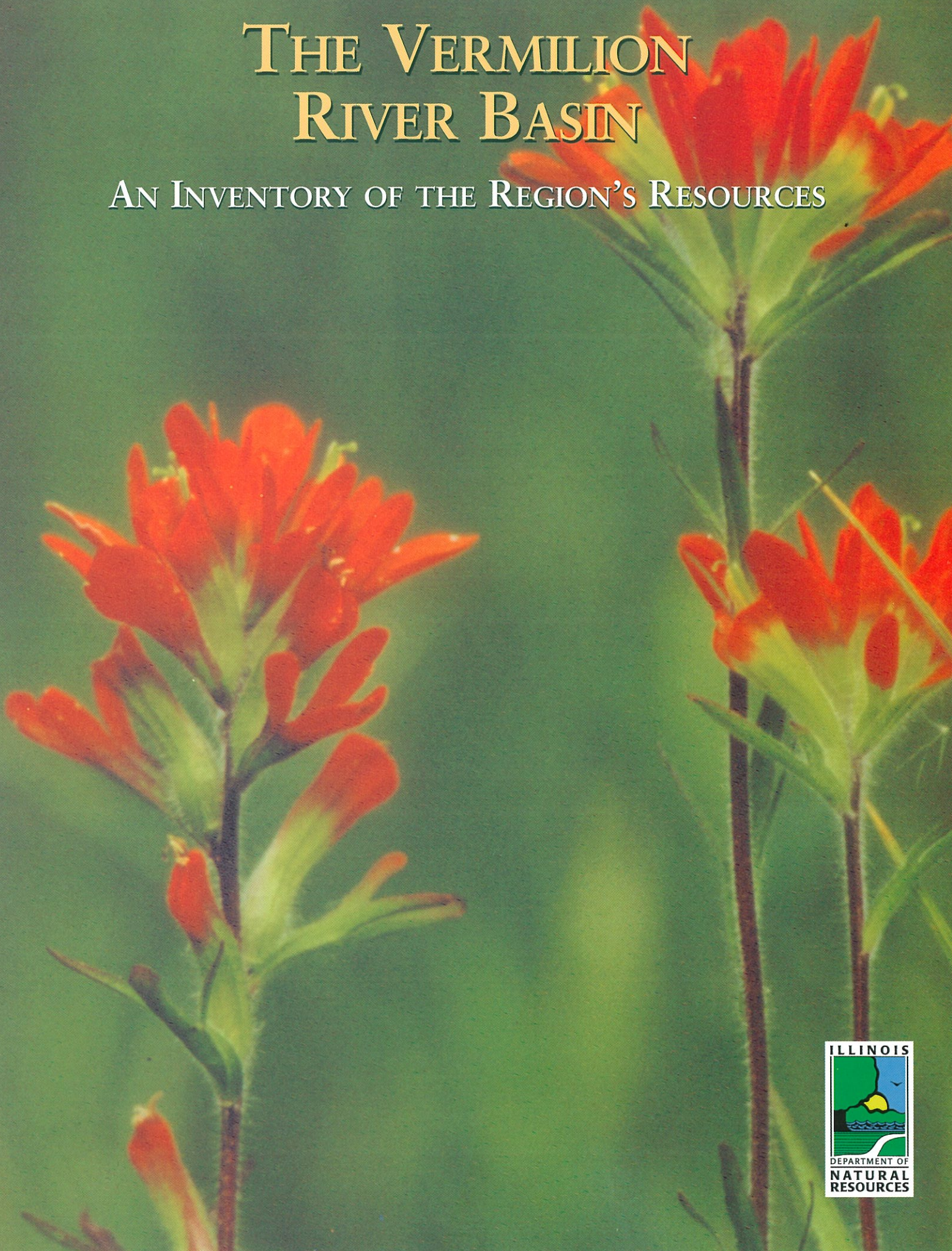


THE VERMILION RIVER BASIN

AN INVENTORY OF THE REGION'S RESOURCES



ABOUT THIS REPORT

The Vermilion 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 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. 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 programs 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.

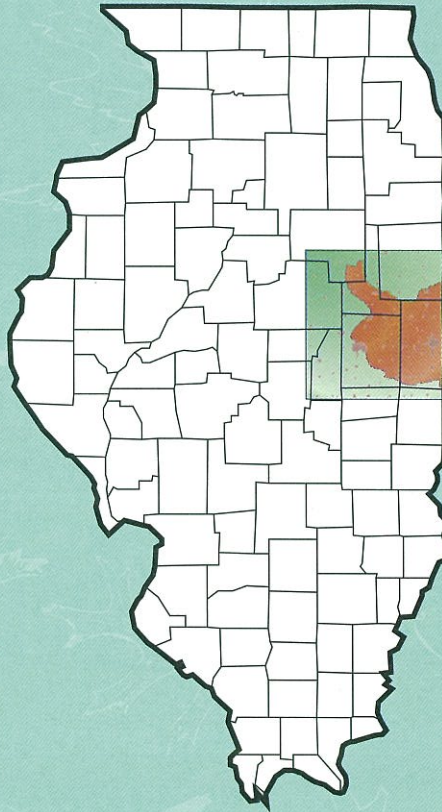
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A Project of the Critical Trends Assessment Program

THE VERMILION RIVER BASIN

AN INVENTORY OF THE REGION'S RESOURCES

2000



George H. Ryan, Governor
State of Illinois



Brent Manning, Director
Illinois Department of Natural Resources

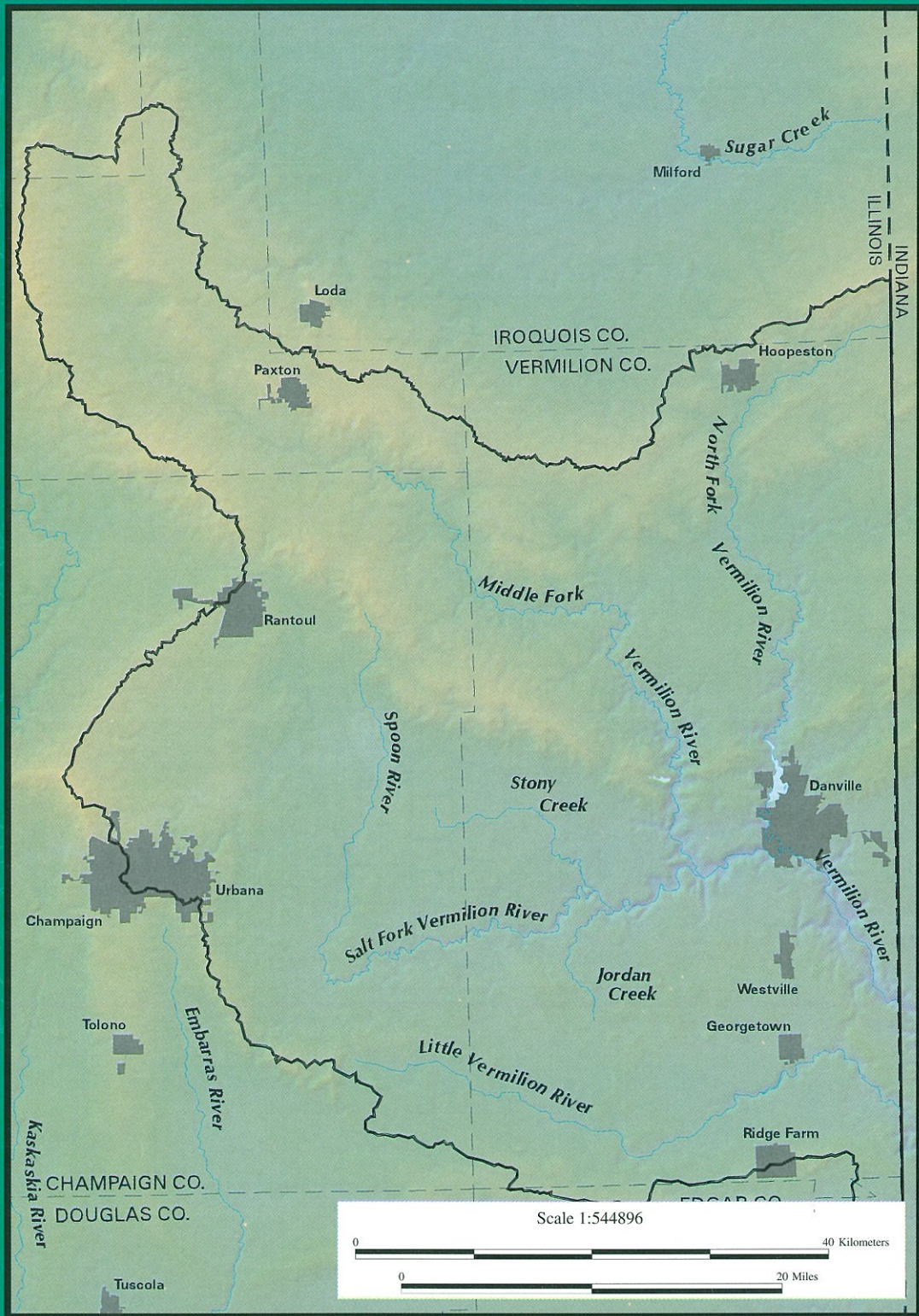


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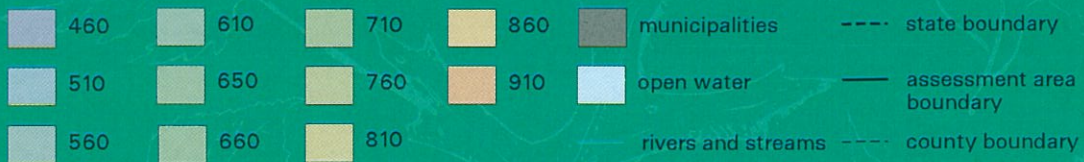
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Vermilion River Basin Landforms



Lisa Smith and Chris Goldsmith • Illinois State Geological Survey

Elevations in feet above mean sea level



The Vermilion River Basin

An Inventory of the Region's Resources



Michael Jeffords

The Salt Fork (above), got its name from the salt springs found along its banks. It is 71 miles long and has a drainage area of 506 square miles.

