in the region, 131 breed or formerly bred here. These include 17 state-endangered species and 8 threatened species.

Δ The birds of the MWFAA do well in the 17 areas identified as Illinois Areas Inventory Sites. However, the sites only make up 4,789 acres, or 0.45 percent of the total land in the assessment area.

## Carl Sandburg, Illinois' Prairie Poet

"I was born on a cornhusk mattress. Until I was past ten or more years, when we became a family of nine persons, I remember the mattresses were bedticking filled with cornhusks. And as we all slept well on cornhusks and never knew the feel of feather beds till far later years, we were in favor of what we had."

—Carl Sandburg, *Always the Young Strangers*

Born in 1878 in Galesburg to Swedish immigrants, folk musician and writer Carl Sandburg wove a thread of western Illinois' prairie country through his poetry, prose, and songs. In 1923 he wrote in *Atlantic Monthly*, "Poetry is the journal of a sea animal living on land, wanting to fly in the air." The literary portraits of nature that Sandburg used in his writing came from his open-air, working class background. His father August toiled for the Chicago, Burlington and Quincy Railroad 60 hours a week for 35 years. The younger Sandburg milked cows, delivered newspapers, and swept floors. At the age of 18, he began a lifetime of trying to satisfy his restless spirit with a trip to Chicago, followed by a hobo's life on the American plains, and a stint in the Spanish-American War. Each trip added to his vast inventory of images and experiences. He then attended Lombard College in Galesburg and began his distinguished life of letters that culminated with two Pulitzer Prizes—one for his six-volume biography of Abraham Lincoln and the second prize for a 1951 volume of collected poems. Critic Malcolm Cowley said of Sandburg that he "turned the midwestern voice into a sort of music."

His poetry collections include *Chicago Poems* (1914), *Cornhuskers* (1918), and *Slabs of the Sunburnt West* (1922). Sandburg also collected American folklore and folk songs, which he printed in such collections as *The American Songbag* (1927) and *The People, Yes* (1936).

The poem "Prairie Waters by Night" is luminous proof of Sandburg's enduring love of his natural environs.

### *Prairie Waters by Night*

Chatter of birds two by two raises a night song joining a litany of running water—sheer waters showing the russet of old stones remembering many rains.

And the long willows drowse on the shoulders of the running water, and sleep from much music; joined songs of day-end, feathery throats and stony waters, in a choir chanting new psalms.

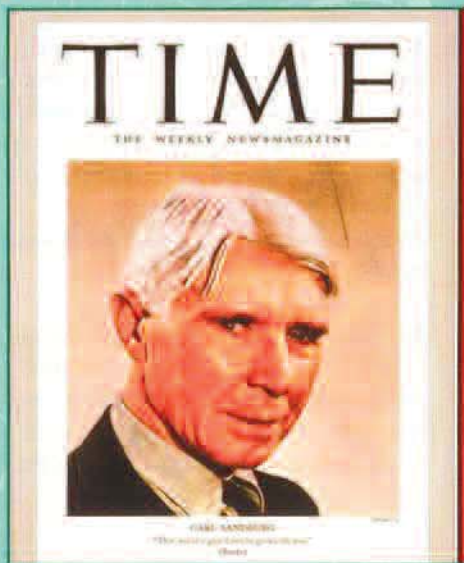
It is too much for the long willows when low laughter of a red moon comes down; and the willows drowse and sleep on the shoulders of the running water.

Here the gray geese go five hundred miles and back with a wind under their wings honking the cry for a new home.



Charles Warwick

*Carl Sandburg's boyhood home in Galesburg is a museum and study center.*



*Sandburg on the December 4, 1939 cover of Time.*



## A (Big Muddy) River Runs Through It

"The face of the water, in time, became a wonderful book—a book that was a dead language to the uneducated passenger, but which told its mind to me without reserve, delivering its most cherished secrets as clearly as if it uttered them with a voice. And it was not a book to be read once and thrown aside, for it had a new story to tell every day." —Mark Twain; *Life on the Mississippi*, 1883

According to the folklorist B.A. Botkin, "it's been rumored that the very mud of the Mississippi is nutritious, and a man who drinks it could grow corn in his stomach." Others have often commented that the water is "too thick to drink and too thin to plow." The root of the word Mississippi comes from the Ojibwa Indian term that means great river or gathering of waters. Indeed the river's total watershed encompasses 40 percent of the United States and one-eighth of all of North America. This region includes 31 states and 2 Canadian provinces. In Illinois, the river follows the state's western border for 580 miles.

