The Upper Des Plaines River Basin

An Inventory of the Region's Resources

ILLINOIS
DEPARTMENT OF
NATURAL
RESOURCES

About This Report

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

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

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

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

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

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

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

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

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

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

(continued on inside back cover)

A Project of the Critical Trends Assessment Program

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An Inventory of the Region's Resources

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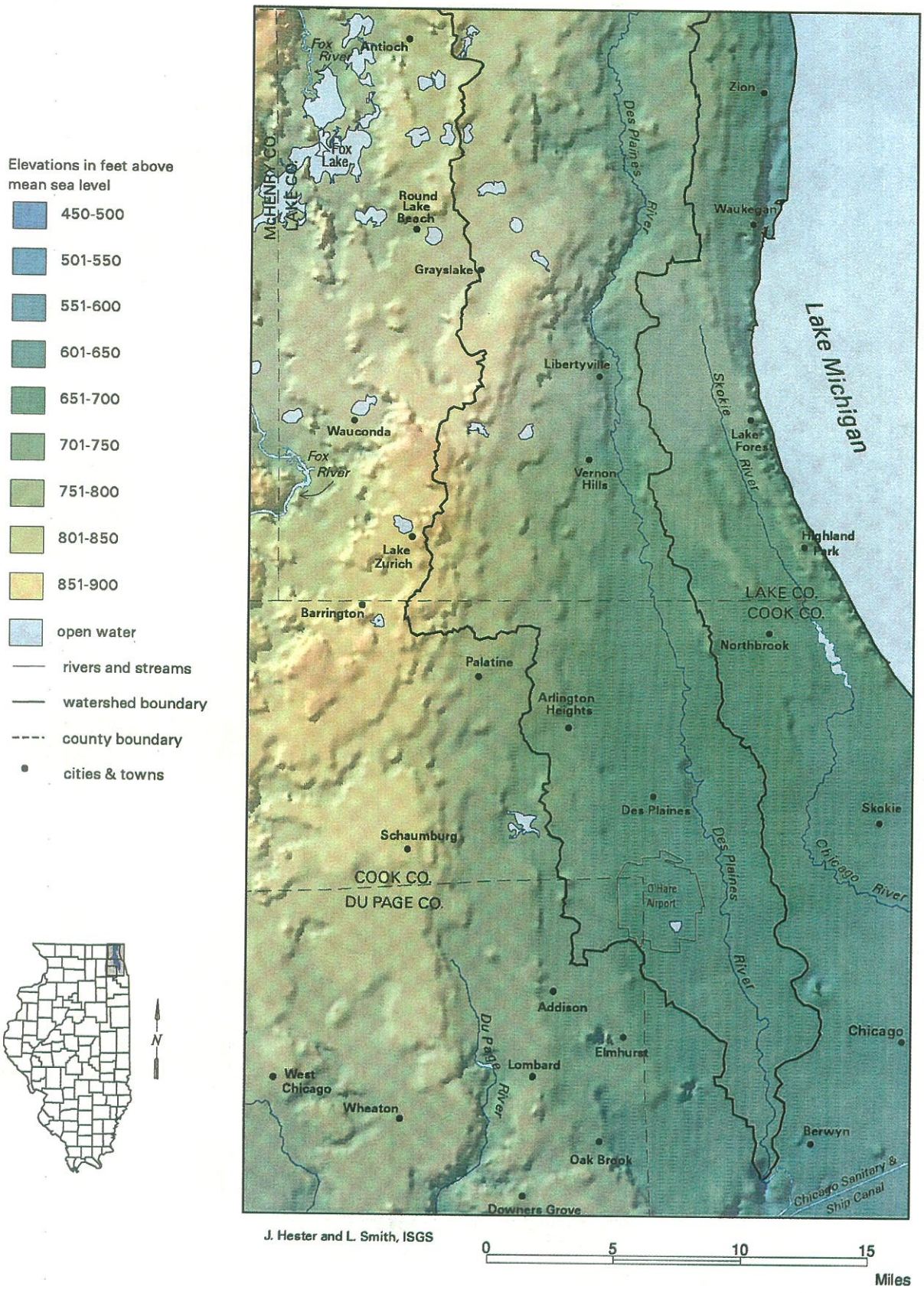