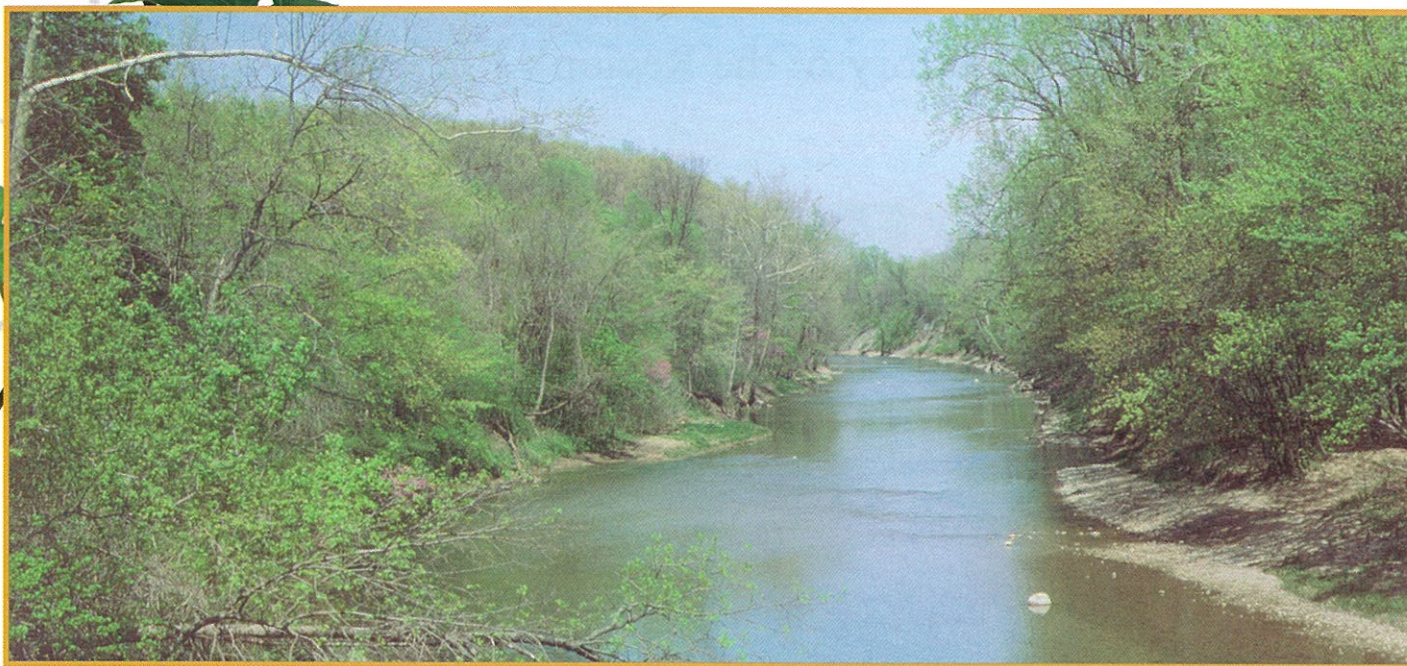
The Vermillion river is a beautiful stream of clear water. It takes its rise in the 'Grand Prairie,' and running a south-easterly course for 40 or 50 miles, falls into the Wabash."

— Chester Loomis, 1825, *A Journey on Horseback through the Great West in 1825*

The Vermilion River is a place of wild orchids, river otters, and colorful

darters. The trees along the river offer an oasis for migrating songbirds; 15 to 20 species may be sighted in a single stretch, their colorful plumage decorating the ephemeral spring trees. Hollow trees provide vital nests for woodducks, while the river below provides "a soft landing" for chicks diving from nest to water. If Chester Loomis visited today, he would see a

refuge and oasis for many of the living things taken for granted, an area that boasts Illinois' first prairie restoration nature preserve, first river nature preserve, first park reclaimed from strip-mined land, Illinois' only National Wild and Scenic River, and the Vermilion River Ecosystem Partnership.



James P. Rowan

The Middle Fork of the Vermilion River (above), is Illinois' only National Wild and Scenic River. From its mouth to Knights Branch, the Middle Fork is rated a Class "A", highest quality, stream by the Biological Stream Characterization index. For centuries, its waters served as a forest-shaded canoe trail.

The Setting

"This is on the borders of the 'Grand Prairie,' and is here a most delightful country. This township is well watered by the Vermillion River and its tributary streams, and is rolling and uneven for this country. Fine springs of durable water are common, even in the prairies. These open plains or prairies are too extensive for good settlements; yet that portion of the country which is wooded is valuable for the kind and quality of its timber as well as the surprising fertility of soil."

— Chester Loamie, 1825, *A Journey on Horseback through the Great West in 1825*

The Illinois portion of the Vermilion River basin is found along the Illinois/Indiana border and includes both the Vermilion and Little Vermilion river systems. The basin encompasses most of Vermilion County and portions of Champaign, Ford, Iroquois, Livingston, and Edgar counties.

About one million years ago this area was drained to the west by the Mahomet (Teays) River, a predecessor of the Ohio. By the end of the Wisconsin Episode glacier all evidence of the Mahomet bedrock valley was buried. Terminal and recessional moraines, produced by the numerous advances and recessions of the glaciers, caused new drainage patterns to be developed south and east to the Wabash. The moraines also acted as new drainage divides.

Today the surface is a flat, hummocky plain broken only by low morainal ridges. Valleys and ravines have been carved by the Vermilion River and its tributaries, some 50 to 100 feet deep, with sides so precipitous that little or no vegetation is found on them. The rivers have broad floodplains originally formed by glacial meltwater and include terrace deposits and many meander scars.

Unusual features of the Vermilion basin include calcareous seep springs, oak savannas, hill prairies on west-facing blufftops, and tulip trees growing in beech-maple forests of ravines and adjacent uplands. These diverse features testify that the Vermilion River and its tributaries lie in a tension zone between the beech-maple forests of the east and the prairie peninsula and oak-hickory vegetation to the west.

Cropland is the principal land cover in the area, representing 76.7% of the total surface area. Only 4.3% (41,273 acres) of the area is forest and woodland, the highest concentrations of which are associated with the steeper sideslopes of the Middle Fork, Salt Fork, and North Fork tributaries. Wetlands cover only 1.0% (9,438 acres) of the total surface of the area, compared to 3.5% of the total area of the state. The paucity of wetland habitat attests to the extensive cultivation of the area.

The River Basin

“The Vermilion River was called ‘Piauk-e-shaw’ by the Miami Indians. This word describes the red earth that is produced by the burning of the shale that lies over the coal seam ... the latter igniting from the autumnal fires. This chalk is found in great abundance and the Indians used it as paint. The French translated this to Vermilion which means the same in English — red or reddish.”

— Carl Davis, 1993, *The Geology of Vermilion County and Nearby Geologic Sites*

The Vermilion River drains 1,485 square miles in east central Illinois, of which 1,238 square miles are drained by its three largest tributaries — the Salt Fork, Middle Fork, and North Fork. The river is formed by the confluence of the Middle Fork and the Salt Fork near Catlin; the North Fork enters it near Danville. The Little Vermilion drains 213 square miles and is 50 miles in length. The Vermilion River flows into the Wabash River near Cayuga, Indiana, while the Little Vermilion enters it near Newport, Indiana.

The Vermilion River lies over a buried bedrock valley, but has not eroded through the deep glacial deposits. Only in the lower reaches does the river flow over bedrock. The main stem has a substrate of sand, gravel, and rubble with a small amount of localized silt. The average width is 109 feet and the length is 23 miles. The Salt Fork, which acquired its name from the salt springs found along its banks, has its headwaters near Rantoul and drains much of Champaign County. It has a gravel, rubble, and sand substrate, is 71 miles in length, and has a drainage area of 506 square miles.

The Middle Fork originates in Livingston County, has a substrate of

predominantly sand and gravel, is 83 miles long, and has a drainage area of 438 square miles. The Middle Fork could have been called Kickapoo Fork, as the river rises in the morainal prairie near the site of the Grand Village of the Kickapoo Indians. For centuries the waters of the Middle Fork served as a forest-shaded canoe trail. Of the three tributaries to the Vermilion, the Middle Fork has the best water quality, and is a free-flowing, relatively undegraded representative of what once occurred in the basin.

The North Fork originates in Iroquois County and has a sand, gravel, and rubble substrate. The stream is 62 miles long, has a drainage area of 292 square miles and is impounded to form Lake Vermilion.

The substrate of the Little Vermilion is gravel and sand. The upper portion of the river has been dredged and the river was impounded in 1936 near the city of Georgetown to create the Georgetown Reservoir.

In 1908, C.W. Rolfe, a geologist with the University of Illinois wrote: “In comparison with most Illinois streams, however, the waters of the Big Vermilion are in general fairly clear, and the bottoms relatively clean, forming a transition from the typical prairie streams to those characteristic of the adjacent Allegheny plateau.” Likewise, in comparison with other streams today, the Vermilion River still does well. Eight streams in the basin are recognized as Biologically Significant because they support threatened or endangered species or have high mussel and fish diversity. The segments, some of which include the entire stream, cover 190.97 miles and include the North Fork from Lake Vermilion to the state line, Spoon River (a small stream in Champaign

The Area at a Glance

△ Found within the Vermilion River basin is the first prairie restoration nature preserve, the first river nature preserve, the first park reclaimed from strip-mined land and Illinois’ only National Wild and Scenic River.

△ The Illinois portion of the Vermilion River basin is found along the Illinois/Indiana border and includes both the Vermilion and Little Vermilion river systems. The basin encompasses most of Vermilion County and portions of Champaign, Ford, Iroquois, Livingston, and Edgar counties.

△ The area’s land surface is a flat, hummocky plain broken only by low morainal ridges. Valleys and ravines have been carved by the Vermilion River and its tributaries, some 50 to 100 feet deep, with sides so precipitous that little or no vegetation is found on them.

△ Unusual features of the Vermilion basin include calcareous seep springs, tulip trees growing in the beech-maple forests of the ravines and adjacent uplands, oak savannas, and the occasional hill prairies on west-facing bluffs.



Chester Loomis

During the summer of 1825, Chester Loomis of Rushville, New York, had the opportunity to trek west by horseback to conduct business in the new state of Illinois. With this journey, he hoped to satisfy his “ardent desire to ascertain from personal observation, the general character, and prospects of that extensive section of the country, embraced within the states of Pennsylvania, Ohio, Indiana and Illinois.” He began his journey on

June 1st and arrived in Illinois on June 26 where he finds “a most delightful country” that is “well watered by the Vermillion River”. He spent four days in this area. Chester Loomis described the country as “new” and wrote with enthusiasm of its potential for exploitation. In his later years, he published a book of his observations, *A Journey on Horseback Through the Great West in 1825*, which provides a glimpse of the area prior to settlement.

County), Little Vermilion River, Vermilion River, the Middle Fork, Jordan Creek, Stony Creek, and Salt Fork from County line to the Middle Fork.

The exceptional qualities of the Middle Fork were recognized nationally when it was designated a National Wild and Scenic River — a designation based on outstanding scenic, ecological, recreational, and historical characteristics. It is the only river in Illinois to receive this honor. State scientists have also recognized the significant natural community diversity in portions of the Middle Fork and the lower subbasin of the Vermilion River, both of which have been designated a “Resource Rich Area”.

Geology

“Coal was distributed through Vermilion County with a lavish hand by nature back in the prehistoric days and despite serious depressions in coal mining in the seventies and again during

the past few years, coal is the county’s greatest natural resource.”

— Jack Moore, 1930, *History of Vermilion County, Illinois*

Sand dunes, kames, entrenched meanders, cyclothems, and dog mines — all are exotic-sounding geologic features of the Vermilion River area. Two geological time periods are well-represented here, the Pennsylvanian (the age of coal) and the Quaternary (the age of glaciers).