The MWFAA's western border embraces 60 miles of the Mississippi River between Dallas City, Illinois, to the south and Muscatine, Iowa, to the north. The pools, bluffs, floodplains, and riparian areas are part of the ecosystem known as the Upper Mississippi River Basin, which extends from St. Anthony's Falls near Minneapolis, Minnesota, to the confluence of the Mississippi and Ohio rivers at Cairo, Illinois.

Historically the home of the Sac and Fox Indians, three locations along the river within the MWFAA owe their names to Native Americans— Upper Yellow Banks or Denison's Landing, now New Boston; Middle Yellow Banks, just south of what is now Keithsburg; and Lower Yellow Banks or "Ozaukee," now Oquawka, named originally for its yellow sand.

The ecological importance of this basin cannot be underestimated. Even with only 20 percent of the basin in its natural state, the Upper Mississippi River and its natural areas support 200 species of fish, and more than 300 bird species, including the largest population of breeding Bald Eagles in the lower 48 states. Nearly 40 percent of all North American migratory waterfowl use the river as a flyway and 60 percent of all the continent's birds use the basin as a global flyway. There are also 55 non-native aquatic animals and 12 non-native plants.

The basin, however, is hardly the pristine and meandering riparian area that Mark Twain wrote about when he was a river pilot. Sprawl, sedimentation, flood control and navigation improvement projects, agricultural and metropolitan pollution, elevated river levels, and barge wakes are among the threats that confront the wetlands, side channels, and floodplain forests.

Still, one can still feel the lore and poetic draw of the river when standing along its banks at Big River State Forest or in the town of Gulfport. Illinois native Chad Pregracke, founder of the Mississippi River Beautification & Restoration Project, says, "The Mississippi River is my life. I'm in awe of how the bluffs and sloughs change. It's a living forest. I like the people on the river, too. My parents' house is just 10 feet from the bank. That's where I grew up."

### The Area at a Glance

Δ Aquatic species in the MWFAA include 85 species of fishes, 48 species of native mussels, and 12 species of large crustaceans.

Δ There are eight mammal species listed as threatened or endangered in Illinois and two of them occur in this area: the federally and state-endangered Indiana bat and the state-threatened northern river otter.

Δ The 16 amphibian and 28 reptile species that can be found in the MWFAA represent 40 percent of the amphibians and 47 percent of the reptiles that live in Illinois. The assessment area contains the state-threatened western hognose snake and Blanding's turtle, and the state-endangered four toed salamander and Illinois mud turtle.

the original acreage of savannas is unknown.

Wetland degradation is less than statewide trends. The approximately 26,755 acres of wetlands—2.6 percent of the MWFAA—are about 18.9 percent of the original total, compared to 11 percent statewide. Only 310 acres of the wetlands in the assessment area remain in an undegraded condition.

### ALL THE LITTLE LIVE THINGS

“The earth in the woods is covered with May-apples not yet ripe, and in the enclosed prairies with large, fine strawberries, now in their perfection. Wild gooseberries with smooth fruit are produced in abundance. The prairie and the forest have different sets of animals. The prairie-hen, as you walk out, starts up and whirs away from you, but the spotted prairie-squirrel hurries through the grass, and the prairie hawk balances himself in the air for a long time over the same spot. While observing him we heard a kind of humming noise in the grass, which one of the company said proceeded from a rattlesnake. We dismounted, and found, in fact, that it was made by a prairie-rattlesnake, which lay coiled around a tuft of herbage...The Indians call this small variety of the rattlesnake the Massasauger.”

—William Cullen Bryant, 1832, touring “Illinois country”

### Flora

Of Illinois’ flora, 993 plant taxa (38 percent) are currently found in the MWFAA. Many of those plants, (173; 17.4 percent) are not native to the area and most of these naturalized and adventure species are not even native to North America.