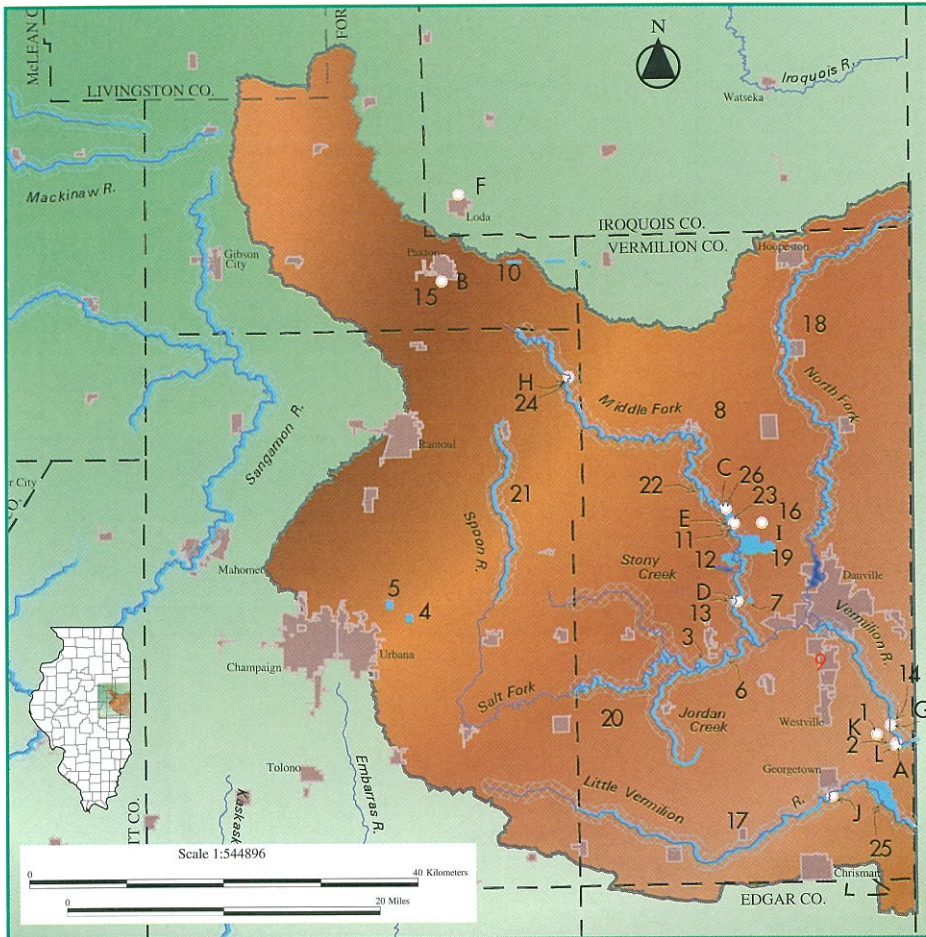
The bedrock strata that immediately underlie most of the surficial materials in the Vermilion River area are Pennsylvanian in age. They were formed from sediments that were deposited some 290 million years ago when what is now Illinois was covered by shallow seas with large swamps near the shore. These wet, swampy areas supported a lush forest of large trees, tree and seed ferns, and giant scouring rushes. As the plants fell into the swampy waters, they were partially preserved, buried by later sediments

and eventually converted into coal. Pennsylvanian-age bedrock is classified by cyclothems, which are based on this cyclical sedimentation. To view a cyclothem, take the Willow Branch trail in Forest Glen Forest Preserve. At trail marker three look at the far bank of Willow Creek; a large stream cut reveals a cyclothem with a six-foot coal seam. Also along Willow Creek, at trail marker six, is an opening with a metal tube inside it. This hole was the opening to an old “dog mine”, a one-person coal mine. Such mines were used by families in the early 1900s to produce coal for their own use or to sell to neighbors for extra income.

Other landscape features resulted from the multiple glacial advances across the region. The glaciers left moraines, terraces, kames, an entrenched meander, and sand dunes. A succession of moraines (deposits that mark where a glacier melted and advanced at the same rate) arc across the land surface. These moraine ridges generally trend northwest to southeast, then continue to loop around to the east. The Bloomington Moraine, a prominent feature of the Oakwood area, is one of the largest in Illinois and represents the southernmost extent of a readvance of a glacier some 15,000 years ago.

As the glaciers melted, water poured down the Wabash Valley, rapidly deepening it. In addition, glacial Lake Watseka, located to the north, breached the Chatsworth moraine. Its outwash material flowed south following what is now the course of the North Fork of the Vermilion. The valley of the Vermilion River, including the Salt Fork, became entrenched below the upland. The river cut its channel 60 feet below the upland into the Pennsylvanian bedrock. A large meander, referred to as the Horseshoe Bend

Natural Areas, Nature Preserves, and Biologically Significant Stream Segments






Illinois Natural Areas Inventory Sites

1. Willow Creek Seep
2. Russell M. Duffin Nature Preserve
3. Horseshoe Bend
4. Trelease Woods
5. Brownfield Woods
6. Camp Drake
7. Harmattan Stripmine
8. Middle Fork, Vermilion River
9. Vermilion River
10. Clarence West Railroad Prairie
11. Windfall Prairie
12. Orchid Hill
13. Middlefork Woods
14. Forest Glen Seep
15. Prospect Cemetery Prairie
16. Fairchild Cemetery Prairie and Savanna
17. Little Vermilion River
18. North Fork, Vermilion River
19. Kennekuk Cove County Park
20. Salt Fork, Vermilion River
21. Spoon River
22. Kinney's Fork Seep

23. Middle Fork Seep
24. Tomlinson Pioneer Cemetery Prairie
25. Harry "Babe" Woodyard SNA
26. Horseshoe Bottom

Illinois Nature Preserves

- A. Russell M. Duffin
- B. Prospect Cemetery
- C. Horseshoe Bottom
- D. Middle Fork Woods
- E. Windfall Prairie
- F. Loda Cemetery Prairie
- G. Forest Glen Seep
- H. Tomlinson Pioneer Cemetery Prairie
- I. Fairchild Cemetery Savanna
- J. Carl Fliermans' River
- K. Howard's Hollow Seep
- L. Doris Westfall Prairie Restoration

-  = Nature Preserve
-  = Natural Area
-  = Biologically Significant Stream

The Area at a Glance

△ Today, cropland is the principal land cover in the area, representing 76.7% of the total surface area.

△ Only 4.3% (41,273 acres) of the area is composed of forest and woodland cover, most of which is concentrated on the steeper sideslopes of the Middle Fork, Salt Fork, and North Fork tributaries.

△ Wetlands cover only 1.0% (9,438 acres) of the total surface of the area, compared with 3.5% of the total area of the state. The paucity of wetland habitat attests to the extensive cultivation of the area.

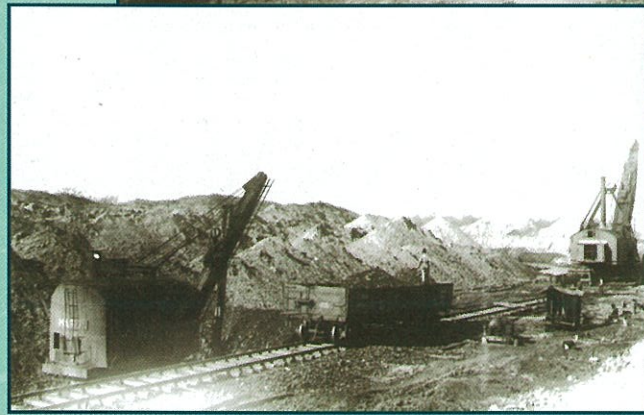
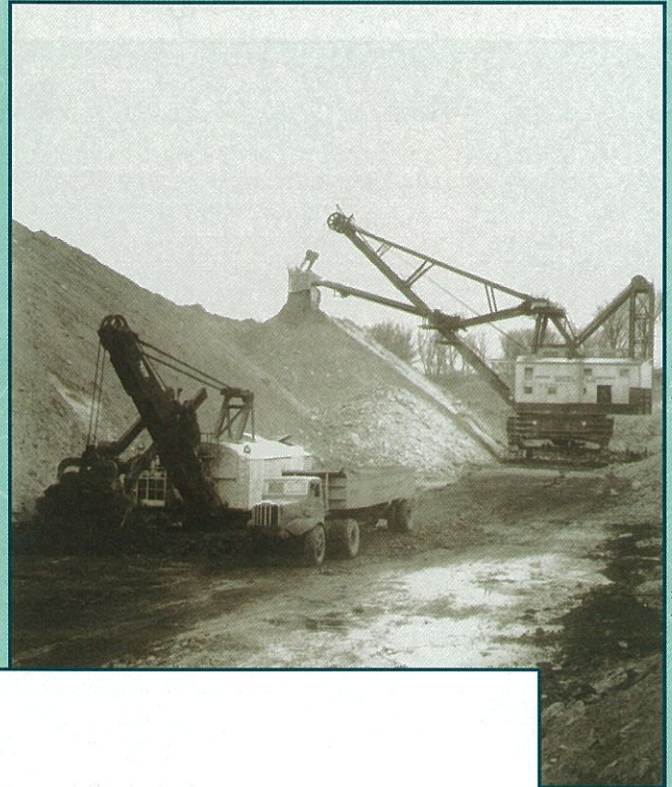
△ Eight streams in the Vermilion River basin are recognized as Biologically Significant because they support threatened or endangered species or have high mussel and fish diversity. These segments, some of which include the entire stream, cover 190.97 miles.

Mining

Coal

The coal industry has long been an important component of the Illinois economy, and the Vermilion River area was no exception. The first coal mines in the county were opened in the 1850s. In 1882, the first yearly report of coal operations showed Vermilion County with 22 mines and 1,024 employees producing 343,000 tons of coal. From 1887 to 1899, Vermilion County ranked first in Illinois coal production with 4,000 miners employed. Throughout the early 20th century, mining would dominate the local economy. One of the largest coal mines in the United States (the Bunsenville Mine) was located near Georgetown. In its peak year of 1927, 3,000 miners produced 1.2 million tons of coal. The mining heyday would soon be over, however, and by 1966 there were only six mines, employing 137 men, with a production of 828,300 tons. Today, there is only one operational coal mine in the Vermilion area. In total more than 30 million tons have been mined from the area, leaving behind about 5.5 square miles that were surface strip-mined and about 35 square miles (310 mines) that were mined underground.

Most of the mining in the area extracted coal from two coal seams: the Danville (No. 7) Coal member and the lower Grape Creek seam, known today as the Herrin (No. 6) Coal Member. These coals occur west of a line from Humrick to Grape Creek to the center of Danville to Armstrong. This line marks where the coal comes to the bedrock surface and was found exposed along some river banks. The first recorded strip-mine in the United States opened in 1866 in the Herrin Coal near the town of Grape Creek. The overburden (consisting of shale and glacial material) in this mine was removed by horse-drawn plows and scrapers and hauled away in wheelbarrows and carts. Only a small amount of coal was produced by these means. In 1911, however,



power shovels appeared in Vermilion County, and through 1922 the county was the only one in Illinois to report coal production by strip-mining. The power shovel, invented by two Danville men, the Hartshorn brothers, had an immense steam-powered coal shovel that weighed 150 tons and had a 3 1/2-yard bucket. The shovel soon revolutionized commercial strip mining. In 1966, more than 90% of the coal mined in Vermilion County was from stripping operations.

Mining

Salt

A rare commodity on the frontier, salt was the “gold” that lured adventurers to the mid-west during the early 1800s. The Vermilion Salines was the lure that brought Vermilion County its first settlers and provided the incentive for the first non-farming industry in the county. The salt springs, located a few miles east of the Horse Shoe Bend of the Salt Fork, were first used by the Kickapoo and Pankeshaw tribes and later by settlers. The first well was drilled in 1819 near the junction of the Salt and Middle Fork rivers, but it wasn't until 1824 that full scale production began at the “Salt Works”. Wells were sunk an average of 50 feet; many times it was necessary to drill through solid rock. Salt was produced by boiling the water (brine) from these wells in large iron kettles. The degree of fineness of the salt depended upon the rapidity of evaporation. Wood fueled the process, which kept several men busy felling trees and hauling timber to keep the furnace fires going.

About 100 gallons of brine were needed to produce one bushel of salt, which sold for \$1.50. Sixty to eighty bushels was a good week's run. Settlers traveled from miles around to get salt, which provided an incentive to build roads in the area. The settlers' motto was “more wagon roads to the salt works”. The “Salt Works” lasted until the 1830s. The salt industry died here when other salt fields were discovered at about the same time that canals and railroads were being built and Chicago opened as a port, all of which increased transportation to the middle west. It is ironic that while wood was cut at great expense to provide fuel for the furnaces at the “Salt Works”, coal was showing above ground not two hundred feet away. Ultimately, coal was to become Vermilion County's greatest mineral asset, long after the “Salt Works” were forgotten.

of the Salt Fork, is located south of Oakwood and is a reminder of this event. Eventually the river will cut through the meander and shorten its course by 1.5 miles.

East of Rossville is an area of sand two miles wide and three miles long that has been blown into dunes. Sand dunes in the middle of a field might at first glance appear odd, but these too are the result of glacial ice. They were caused when the valley of the North

Fork filled with outwash from a melting glacier or with valley train deposits (outwash that has been deposited in a stream valley) from the draining of ancient Lake Watseka.

The geological resources of the Vermilion basin are an important part of its economy. This area is the northeast boundary of a great coal field that occupies a much greater portion of Illinois (see sidebar). At present, there is only one active coal mine — an

The Area at a Glance

△ The Middle Fork is Illinois' only National Wild and Scenic River, a designation based on its outstanding scenic, ecological, recreational, and historical characteristics.

△ Portions of two subbasins, the Middle Fork and the lower subbasin of the Vermilion River, have been designated “Resource Rich” areas because they contain significant natural community diversity.

△ Two geological time periods are well-represented here, the Pennsylvanian (the age of coal) and the Quaternary (the age of glaciers). The bedrock strata that immediately underlie most of the surficial materials in the Vermilion River area are Pennsylvanian in age, while the landscape features of the area result from the multiple glacial advances across the region. The glaciers left moraines, terraces, kames, an entrenched meander, and sand dunes.

△ East of Rossville is an area of sand that has been blown into dunes. Sand dunes in the middle of a field might at first glance appear odd, but these are the result of glacial ice. They were caused when the valley of the North Fork filled in with outwash from a melting glacier or with valley train deposits (outwash that has been deposited in a stream valley) from the draining of ancient Lake Watseka.

underground mine near Georgetown with an annual output of 1 million tons. Today, sand and gravel are the most economically important geologic resources produced in the area. These deposits are located in kames, gravel terraces, and sand dunes. Kames are formed from sand and gravel accumulated in the hollows of a melting glacier; when the glacier finally melted a large mound of sand/gravel was dumped to form a hill. Unfortunately, this unique geological feature disappears as the sand and gravel is mined. In 1997, six pits were producing sand and gravel. In addition, limestone is produced from one quarry.

Early Inhabitants

“The Collins Site, renamed by me for its last private owner, Andrew Collins, has been the focus of scattered ‘archaeological’ attention for at least 35 years: . . . Collected materials from the Collins site touch all bases from Early Archaic on the Griffen scheme of periods and sub-periods, with by far the heaviest representation among Late Archaic and Woodland remains.”

— John Douglas, 1976 PhD dissertation
Collins: A Late Woodland Ceremonial Complex in the Woodfordian Northeast

During the waning stages of the Ice Age, the first Native Americans began to arrive in Illinois. They first settled along the state’s rivers and streams, including the Vermilion. The archaeological database for the Vermilion River area indicates that the region was continuously occupied for the last 12,000 years, in spite of major changes in both social and physical environments. A total of 913 archaeological sites have been recorded here. While this figure may seem large, most sites have been

recorded simply as unidentified historic or unidentified prehistoric sites. In reality, only 2% of the total Vermilion area has been subjected to a systematic archaeological survey.

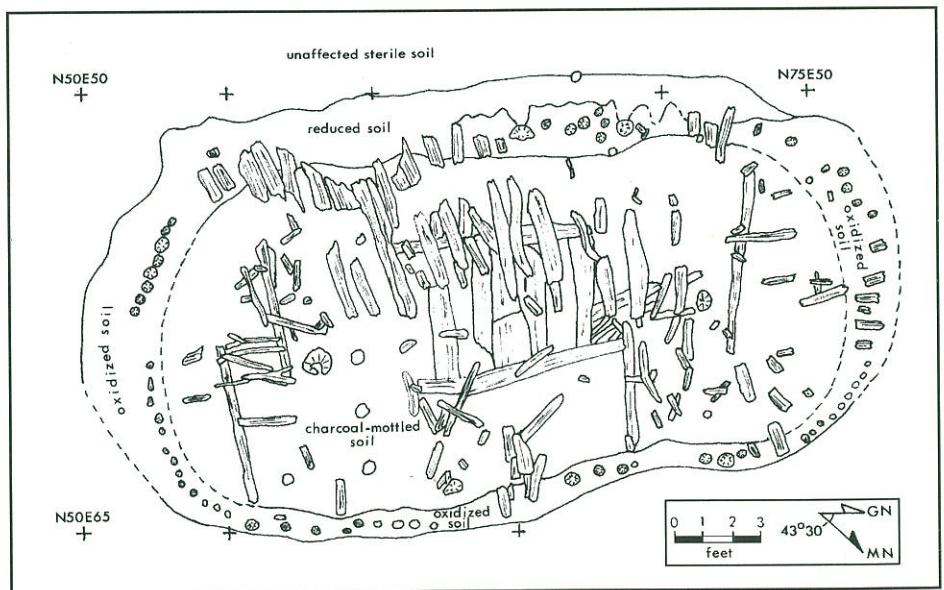
In the sites discovered so far, two periods dominate — Woodland (1000 B.C.-300 A.D.) and Mississippian (900 A.D.). A cluster of Late Woodland settlements and a platform mound covering more than 42 acres (the Collins Site) is situated on a Middle Fork River terrace remnant. The area has been identified as a major Late Woodland and Mississippian ceremonial complex; three sites in the complex are on the National Register of Historic Places. It is unusual to find Mississippian components this far north, as the Mississippian period was usually associated with major river valleys (Mississippi, Illinois, and Ohio). Andrew Collins, the site’s namesake,

was an artifact collector himself. He claimed on occasion “to plow as deep as his equipment would allow in order to see what might surface.” Yet he rarely, if at all, penetrated to the primary contents.

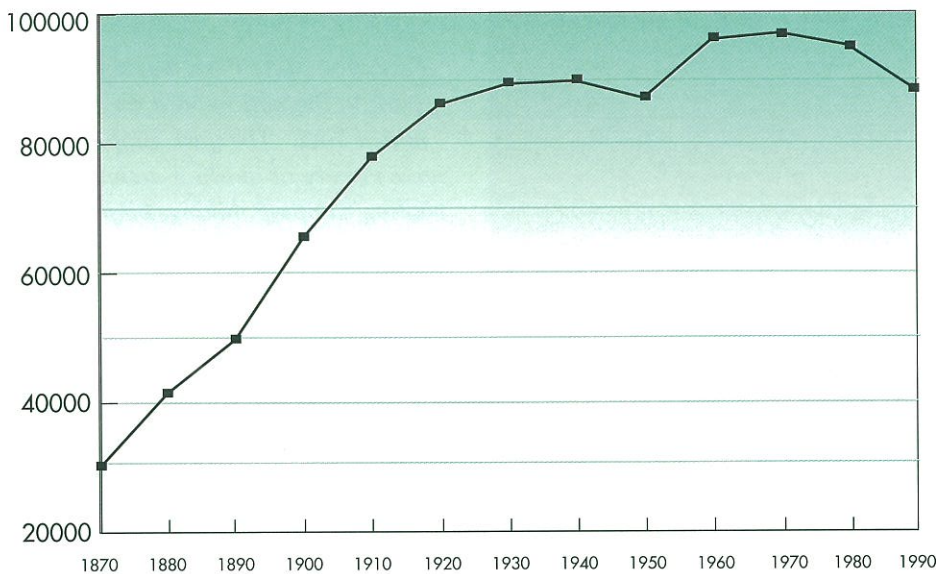
Human Resources

“It was man’s craving for salt that led to the first settlement of Vermilion county, Illinois, in the fall of 1819 . . .”
— Clint Tilton, 1932, *John W. Vance and the Vermilion Salines*

The salt works (see side bar) were the nucleus for Vermilion County’s first settlements. The earliest settlers had clung to the timber, believing that the prairie could never be settled. Later on, when they saw that their “cattle ranges” were beginning to be encroached upon by farms moving into the prairie, many of them moved on. The remaining settlers learned they could live away from the timber,



The uppermost structural elements of the Indian Springs Mound at the Collins Complex, (the unfilled outlines are stains in the floor of the structure). From Collins: A Late Woodland Ceremonial Complex in the Woodfordian Northeast. Adapted from maps and aerial photographs courtesy of Chicago Aerial Survey and Division of Waterways.



Vermilion County Population Trends

and settlement of the prairies began. The first permanent settlement was established in 1821 at Butler's Point, west of Catlin. Six years later, Danville, four miles from the salt works, was founded as the county seat. It was planned as a river town — its earliest residents envisioned steamboats traveling from New Orleans and points east on the Ohio River. The Vermilion River, however, was too shallow and the river traffic never materialized.

At present, Vermilion County has three cities and 17 villages ranging in population from 182 to 33,828. Danville is the largest municipality in the county and is still the county seat. Less than one percent (0.8%) of the state's population is located in Vermilion County, which has a population density of 98 persons per square mile. In terms of both employment and earnings, the county's economy has declined. For the past 25 years employment has fallen an average of 0.2% annually, while it has grown 1.2% statewide. Per capita income is \$5,000 lower than the statewide

average, ranking the county 59th in the state.

The economy of both the state and the country has changed from a manufacturing base to one of services. While Vermilion County has followed this trend, manufacturing has retained its importance here, providing a higher percentage of jobs than normally found statewide. For residents in the north, west central, and south central part of the county, agriculture is a significant employer. Around Danville, the service sector is the predominate employer, with the Veterans Health Administration and Provena Health Care the largest employers in the city and county.

Agriculture

"The few inhabitants in this quarter who have fields of wheat are now harvesting. Their crops are as good in quality and quantity as grow in New York. Flax and oats grow here equal to any produced in any eastern state; corn is almost spontaneous, and cotton, indigo, and sweet potatoes, are cultivated."