The Illinois Endangered Species Protection Board lists four plants in the assessment area as state-endangered or threatened species. There are no

federally endangered or threatened species in the assessment area. The two state-endangered species are large-flowered beardstongue (*Penstemon grandiflorus*) and Patterson’s bindweed (*Stylisma pickeringii*). Both plants grow in dry sand prairies in Henderson County.

The two threatened species are kitten tails (*Bessya bullii*) and Hill’s thistle (*Cirsium hillii*). Kitten tails grow in sand savannas and gravel prairies, and occur in Henderson County. Hill’s thistle prefers dry and dry-mesic prairies, hill prairies, and sand prairies. Areas that have historically been cattle grazing areas are especially good hosts for Hill’s thistle. In the assessment area, the plant is found in Henry County.

### Birds

Despite widespread habitat loss and degradation, the MWFAA still contains a varied avian community within its boundaries. The advantage that the area has for birds is its wide array of habitats, fragmented as they are. Especially key are the tallgrass, hill, and sand prairies within the Western Grand Prairie division; shallow

and deep water marsh, and bottomland forests within the Upper Mississippi River and Illinois River Bottomlands division; and the upland forest of the Western Forest-Prairie division.

The 275 bird species that occur in the assessment area account for 92 percent of the 300 species identified in Illinois. Of the species found in the region, 131 breed or formerly bred here. These include 17 state-endangered species and 8 threatened species.

The state-endangered birds found in the MWFAA are the American Bittern, Black-crowned Night Heron, Yellow-crowned Night Heron, Osprey, Northern Harrier, Peregrine Falcon, King Rail, Upland Sandpiper, Wilson’s Phalarope, Common Tern, Forster’s Tern, Black Tern, Barn Owl, Short-eared Owl, Least Tern, Henlow’s Sparrow, and Yellow-headed Blackbird. The Least Tern is also listed as a federally endangered species.

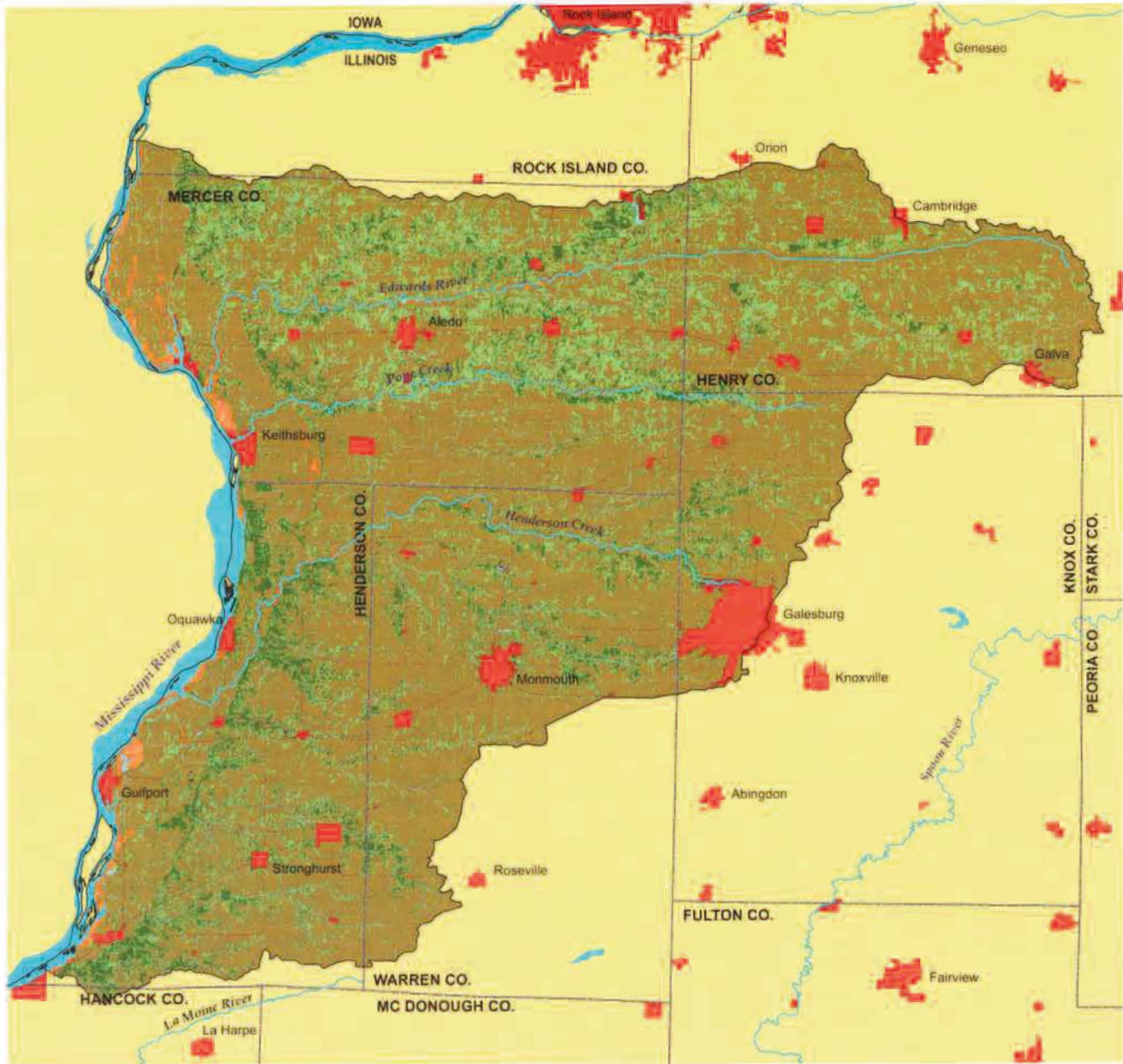
The state-threatened species found in the MWFAA include the Pied-billed Grebe, Least Bittern, Bald Eagle, Red-shouldered Hawk, Sandhill Crane, Common Moorhen, Loggerhead Shrike, and Brown Creeper.