— Chester Loomis

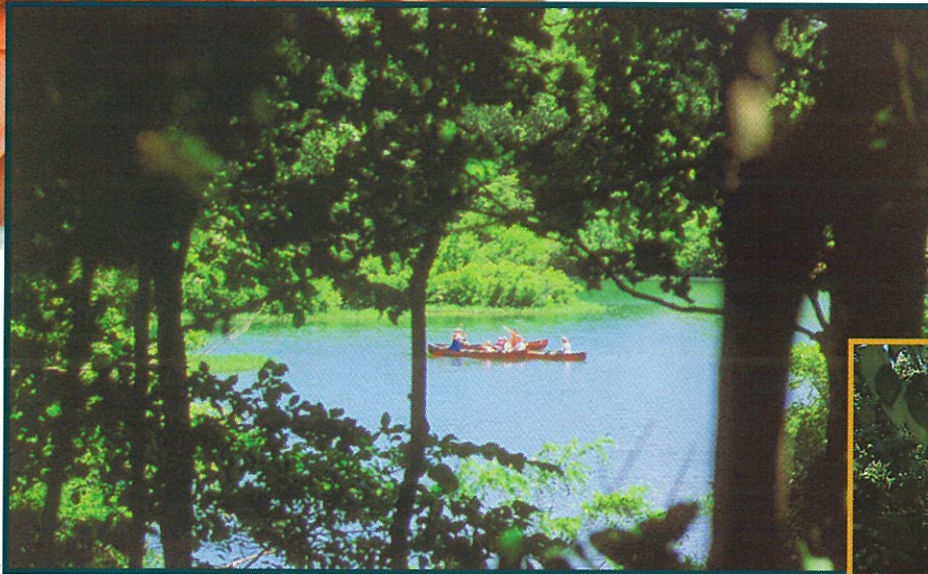
The Area at a Glance

△ The archaeological database indicates that the region was continuously occupied for the last 12,000 years. A total of 913 archaeological sites have been recorded here. In the sites discovered so far, two periods dominate: Woodland (1000 B.C.-300 A.D.) and Mississippian (900 A.D.).

△ A cluster of Late Woodland settlements and a platform mound covering more than 42 acres (the Collins Site) is situated on a Middle Fork River terrace remnant. It has been identified as a major Late Woodland and Mississippian ceremonial complex and is on the National Register of Historic Places.

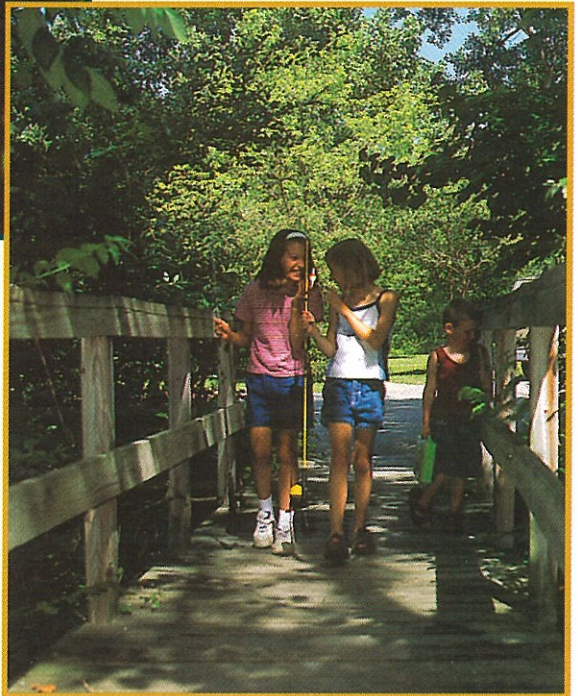
△ The salt works were the nucleus of Vermilion County's first settlements. The first permanent settlement was established at Butler's Point, west of Catlin, in 1821.





Joel Dexter

Kickapoo State Park was the first park in the nation built on strip-mined land. The park supports a wide variety of outdoor activities including camping, hiking, biking, picnicking, hunting, fishing, boating, even scuba diving.



In Vermilion County, like the rest of the fledging state, agriculture was small scale, a necessity if you wanted to survive. Most of the land was still prairie and forest. Today, Vermilion County has 87% of its land in agriculture and ranks sixth in the state in the amount of cropland. Of the county's total farm receipts, 93% are from crops and 7% are from livestock. Corn and soybeans dominate with Vermilion County ranking in the top ten statewide in the production of both. The county also has 3% of the state's farms that plant vegetables, sweet corn, or melons, but less than 1% of both the state's livestock cash receipts and the statewide cattle and hog inventories. With an average annual inventory of 31,800 hogs and 11,017 head of cattle, the county's livestock inventories have steadily decreased since the early part of the 20th century, when livestock was more prevalent.

Outdoor Recreation

"Canoeing the Middle Fork is a favorite pastime for many local canoeists. Although the relatively steep grade of the river makes for an

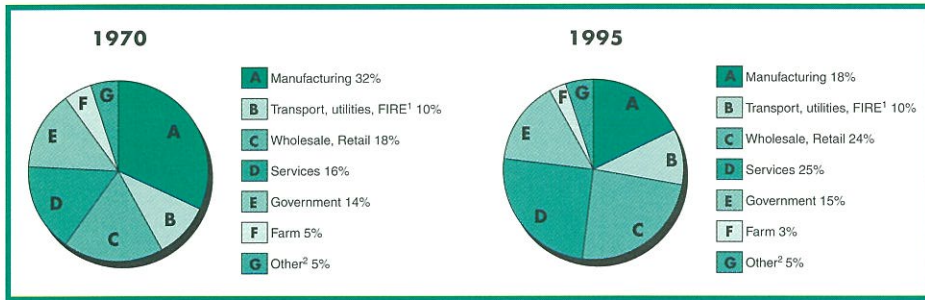
enjoyable ride, there are no white water rapids to speak of, except after spring runoff and heavy thunderstorms. The many sand and gravel bars that occur along the river are favorite spots for an afternoon picnic or overnight camping."

— John Helfrich, April 1986, *Champaign News Gazette*

Almost one percent (0.66%) of the Vermilion area has been set aside by state or county government as state parks, fish and wildlife areas, and forest preserves. County parks total more than 8,200 acres while state lands include one state park (2,850 acres) and one fish and wildlife area (4,220 acres). Eleven sites, totaling 522 acres, are dedicated as Illinois Nature Preserves — one in Ford County, one in Champaign County, and nine in Vermilion County.

The Middle Fork River is the setting for both of the area's major state-owned sites — Kickapoo State Park and Middle Fork Fish and Wildlife Area. Kickapoo State Park, located west of Danville, covers 2,850 acres.

It was the first park in the nation to be built on strip-mined land and the purchase was largely funded through contributions from Danville-area residents. Between 1850 and 1940 most of the park was strip-mined for coal, leaving the landscape scarred by spoil piles and mine pits. During the past 50 years, however, the landscape has been reclaimed by nature. The strip lands are covered with bottomland forests of sycamore, maple, bur oak, and walnut. The understory contains a profusion of spring wildflowers, from hepatica to squirrel-corn. The park offers a variety of recreational activities, ranging from the usual fishing, canoeing, and hiking, to the more



¹ Finance, insurance, and real estate ² Construction, mining, and agricultural and forestry services

Changes in Vermilion County Employment Distribution

novel, such as winter wilderness runs and scuba diving. Kickapoo State Park ranks 13th in attendance among the 130 Illinois Department of Natural Resources' sites.

Located north of Kickapoo State Park is the 4,200-acre Middle Fork Fish and Wildlife Area. The land was purchased with the intent of developing a 3,300-acre reservoir for a water supply and for recreation. Fortunately, the reservoir plan was abandoned and the area's river flood plain, upland forest, and upland fields are now used for wildlife habitat and recreation. The area offers hiking, fishing, hunting, a trap and archery range, and canoe access to the Middle Fork River. Among bird watchers this area is known for its hawks, owls, breeding warblers, and sparrows. In the fall, the area has one of the larger gatherings of ruby-throated hummingbirds in the state.

In addition to the state-owned sites, both Champaign and Vermilion counties have several recreation areas on or near the Vermilion River system. In eastern Champaign County there are two forest preserves — Middle Fork River Forest Preserve and Salt Fork River Forest Preserve. Both sites offer hiking, boating, fishing, and solitude. In Vermilion County, recreation may be found in its conservation district parks — Forest

Glen (see side bar), Kennekuk Cove, and Lake Vermilion County park.

With the many recreation sites, it is no surprise that Vermilion County accounts for 3.3% of the fishing licenses and 1.0% of the hunting licenses in Illinois (despite having only 0.7% of the state's population). Boat ownership per capita also exceeds the statewide average. While Lake Vermilion, the Vermilion River, and the Middle Fork of the Vermilion are notable fishing sites, perhaps the most popular is Kickapoo Lakes, the cluster of small lakes at Kickapoo State Park. Popular game fish include largemouth bass, bluegill, crappie, and channel catfish. Deer is the most popular game animal and, unlike most of the state, archery deer hunters outnumber long gun hunters and account for more than half of the annual harvest.

Vegetation History

"The surface of the country presents considerable variety. The northern and southern portions are high rolling prairies, the eastern arms of Grand Prairie, more or less broken by sloughs and small streams ... In its [Vermilion] entire length within this country, it runs through a belt of timber varying from two to four miles in width."

— A.H. Warthen, 1870,
Geology of Vermilion County

The Area at a Glance

△ In terms of both employment and earnings, the economy of Vermilion County has declined. For the past 25 years employment has fallen an average of 0.2% annually, while statewide it has grown 1.2%.

△ Vermilion County has 87% of its land in agriculture and ranks sixth in the state in the amount of cropland. Corn and soybeans dominate with Vermilion County ranking in the top ten statewide in the production of both.

△ Almost one percent (0.66%) of the Vermilion area has been set aside as state parks, fish and wildlife areas, and forest preserves. County parks total over 8,200 acres while state lands include one state park (2,850 acres) and one fish and wildlife area (4,220 acres). Eleven sites totaling 522 acres are dedicated as Illinois Nature Preserves.

△ Kickapoo State Park, located west of Danville, was the first park in the nation to be built on strip-mined land.



Parks and Preserves

Few people outside of Champaign and Vermilion counties are aware of the natural areas and recreational opportunities found along the Vermilion River and its tributaries. There are 26 natural areas, eleven nature preserves, five county park/forest preserves, one state park, and one fish and wildlife area. Below is a sampling of a few of these areas.

Forest Glen Preserve was dedicated in 1968; the river forms its eastern boundary. Some of its unusual features are calcareous seep springs, ravines of beech-maple forests, and hill prairies on west-facing bluff tops. The preserve offers the usual recreational opportunities plus an arboretum, a pioneer homestead, and an education campus. It has 14 trails, most with informative guides to aid in the exploration of the area. Four nature preserves are found within the boundaries of the preserve — Howards Hollow Seep, Forest Glen Seep, Doris Westfall Prairie Preserve, and Russell Duffin Preserve. The 160-acre Russell Duffin Nature Preserve contains an outstanding example of beech-maple forest. Beech-maple communities, well-developed in Indiana and eastward, are found only in parts of southern and eastern Illinois; visitors can view these stately giants from the Beech Grove and Big Tree trails. The beech trees, with their smooth gray bark, and other varied plant communities make Forest Glen a natural jewel to be discovered and rediscovered.

The Harry “Babe” Woodyard State Natural Area is a 1,044-acre site that is named for the late state senator from Chrisman. The area lies in rural southeastern Vermilion County, not far from Ridge Farm where Woodyard grew up. Prior to becoming a natural area, the land was owned by the Peabody Development

Company which offered it to the state in 1995. The land was the first acquisition in East Central Illinois of the state’s Natural Areas Acquisition Fund. While the area offers little in the way of traditional recreational amenities, hunters, hikers, and those seeking solitude have found a haven. The area supports a combination of features — 16 endangered or threatened species, a rugged terrain with a thick forest, exceptional bird watching, a great blue heron rookery, a diverse spring flora, and the Little Vermilion River meandering across the land. Mary Woodyard, Babe’s wife of 45 years, frequents the natural area to enjoy the views and listen to the river. “Babe really liked the area. I know he would be glad to know that a lot of other people can enjoy this too.”