Michael R. Jeffords

*Butterfly milkweeds attract a number of their namesakes.*

# Land Cover







L.R. Smith Illinois State Geological Survey



Source: Critical Trends Assessment Landcover Database of Illinois 1991 - 1995, IDNR 1995

- |   |   |
|---|---|
|  cropland            |  urban and built-up land |
|  rural grassland     |  wetland                 |
|  forest and woodland |  barren and exposed land |

- |   |                          |
|---|--------------------------|
|   | assessment area boundary |
|  | county boundary          |
|   | river or stream          |
|  | wide river or lake       |

Several avian species that were once residents of the area have disappeared. Extirpated species include the globally extinct Passenger Pigeon and Carolina Parakeet, and the statewide extinct Greater Prairie Chicken, Sharp-tailed Grouse, Ruffed Grouse, Peregrine Falcon, and Bewick's Wren. Additionally, historic accounts in the general area mention the Trumpeter Swan and Whooping Crane, but neither has been seen in the MWFAA recently, despite extensive efforts to restore the populations of these magnificent large birds in the eastern United States.

Patrick Shirreff described several of these now extirpated birds that he saw in 1833 on his tour through the state's prairies and forests. "The most numerous of birds were the ruffed grouse, or prairie-hen. They frequent roads, particularly in the morning, perhaps to escape from the effects of dew.... Many cranes, swans, ducks, and wild-geese, were seen hovering above the prairies, and on different occasions I disturbed owls reposing amongst withered grass. The forests

abounded with green colored paroquets [sic], which fluttered about with a disagreeable noise, in flocks of six or seven." Regarding the ruffed grouse, Shirreff also boasted of having killed "many hundreds of them without leaving the pathway."

The birds of the MWFAA do well in the 17 areas identified as Illinois Areas Inventory Sites. However, the sites only make up 4,789 acres, or 0.45 percent of the total land in the assessment area. Public lands in the area only total 11,689 acres. These vital sites, excellent as they are, still are chronically fragmented. Particularly of note are the forest habitats, which are likely "sinks" in which there is insufficient reproductive success to replace adults that die each year of natural causes. With these challenges in mind, a recommended management strategy is to focus on improving and enhancing habitat for birds that require agricultural habitats, wetlands, grasslands, and shrublands, and improving stopover habitat for migrating birds en route between northern breeding areas and southern wintering areas. Large grassland areas and emergent wetland habitats are in short supply in the MWFAA and subsequently so are bird species typical of such areas.

#### Aquatic Biota

"Oquawka, Henderson County seat, originated as a small trading post established in 1827 by the Phelps brothers. Its name is derived from Ozaukee (yellow banks), by which the site was known to Indians who crossed the Mississippi at this point on northward hunting expeditions. Oquawka's principal industry is the manufacture of pearl button blanks from mussel shells. Heaped shells litter the waterfront; crushed shells surface adjacent streets...North of Oquawka along the Mississippi are several beaches and camp sites. Natural sand beaches afford good swimming; the

adjoining woodlands support a variety of wild life."—*The WPA Guide to Illinois*, 1939.

With the influence of the Mississippi River and the major streams and creeks that drain into it, the MWFAA has historically supported a moderate diversity of aquatic species. Aquatic animals include 85 species of fishes, 48 species of native mussels, and 12 species of large crustaceans. Major tributaries to the Mississippi are Henderson Creek, Edwards River, Pope Creek, Ellison Creek, Honey Creek, Eliza Creek, and Dugout Creek. Henderson Creek was historically the power source for the Radmacher Mill, built from California redwood in the 1830s. The mill ground feed, flour, corn meal, and buckwheat.

Water-based activities in the MWFAA include boating, fishing, canoeing, and swimming. On April 30, 1886, 17-year-old Clara Augusta Lindbeck of Bishop Hill wrote fondly about Edwards Creek, where she enjoyed camping, rowing, and fishing, not always with success. "We went down fishing this afternoon but came back minus the fish." During a four-day camping trip along the Mississippi River she "was kept awake the remainder of the night by mosquitoes."

Fishes most common in the drainage include gizzard shad, common stonerollers, red shiners, emerald shiners, channel catfish, green sunfish, bluegill, common carp, sand shiners, bigmouth shiners, bluntnose minnows, white suckers, and Johnny darters. Three state-endangered species are listed in the MWFAA: the lake sturgeon, weed shiner, and western snail darter.

Among the species of native freshwater mussels historically supported are the giant floater, creeper, threeridge, Wabash pigtoe, mapleleaf, wartyback, pimpleback, plain pocketbook, fragile papershell, and three-horn warty back. Since 1980,



Michael R. Jaffords

*A Pied-billed Grebe, (state-endangered bird) emerges after a dive in a wetland.*

eight species have been found alive, all of which are relatively common. Five state-endangered species are listed in the area: spectaclecase, salamander mussel, sheepnose, Higgins eye, and the fat pocketbook. State-threatened species known from the region are the slippershell, purple wartback, elephantear, spike, ebonyshell, butterfly, and black sandshell. The scaleshell was also formerly found in this area but is now considered extirpated from all of Illinois.

The most common crayfish in the basin is the virile crayfish, which is usually present over rocky substrates or around woody debris or vegetation. The most widespread isopod is *Caecidotea intermedia*, found in rocky areas and on woody debris. The most prevalent amphipods are *Hyaella azteca*, which are seen on filamentous algae growing on rocks and logs, and *Gammarus pseudolimnaeus*, which reside in spring-fed headwaters.

Agriculture operations that introduce silt, herbicides, insecticides, organic fertilizers, and livestock sewage into streams cause most of the damage

to the region's aquatic biota. Despite the effects of pollution, silt, and dredging in the basin, populations of endangered or threatened species could increase, and natural communities could be re-established through improvements in water quality and habitat protection. Two essential waterfowl refuges—one state and one federal—exist along the Mississippi River in the MWFAA. There is also a proposal for the state to purchase 2,400 acres of floodplain near Oquawka in Henderson County to create waterfowl habitat.

#### Mammals

"We saw no bears, as they are now buried in the thickets, and seldom appear by day; but, at every few yards we saw recent marks of their doings, 'wallowing' in the long grass, or turning over the decayed logs in quest of beetles or worms: in which work the strength of this animal is equal to that of four men."

— Morris Birkbeck, 1817, written while crossing the Illinois prairie.

#### The Area at a Glance

Δ Born in 1878 in Galesburg to Swedish immigrants, folk musician and writer Carl Sandburg wove a thread of western Illinois' prairie country through his poetry, prose, and songs.