Carl Flierman’s River Nature Preserve is the state’s first nature preserve to protect a segment of river bed. The 23.4-acre preserve contains 4.69 acres of the Little Vermilion River, one of the 10 outstanding aquatic ecosystems in the country, supporting 49 species of fish including the state-threatened big-eye shiner, and the state-endangered slippershell and little spectacle case, both mussels. The property was owned by Louise Flierman, a retired school teacher. For six generations her family enjoyed the beauty of the Little Vermilion River and the surrounding woods. Her mother spent many hours painting in the woods along the river, enjoying the colorful beeches and maples. In order to continue the stewardship of the area, Louise wanted the portion of the streambed that was in her ownership, along with a filter strip, to be dedicated as an Illinois Nature Preserve. In November 1990, her wish was fulfilled and the preserve, named in honor of her husband and son, was dedicated.



Michael Jeffords

Skunk cabbage at Howard's Hollow Seep in the Forest Glen Preserve

James P. Rowan



The red-shouldered hawk is one of five state-threatened species in the basin.

The native vegetation of the Vermilion River area was mostly tall-grass prairie. Forests and savannas were concentrated primarily on the slopes, ravines, and bottomlands associated with moraines and the major drainages, areas protected somewhat from prairie fires. Chester Loomis wrote on June 25, 1825, “We again entered the Grand Prairie and were soon many miles from any timbered lands, and upon a tract of country apparently as level as the surface of a lake, without a single shrub or bush to intercept the view, . . . as far as the eye could reach.” By the 26th he was near present day Danville and observed, “In the afternoon we rode a few miles through a tract of the finest timbered land I have ever seen. Here are some small, but durable streams of water.”

Prior to European settlement around 1820, prairie occupied 60% of Illinois and forest 40%. In the Vermilion River basin, about 85% was prairie and 15% was forest/savanna. The total area of savanna is unclear, however, as the basin is within a transition zone of

prairie and forest.

Fire was a major factor in the maintenance of savannas and prairies. During his journey in 1825, Chester Loomis pondered this as he observed the landscape. “I have observed that on the western edges or borders of all the large prairies a thick growth of young timber is springing up, whereas on their eastern borders no underbrush is found within many rods of the open lands. This is undoubtedly caused by fire divisions by those westerly winds which prevail in October and November, when these immense plains are annually burnt over. The heat and fury of the flames driven by a westerly wind far into the timbered lands on the opposite sides destroying the undergrowth of timber, and every year increasing the extent of prairie in that direction . . .”

The total area of presettlement wetlands was between 42-45%. The majority of these lands were prairie potholes and wet prairies. Chester Loomis wrote, “. . . in the wet prairies the grass and weeds grow to the height

The Area at a Glance

△ Around 1820, about 85% of the Vermilion River area was prairie and 15% was forest/savanna. The total area of presettlement wetlands was between 42-45%; the majority of these lands were prairie potholes and wet prairie.

△ Within the entire Vermilion River area, only 185.1 acres, 0.019%, remain in an undegraded, high-quality, ecological condition. Habitat loss for prairie and wetland have exceeded the rates for the state as a whole, while forest habitat loss has occurred at the same rate.

△ Three remnants of high quality prairie total 8.6 acres, 0.001% of the basin.

△ Of the original system of timber belts that followed the Vermilion and its tributaries, 5.2% (49,278 acres) remain. One hundred and twenty-four acres of high quality mesic upland forest remain, 11.7% of the statewide total.

△ One percent (9,438 acres) of the area is wetlands, but only 15 acres are high quality and undegraded. These 15 acres occur as seeps, wetland communities characterized by a constant diffuse flow of ground water. One of these is a calcareous (alkaline) seep and is home to Wolf’s bluegrass, an endangered species.

of seven or eight feet, and so thick and close as to impede the progress of a horse, thus rendering traveling slow and disagreeable.”

Within the entire Vermilion River area, only 185.1 acres, 0.019%, remain in an undegraded, high-quality, ecological condition. Habitat loss for prairie and wetland have exceeded the rates for the state as a whole, while forest habitat loss has occurred at the same rate. Currently, there are three remnants of high quality prairie totaling 8.6 acres. Half of the prairie acreage (4.6 acres) belongs to the mesic (moderately moist) prairie community and represents 7.0% of the mesic prairie in Illinois. The other half of the prairie acreage consists of four acres of glacial-drift hill prairie. This is 12% of the high quality drift hill prairie remaining in the state. An increasing threat to these hill prairies are horses. Horse trails cause erosion and compaction on the steep slopes and their manure is a seed source for exotic plants.

Like the presettlement landscape, present-day forests are concentrated on the slopes and bottomlands bordering the major rivers and associated tributaries. Of the original system of timber belts that followed the Vermilion and its tributaries, 5.2% (49,278 acres) remains. Mesic upland forest is the most prevalent upland forest type found in the area — 124 acres are rated Grade A and are recognized as high quality with statewide significance. This represents 11.7% of the statewide total. Three state-threatened species — drooping sedge, false hellebore, and fibrous-rooted sedge — are found in this habitat.

Savannas often occurred in the dissected terrain of major river valleys. Unfortunately, the pre-settlement



Michael Jeffords

Squaw root is one of several species found in the basin that are of extremely limited occurrence in Illinois.

savanna acreage is unknown for either the state as a whole or the Vermilion River area. One two-acre site in the basin is recognized as a Grade B dry-mesic savanna; it represents 22% of the total high quality dry-mesic savanna in Illinois.

One percent (9,438 acres) of the area is still wetlands, but only 15 acres are high quality and undegraded. These 15 acres occur as seeps — wetland communities characterized by a constant diffuse flow of ground water. Seeps are localized and are commonly associated with the forested riparian area bordering the Middle Fork. Four high quality seeps totaling 13 acres are known from the area, representing 13.8% of the undegraded seep acreage in Illinois. One seep with a groundwater pH of 8.4 is a calcareous (alkaline) seep. Here can be found

deposits of tufa, concretions of calcium carbonate. This two-acre site, a high-quality natural community, accounts for 13.8% of the total undegraded calcareous seep remaining in Illinois. Wolf’s bluegrass, an endangered species, is present in this seep community.

A rare plant community is the eroding bluff community — a vertical exposure of eroded material such as glacial drift, maintained by the erosive action of streams. Four and a half acres of this community are associated with the Salt Fork, representing 15% of the undegraded eroding bluff community in Illinois.

Little Things That Run The World

Flora

Beginning with the flowering of skunk cabbage in late February, to the final goldenrods of Indian Summer, the Vermilion River basin is a curious mix of plant species. Prairies support not only the common — prairie dock, coneflower, and big bluestem — but also the unusual — Indian paintbrush and ladies’ tresses orchids. Here species are present that are restricted to rich forest habitats — squirrel corn, Gleason’s trillium, celandine poppy, and hepatica. Also present are species that are of extremely limited occurrence in Illinois — squaw root, fire pink, yellow lady’s slipper and beech drops, a parasite of the equally restricted American beech.

Twenty-eight percent of the state’s flora (908 taxa) grow in the basin. Four state-threatened (fibrous-rooted sedge, drooping sedge, Willdenow’s sedge, and false hellebore) and two state-endangered plants (Wolf’s bluegrass and queen of the prairie) are found here. Several populations of

The Area at a Glance

△ A plant community not normally found is the eroding bluff community, a vertical exposure of eroded material, such as glacial drift, maintained by the erosive action of streams. Four and a half acres of this community, representing 15% of the undegraded eroding bluff community in Illinois, are associated with the Salt Fork.

△ Twenty-eight percent of the state's flora (908 taxa) grow in the Vermilion River area. Four state-threatened (fibrous-rooted sedge, drooping sedge, Willdenow's sedge, and false hellebore) and two state-endangered plants (Wolf's bluegrass and queen of the prairie) are found here.

△ At least 270 bird species regularly occur in the basin, 90% of the 300 bird species known to occur in Illinois. Of these, 140 breed or formerly bred here. Currently four state-endangered species (northern harrier, upland sandpiper, short-eared owl, and Henslow's sparrow) and five state-threatened species (pied-billed grebe, least bittern, red-shouldered hawk, brown creeper, and loggerhead shrike) breed here.



James P. Rowan

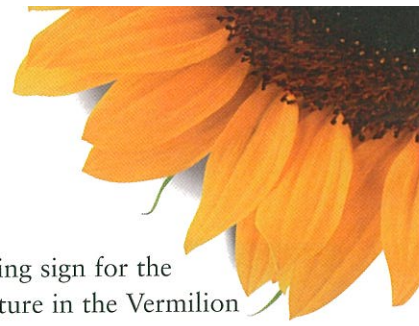
In the fall, the area has one of the larger gatherings of ruby-throated hummingbirds in the state.

fibrous-rooted sedge and false hellebore are found in the Vermilion area, whereas queen of the prairie is represented by 50 plants and drooping sedge by 20 plants, each in a single location. The population of Wolf's bluegrass is found at the base of a seep that has been actively slumping. As a result, the population is not secure and it could soon be extirpated. Five species that occurred historically within the area have been extirpated for many years — heart-leaved plantain, prairie dandelion, white lady's slipper, showy lady's slipper, and buffalo clover.

Birds

While bird species composition in the basin is typical for an Illinois agricultural landscape, breeding species have benefited from several large public land holdings. These areas contain a variety of grassland and wetland habitats, as well as restored prairies, ripar-

ian forest, upland forest, and open lake. Because a number of excellent birders operate in the area, far more is known about the birds here than in any other agricultural area. At least 270 bird species regularly occur in the Vermilion River basin, 90% of the 300 bird species known to occur in Illinois. Of these, 140 breed or formerly bred here. Currently four state endangered species (northern harrier, upland sandpiper, short-eared owl, and Henslow's sparrow) and five state threatened species (pied-billed grebe, least bittern, red-shouldered hawk, brown creeper, and loggerhead shrike) breed here. While several species have disappeared from the area, including the passenger pigeon, Carolina parakeet, and greater prairie chicken, the wild turkey has been successfully reestablished, especially along the Middle Fork and Big and Little Vermilion River valleys where it nests



a promising sign for the otter's future in the Vermilion River basin.

Nine of the mammal species found here are bats. The little brown bat, big brown bat, northern long-eared bat, eastern pipistrelle, and evening bat forage in forested habitats and nest in trees or man-made structures such as buildings. The federally endangered Indiana bat has been found at two locations in the Vermilion River area. One of these is a maternity colony which roosts primarily between slabs of exfoliating bark on dead trees. Roost trees have been located in both upland and floodplain forests; most of the trees are relatively large with a diameter at breast height of at least 30 cm.

Reptiles and Amphibians

Chester Loomis wrote, "Of reptiles, they have rattle-snakes, of two kinds, large and small; black snakes, copper heads, and the glass snake. The latter is a curiosity. Upon striking a slight blow with a small stick, it will generally break into several pieces." [The glass snake is actually a lizard with a break-away tail.] Twenty-three amphibian and 27 reptile species occur here, representing 57% of the amphibians and 45% of the reptiles that regularly occur in the state. The state-endangered silvery salamander and the state-threatened four-toed salamander are known to exist in the Vermilion River area. The status of the state-threatened Kirtland's snake is uncertain, but the state-endangered eastern massasauga has been extirpated from the area due to the draining of prairie wetlands. Jack Williams wrote, "There were lots of badgers, rattlesnakes were everywhere. They were so plentiful that on a single farm a hundred were killed in one season. They were dangerous neighbors.