Δ The MWFAA's western border embraces 60 miles of the Mississippi River between Dallas City, Illinois, to the south and Muscatine, Iowa, to the north. The pools, bluffs, floodplains, and riparian areas along the river are part of the ecosystem known as the Upper Mississippi River Basin.



Michael R. Jeffords

*The northern river otter is one of two state-threatened or endangered mammals that reside in the assessment area.*

Despite occasional rumors of bear sightings, that particular mammal has long been extinct in the state. Of the 59 mammal species that still occur in Illinois, the MWFAA is home to 46 species or 79 percent. Although nine species of bats are included in that total, the silver-haired bat may be present only during spring and autumn migration periods. Only the brown bat is likely to hibernate in the assessment area during the winter. Because the MWFAA is directly north of the known Illinois range of the southeastern shrew, it may be possible that this species also occurs here. Two familiar exotic species occur: the Norway rat and the house mouse.

However, information gaps exist. The mammal fauna of the MWFAA has not been surveyed extensively. Records are limited for many species, even



Michael R. Jeffords

*The red fox is a beneficiary of prairie preservation and restorations in the Mississippi Western Five Assessment Area.*

common ones, and consequently the population status of many mammals in this area is unknown.

Of the eight mammal species listed as threatened or endangered in Illinois, two of them occur in the MWFAA: the federally and state-endangered Indiana bat and the state-threatened northern river otter. A lactating female Indiana bat was netted in 1989 along Jink's Hollow Creek in Henderson County and radiotracked to a roost tree. River otters have been caught and/or seen in Henderson and Mercer counties. Reports of river otters have increased dramatically during the last two decades in the middle Mississippi River and its tributaries.

The full potential for enhancement and restoration of mammal populations in the MWFAA will only be reached through preservation of the remaining upland and bottomland forests. The rivers and streams along the forests are vital corridors for wildlife. Maintaining and re-establishing riparian forests may help the bobcat, gray fox, and the river otter. Streambank stabilization and the reduction of silt and agricultural runoff into aquatic habitats and wetlands would enhance their ability to support river otters and minks. All bats, including the Indiana bat, as well as the southern flying squirrel, can be helped through the retention of large snags with exfoliating bark and cavities.

The preservation of prairie remnants and other types of grassland habitats, coupled with restoration and creation of prairies, would create habitat for the badger and red fox, along with other small grassland mammals. Prescribed burns or brush removal may increase the suitability of these sites. Finally, vegetation along railroad rights-of-way in the MWFAA should be preserved or restored to provide habitat and dispersal or travel corridors for mammals.

#### **Amphibians and Reptiles**

"And the frogs! What I still hear

in my dreams is the rising, bubbling sound of the swamp tree frogs, a thin 'pee-yee-yeep.' And the trilling tree toads who, like the stuttering black-billed cuckoos, prophesy rain."

—Donald Culross, 1959, "The Best State of the Fifty"

The 16 amphibian and 28 reptile species that can be found in the MWFAA represent 40 percent of the amphibians and 47 percent of the reptiles that live in Illinois. The assessment area contains the state-threatened western hognose snake and Blanding's turtle, and the state-endangered four toed salamander and Illinois mud turtle. The state-threatened timber rattlesnake is known to occur just outside the southern boundary of the MWFAA and it is possible that it also can be found within the assessment area, too, perhaps in the forested ravines north of the LaMoine River in southern Henderson County. Exotic reptile species appear not to reside here.

Opportunities for amphibians and reptiles in the MWFAA are fair. The presettlement habitat of sand prairie and the riparian landscape along the Mississippi River have been reduced or degraded. Still, the Mississippi River today provides dispersal opportunities for many species. This keeps the effects of fragmentation to a minimum by providing a key means of recolonizing habitats that have experienced local extinction. The Mississippi and its tributaries are indeed the riparian threads that tie the whole MWFAA together.

#### **STRIKING A BALANCE: INTRIGUING OPPORTUNITIES**

"Men may differ widely and vigorously in their views...but they can hardly stand and persist in acrimonious contention, without self-damage."

—Galesburg Democrat, 1857

The overwhelmingly rural nature of the MWFAA offers many opportunities to strengthen and expand key natural environments. The five natural divisions of the area offer unique and ample environmental resources. To enhance those resources, current ecological problems in the region will have to be addressed. The four main problems are habitat fragmentation, habitat degradation, exotic species invasion, and fire absence.

Ideally, habitat fragmentation could be alleviated with the re-creation of wildlife corridors to allow the resumption of biological interactions, ecological processes, species migration, and a reduction of habitat heterogeneity. Until that complex and costly goal can be accomplished, targeted management strategies should begin to maintain biodiversity within these fragmented habitats. Vegetation along railroad-rights-of-way should be preserved or restored to provide habitat and dispersal or travel corridors for mammals.

Removing such factors as over grazing and soil disturbances, for example, can minimize the widespread challenge of habitat degradation. The reintroduction of fire, intensive

vegetation management, and culling over-populations of deer are also useful tools in habitat improvement.

Biological control strategies have been proven helpful for the control and elimination of exotic species invasions that plague the MWFAA. Timed applications of fire eliminate the profusion of garlic mustard, for example, while the combined use of herbicides and cutting is recommended for controlling Amur honeysuckle and autumn olive.

Historically, fire was a beneficial ecological force for natural communities in the MWFAA. Many community types require fire to maintain their characteristics and diversity. Fire absence allows shade-tolerant species such as sugar maples to overtake traditional oak forests. (One only has to look at the maple forests that dominate the islands and shores along the Mississippi River to see the results of a fire-deprived habitat.) Along with that loss of oak forests is the loss of the flora and fauna that depended upon those forests. Spatially heterogeneous burns appear most effective in maintaining viable populations of fire-dependent and fire-sensitive species.

### The Area at a Glance

Δ Historically the home of the Sac and Fox tribes, three locations along the river within the MWFAA owe their names to Native Americans—Upper Yellow Banks or Denison's Landing, now New Boston; Middle Yellow Banks, just south of what is now Keithsburg; and Lower Yellow Banks or "Ozaukee," now Oquawka, named originally for its yellow sand.

Δ The root of the word Mississippi comes from the Ojibwa Indian term that means great river or gathering of waters.

Δ Even with only 20 percent of the basin in its natural state, the Upper Mississippi River and its natural areas support 200 species of fish and more than 300 bird species, including the largest population of breeding Bald Eagles in the lower 48 states.