James P. Rowan

The state-threatened river otter is being reintroduced by the Illinois Department of Natural Resources. Between 1996 and 1997, 30 otters were released in the basin.

in shrublands and prairies adjacent to forest.

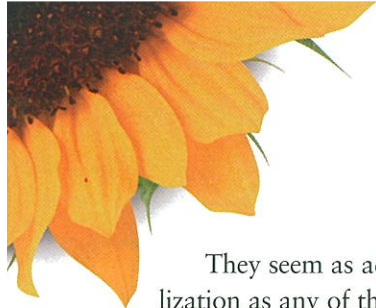
The habitat quality for birds is good but there is potential for it to get better. For example, upland forests could be managed to maintain oak trees, and floodplain forests to maintain sycamores. A high priority in the basin should be to restore forested wetlands. Also, grasslands could be expanded to at least 100 acres and be burned or mowed on a three-year schedule to accommodate grassland birds. As the breeding habitat continues to improve, perhaps the sandhill crane, Swainson's hawk, and yellow-headed blackbird will return, not only as migrants, but once again to breed along the Vermilion River.

Mammals

Jack Williams wrote in the *History of Vermilion County*, "As late as 1857 there were a great many deer here. Wolves were as thick as rabbits as late as 1858. Of a flock of sheep which

had gotten away from a man in the northern part of the township eighty were killed in one night by wolves." Wolves have been extirpated from the county and the state for quite some time, while the white tail deer has enjoyed a successful re-introduction.

Forty-six (78%) of the state's 59 mammal species are known from the basin and two of these are listed species — the federally-endangered Indiana bat and the state-threatened river otter. As part of the Illinois Department of Natural Resources' river otter re-introduction program, 30 otters were released in the basin between 1996 and 1997. The first release at Kennekuk County Park was witnessed by 2,000 interested spectators, many of whom had provided funding for the otters. Since then, otter sightings are reported in the Vermilion County Conservation District newsletter. In 1998 the newsletter reported that an adult with young was sighted in an area where otters had not been released,



They seem as adverse to civilization as any of the wild animals. As soon as the prairie grass was plowed or cultivated they disappeared. Scarcely any of them have been seen here since 1870.”

The state-threatened four-toed salamander is associated with undisturbed forests containing seeps or bogs, although they may also be found near rocky, spring-fed creeks. Females congregate near woodland ponds in March and April for egg laying and brooding. The most common nest sites are in sphagnum mats, but grass hummocks, leaf litter, rotten logs and undercut stream banks are also used. The nests are situated so the larvae fall directly into the water when the eggs hatch. The main threat to this species is draining the breeding ponds or artificially stocking them with fish.

The Middle Fork Woods Nature Preserve, a remnant of the vast mesic forest that once occurred in the area, harbors the state’s only native colony of the endangered silvery salamander. This salamander inhabits underground burrows and runways constructed by rodents and shrews in forested areas. During late winter adults come to the surface and migrate to woodland ponds and wetlands to reproduce during late winter. These ponds must be fishless and retain water until the aquatic larvae transform into terrestrial juveniles, usually in mid-June. What makes the silvery salamander unique is that it requires the presence of the smallmouth salamander to stimulate embryonic development. Silvery salamanders have no males. The population at the Middle Fork shares this bizarre characteristic with silvery salamanders in other parts of its range, but takes it one step further — it interbreeds with the smallmouth salamander.

Aquatic Biota

The Vermilion River and its tributaries support a large diversity of aquatic species: 97 species of fishes, 45 species of mussels, 16 species of large crustaceans, and 540 species of aquatic macroinvertebrates. Chester Loomis again writes, “Fish in great numbers are every where swimming in its waters. Some of them of 15 or 20 pounds weight.” Today, the headwaters are dominated by creek chubs and orangethroat darters; the creeks by spotfin, sand and striped shiners, stonecats, and jonny darters; and the larger river habitats by bluntnose minnows, golden redhorses, longear sunfish, and spotted bass. Listed species from the area include the state-threatened river redhorse and the state-endangered bigeye chub, bigeye shiner, river chub, northern madtom, Iowa darter, eastern sand darter, and bluebreast darter. The bluebreast darter is found in Illinois only within the Vermilion River area and is the westernmost location known for this fish. In 1939, this species was described as “among the rarest of Illinois fishes” and “confined to the swiftest of water.” Once near extirpation in Illinois, this species has made a dramatic comeback following recent improvements in water quality.

The North Fork Vermilion River supports the greatest concentration of rare, threatened, or endangered mussels in Illinois and its protection is crucial to the continued survival of those species. A ten square mile area in Vermilion County supports as many freshwater mussel species as the entire Illinois River! Ten endangered mussel species are still thought to be present in the drainage — slippershell, clubshell, rabbitsfoot, wavy-rayed lampmussel, round hickorynut, kidneyshell, purple lilliput, rayed bean, rainbow, and little spectaclecase. Many of these are found

The Area at a Glance

△ The wild turkey, once extirpated, has been successfully reestablished, especially along the Middle Fork and Big and Little Vermilion River valleys where it nests in shrublands and prairies adjacent to forest.

△ Forty-six (78%) of the state’s 59 mammal species are known from the basin and two of these are listed species — the federally-endangered Indiana bat and the state-threatened river otter.

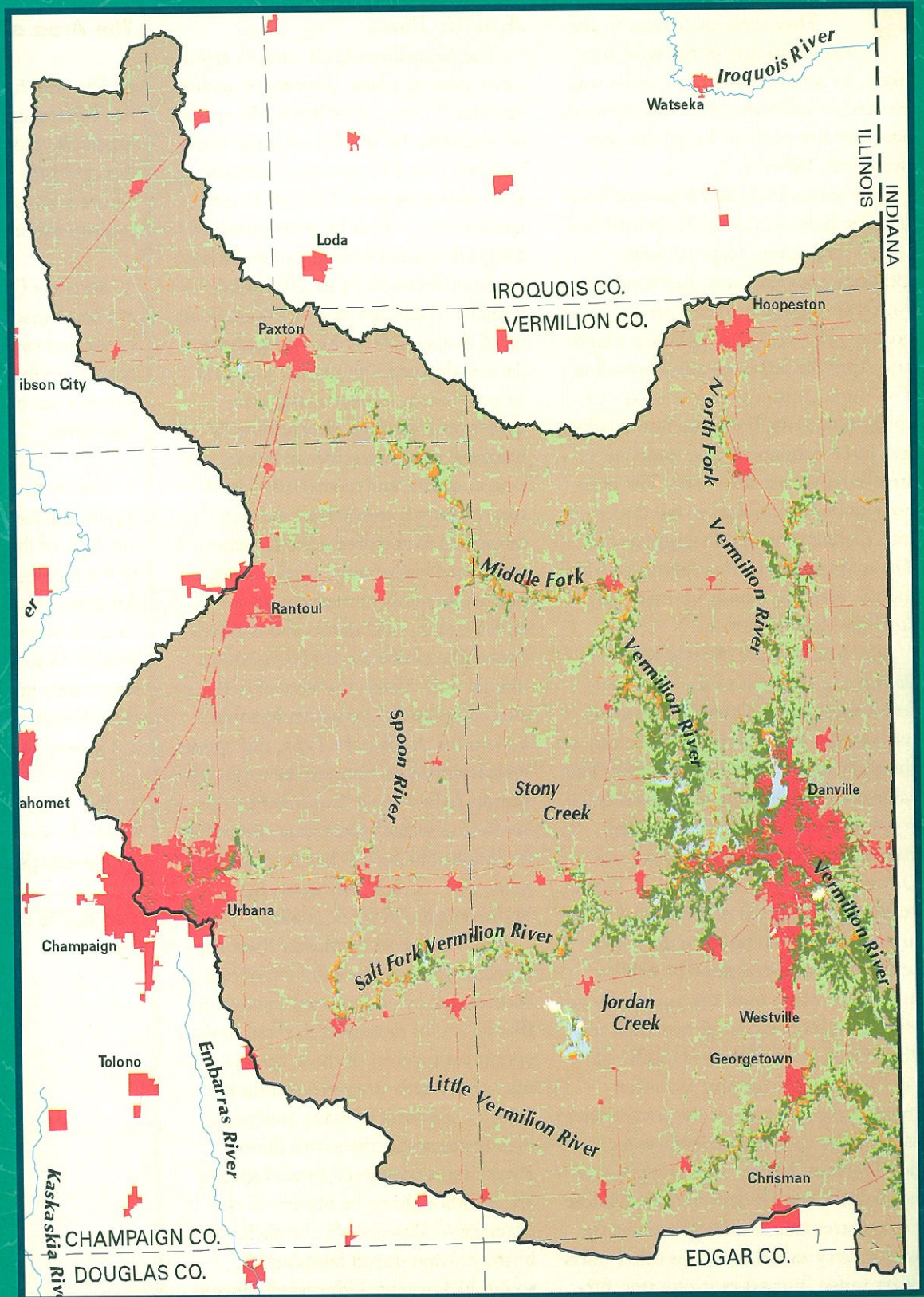
△ Twenty-three amphibian and 27 reptile species occur here, representing 57% of the amphibians and 45% of the reptiles that regularly occur in the state. The state-endangered silvery salamander (the Middle Fork Woods Nature Preserve harbors the state’s only native colony), and the state-threatened four-toed salamander are known to exist here.

△ The status of the state-threatened Kirtland’s snake is uncertain, but the state-endangered eastern massasauga has been extirpated from the area due to the draining of prairie wetlands.

Vermilion River Basin Land Cover



- cropland
- rural grassland
- forest and woodland
- urban and built-up land
- wetland
- lakes and streams
- barren and exposed land
- outside of assessment area
- assessment boundary
- county boundary
- state boundary
- river or stream
- subbasin boundary



Lisa Smith and Chris Goldsmith
Illinois State Geological Survey



Miles

Seeps



Michael Jeffords

Forest Glen Seep

Seeps are wetlands characterized by saturated soil. They form when groundwater percolates downward through porous material until it reaches a nonporous layer of rock or clay that channels it horizontally. Seeps may be acidic or basic, depending on the materials through which the groundwater flows before reaching

the surface. Usually smaller than half an acre, seeps are most common along the lower slopes of ravines, terraces, and hills. Three high quality seep communities are found in the Vermilion River area and all three are nature preserves.

While Howards Hollow Seep Nature Preserve occupies 30 acres in the Forest Glen Forest Preserve, Howards Hollow Seep is a one-acre wetland nestled within the forested hills of the preserve. Willow Creek trail passes through the preserve and on the west side of the seep. The trail is a pleasure to hike anytime, but perhaps late February is best for a glimpse of the state's earliest flowering plant, skunk cabbage. Skunk cabbage, with a maroon and yellow-speckled hood, generates its own heat, as the plant must often melt its way through a late winter snow.

Forest Glen Seep is a seep community on a terrace above the Vermilion River in the northeast corner of Forest Glen Forest Preserve. In addition to skunk cabbage, this seep supports a large assemblage of marsh marigold. This plant is another early bloomer, infusing its golden color in the still drab winter landscape. Marsh marigold gets its name from the Latin *Caltha*, meaning marigold and *palustris*, meaning swamp. In reality, the plant is a buttercup. Forest Glen Seep also contains a population of the rare bog twayblade orchid.