Michael R. Jeffords

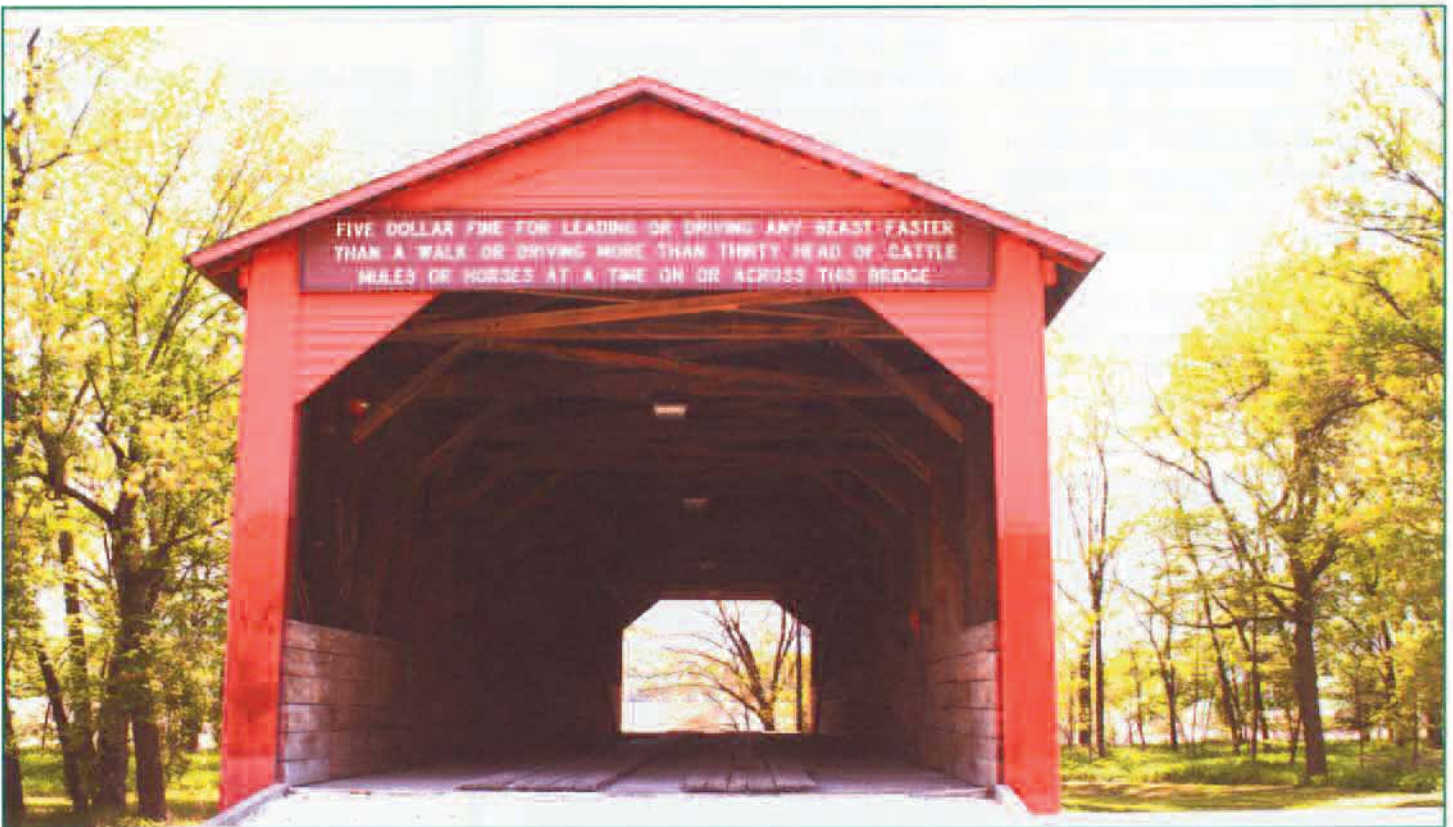
*An American toad (Bufo americanus) caught by the camera as it vocalizes to attract a mate.*

With 85 percent of the MWFAA's land currently used for agricultural purposes, the conservation of that land is a constant priority for the environmental health of the entire area. Area farmers used conservation tillage methods at a rate greater than the state average. In 1999, 44 percent of the MWFAA's acreage was farmed using those methods compared with 41 percent statewide. Henry County led

the area with the greatest percentage of acres planted using conservation practices.

The challenge of creating a future in which both the human and natural communities are sustained is one worth facing head on. The two communities are forever entwined. The recent establishment of the Mississippi Western Five Ecosystem Partnership will play a vital role in meeting that

challenge. The group—one of 39 partnerships in assessment areas that include 82 percent of the state's land area—has among its goals projects to promote and improve wildlife habitat and water clarity, and it hopes to develop partnerships with area landlords. One of the group's overriding missions is to “leave the land in better shape than we found it.” 🌱



Thomas Rice

*A Henderson County covered bridge spans Henderson Creek south of Oquawka. Built in 1866, the bridge serves as a symbol uniting the past, present, and future of the Mississippi Western Five Assessment Area.*



(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 among 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*, and is conducting regional assessments for areas in which a public-private partnership is formed.

*The Mississippi Western Five: An Inventory of the Region's Resources* is based on one of these assessments, the *Mississippi Western Five Area Assessment*. The assessment was compiled by staff of IDNR's Division of Energy and Environmental Assessment, Office of Realty and Environmental Planning; and the Illinois State Museum, the Illinois Waste Management and Research Center, and the Illinois Natural History, State Geological, and State Water Surveys of IDNR's Office of Research and Scientific Analysis.

*The Mississippi Western Five Area Assessment* and all other CTAP and Ecosystems Program documents are available from the IDNR Clearinghouse at (217)782-7498 or TTY (217)782-9175. Some are also available on the World Wide Web at:

<http://dnr.state.il.us/orep/ctap> and

<http://dnr.state.il.us/orep/c2000>

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

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