The third seep community is found within Windfall Prairie Nature Preserve. The preserve consists of a gravel bluff prairie on the east bank of the Middle Fork River and a seep spring at the base of the bluff. Within the seep spring is a large stand of grass-of-parnassus, an unusual and rare species in Illinois. In addition to unusual flora, the seep contains deposits of tufa, a porous rock, and travertine, a hard dense rock, both composed of calcium carbonate. In 1912, during a University of Illinois field trip, an extensive tufa deposit covering more than 10,000 square feet was discovered. This tufa deposit is slowly being redissolved and destroyed by the same spring that deposited it.

The Area at a Glance

△ The Vermilion River and its tributaries support a large diversity of aquatic species: 97 species of fishes, 45 species of mussels, 16 species of large crustaceans, and 540 species of aquatic macroinvertebrates.

△ Listed species include the state-threatened river redhorse and the state-endangered bigeye chub, bigeye shiner, river chub, northern madtom, Iowa darter, eastern sand darter, and bluebreast darter. The bluebreast darter is found in Illinois only within the Vermilion River area and is the westernmost location known for this fish.

△ The North Fork Vermilion River supports the greatest concentration of rare, threatened, or endangered mussels in Illinois and its protection is crucial to the continued survival of those species.

△ A ten square mile area in Vermilion County supports as many freshwater mussel species as the entire Illinois River! Ten endangered mussel species are still thought to be present in the drainage; many of these are found nowhere else in Illinois.

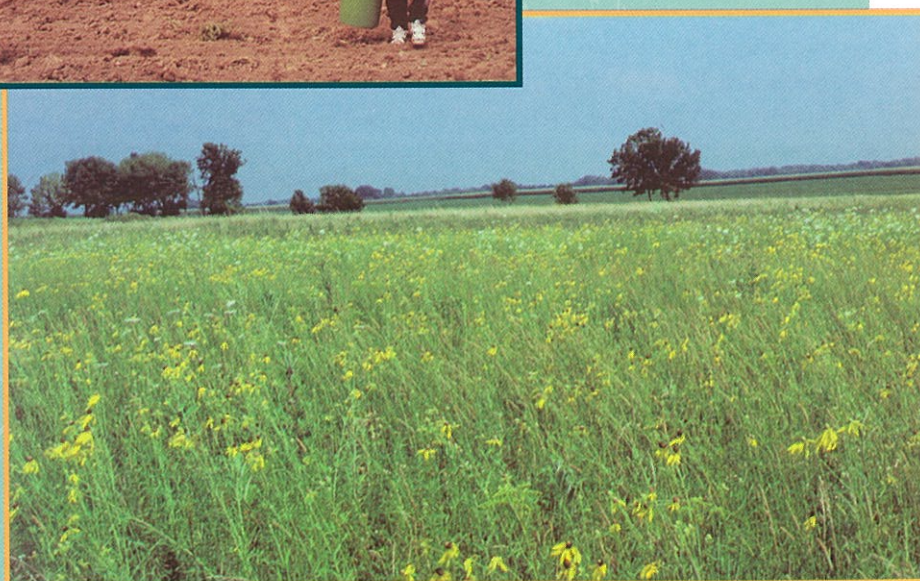
Doris Westfall Prairie Nature Preserve

On August 10, 1972, Doris Westfall wrote a letter to Illinois Natural History Survey botanist Robert Evers thanking him and other Survey personnel for helping save Forest Glen from flooding. In this letter she writes about beginning a prairie restoration project. “And now another project — we are ready to begin a prairie restoration project and we will appreciate your help. We plan to do a small one first — perhaps five acres east of the Nature Center at Forest Glen. It is an old field with a drainage pond and much foxtail at present. But I think it will lend itself well to restoration.” The “seeds” of Doris’ interest in prairie restoration were planted when she attended an Audubon-sponsored field trip to a prairie restoration at the Morton Arboretum. When she suggested such a restoration in Vermilion County, the director of the Conservation District, Ron Pennock, agreed, and Doris began studying and seeking out prairie plants. She wanted to create a “prairie by construction” that would consist only of seed from plants that once grew wild in Vermilion County. She began to bring in found prairie plants to the Conservation District meetings where she was asked, “Westfall, what are you doing bringing all those weeds in here?”

The Audubon Society agreed to sponsor the restoration by helping with labor and expenses. In the spring of 1973, the first planting was undertaken. The area had been scraped bare of topsoil and there was no sign of foxtail or any other



Doris Westfall



Students from Chrisman help with planting at the preserve as part of an Outdoor School curriculum. Above, the preserve three years after planting.

Ken Konsis — Vermilion County Conservation District

plants. Planting was done in rows with each row labeled and mapped on paper. The seeds of 30 native prairie species were mixed with sand, broadcast by hand, and lightly harrowed in. A nurse crop of oats was also sown and the area was strawed to help retain moisture and prevent excessive blowing of seed and soil. During the summer growing season, the area was constantly hand weeded and by September the “first fruits” of their work were seen — three Indian grass plants bloomed. By the next year, the first prairie coneflowers had bloomed.

What began as a garden of thirty species is today 40 acres of what prairie may have looked like in Vermilion County. In 1987, Illinois Natural History Survey botanist Ken Robertson visited the restoration and was pleased to see over 110 species of plants, including the partially parasitic Indian paintbrush and false toadflax, and the difficult-to-establish ladies’ tresses orchid. Other plants found there include purple prairie clover, shooting star, Turk’s cap lily, porcupine grass, and compass plant. Two plants that occur only in the reconstruction and no where else in the county are the state-endangered royal catchfly and the state-threatened queen-of-the-prairie.

Robertson encouraged Westfall to “write down what you have done so others might benefit from your knowledge.” Twenty-five years after the first planting, the Illinois Nature Preserve Commission honored her work by dedicating her “prairie by construction” as the Doris Westfall Nature Preserve, the first prairie reconstruction in the state to receive the nature preserve designation. The success of Doris Westfall’s dedication and work offers hope that native habitat can be constructed, and these habitat reconstructions can have an important role in recreating natural landscapes.

nowhere else in Illinois. The clubshell, also listed as federally endangered, was thought to have been extirpated from the state, but in September 1998 a live clubshell was found in the North Fork Vermilion River. This is the only known population of clubshell in the state.

Problems and Solutions

As the glaciers receded from the Vermilion River basin, they left a wide, flat-to-gently rolling swampy landscape. An early description of the area tells of “raw prairies with miles and miles of swamps with a wild heavy grass and there was no drainage at all.

Streams had worn no channels for the water courses. The swampy land was considered worthless for farming but was grazed by cattle in dry seasons. It was only after outlet channels were opened that the swampy areas could be tilled and cultivated.” Beginning in 1870, drainage districts tried to alleviate this problem. The Wildcat Slough Drainage District, which cleared the trees and straightened the bends of the West Branch of the Salt Fork, was the first such district in the nation. Today, even with the district’s “improvements”, there is still a general lack of drainage in parts of the flat uplands and

The Area at a Glance

While serious ecological problems still threaten the longterm maintenance of biodiversity in the area — habitat fragmentation, habitat degradation, exotic species invasion, and fire absence — several groups are working on restoring habitat and rehabilitating the area. For example, The Nature Conservancy’s Volunteer Stewards, the Vermilion County Conservation District, and Grand Prairie Friends hold work days to implement exotic species control and to conduct prescribed burning in nature preserves and natural areas.

△ Area farmers use conservation tillage to control soil erosion more often than farmers do statewide. In 1997, 55% of the acreage farmed used conservation tillage methods, 25% used reduced till and 19% used conventional methods. As a result, 91% of the region’s farm acreage met tolerable soil loss levels.



Michael Jeffords

Turk's cap lily

floodplain areas. This, combined with the slow permeability of the area's subsoils, makes for high water tables, wet soils, severe stream and channel erosion, and sedimentation in streams and lakes.

With the value of Vermilion County farmland high, soil erosion is a major concern. It's no surprise that area farmers use conservation tillage to control soil erosion more often than farmers do statewide. In 1997, 55% of the acreage farmed used conservation tillage methods, 25% used reduced till and 19% used conventional methods. As a result, 91% of the region's farm acreage lost soil no faster than it could be replenished. In addition to conservation tillage, area farmers are planting marginally productive land into native grasses for wildlife habitat.


During 1997 and 1998, with funding help from the Vermilion River Ecosystem Partnership, some 1,100 acres of filter strips have been planted along waterways. The filter strips decrease nitrate runoff into streams and provide wildlife habitat.

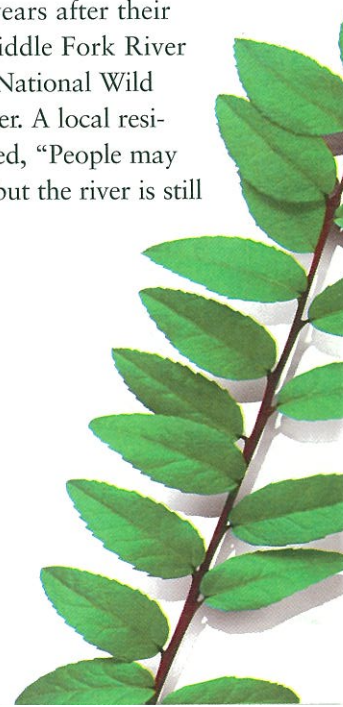
Serious ecological problems still threaten the long-term maintenance of biodiversity in the area — habitat fragmentation, habitat degradation, exotic species invasion, and fire absence. Along one section of the river the lack of habitat is slowly being reversed by the Illinois Department of Natural Resources, which is restoring presettlement vegetation to the Middle Fork's Scenic River

Corridor (more than 50 fields totaling 330 acres). The goal is to restore ecosystem processes and functions that will support natural resources in the corridor.

Several local groups are also working on habitat restoration and rehabilitation of the area. The Nature Conservancy's Volunteer Stewards, Grand Prairie Friends, and the Vermilion County Conservation District hold work days to implement exotic species control and conduct prescribed burning in nature preserves and natural areas. Illinois Power has begun to restore barrens, prairie openings, and oak hickory upland forests at Orchid Hill Natural Area, which it owns. The company's management has already increased the population of yellow lady's slipper orchids on the site.

Three area prairies are being restored — one in Vermilion County, at the state's only prairie restoration nature preserve (see sidebar), and two in Champaign County — that will be used primarily for educational purposes. While these sites may not be "ecologically correct" for purists, for many people it is their first encounter with the tall grasses. As to the value of these restorations, a thank-you letter from a third grader sums it up nicely, "I like the big bluestem. Thank you for letting us run through the grass and letting us catch grasshoppers and have some of the past."

In addition to local environmental groups, citizens have banded together to form the Vermilion River Ecosystem Partnership. Its purpose is to foster public-private cooperative ventures in addressing landowner concerns while simultaneously improving biological resources. Community effort is nothing new for this area. In 1967 the state planned a reservoir that would have flooded the Middle Fork valley from Kickapoo State Park north to the town of Potomac. After countless letters, petitions, and hearings, citizen action stopped the project in 1976. Ten years after their victory, the Middle Fork River was named a National Wild and Scenic River. A local resident commented, "People may come and go, but the river is still there." 



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

The Vermilion River Basin: An Inventory of the Region's Resources is based on one of these assessments, the *Vermilion River 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 *Vermilion 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 ecopr@dnrmail.state.il.us.

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