The Upper Des Plaines River Basin Elevation Map

The Upper Des Plaines River Basin

An Inventory of the Region's Resources

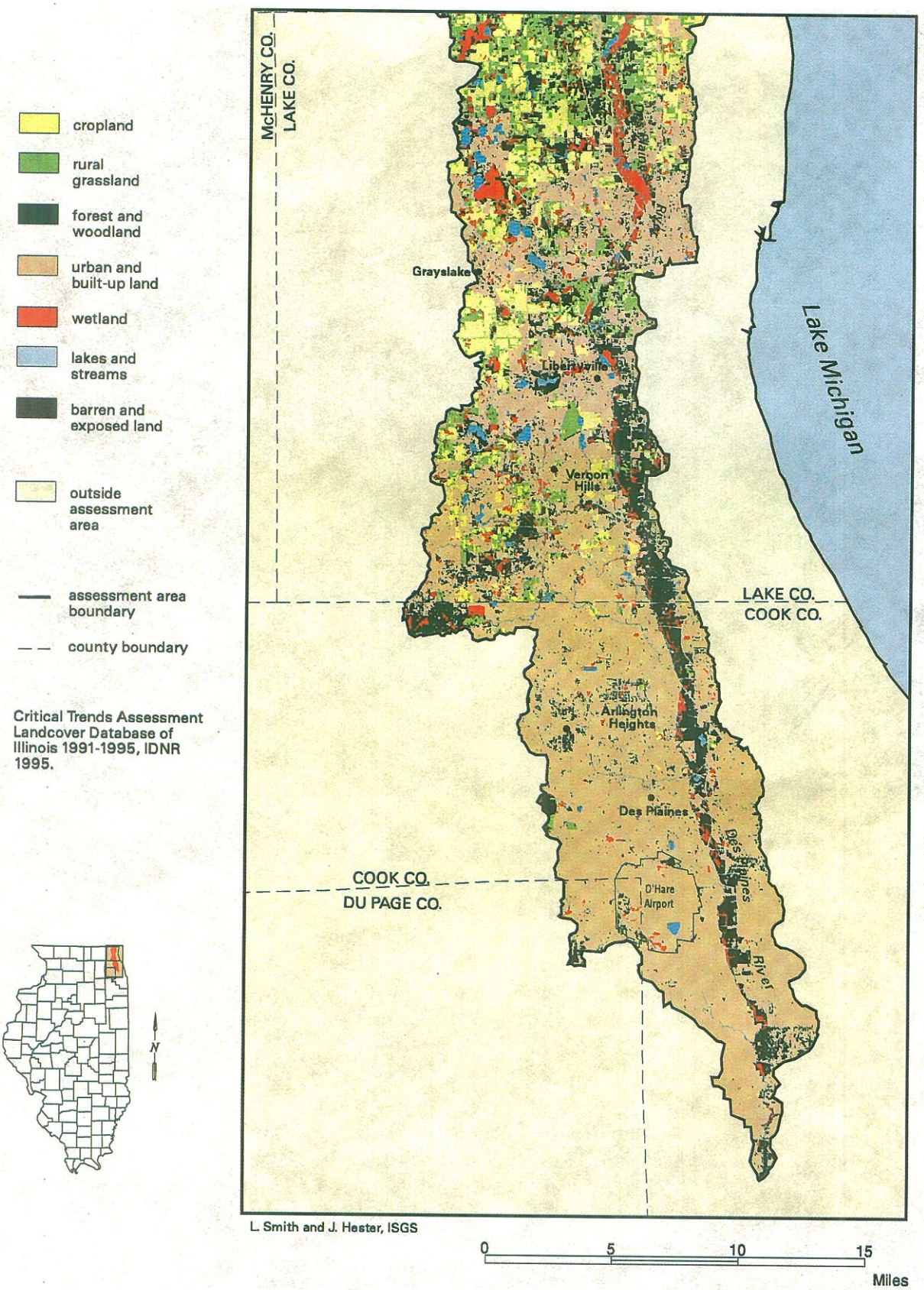
Take a canoe trip down the upper Des Plaines River from just north of the Wisconsin border south to the Cook County town of Lyons, and you can see the history of urbanization in Illinois laid out like a diorama. As the river moves through parts of Lake, Cook and DuPage counties, farms give way first to bedroom suburbs, then to 1990s-style "edge cities." Along the crowded southern part of the upper Des Plaines, "urban uses"—airport terminals to Toys 'R' Us—are ten times more concentrated than in Illinois as a whole and cover as much as 70% of the land.

No other natural Illinois river runs through such an urbanized watershed; no other urban river still has so much nature left in and around it. The upper Des Plaines basin thus is uniquely situated to find answers to a new question about an old dilemma: If nature cannot be restored to its old place in Illinois' natural order, can it at least be admitted to a place in the new human one?

The Presettlement Des Plaines

As used here, "upper Des Plaines basin" refers to the river's approximately 346-square mile drainage area which served as the focus of a recent assessment of local natural resources by state scientists. Visitors who described the area in 1840 reported that the land cover in the upper Des Plaines basin consisted of 40% prairie and 60% forest and savanna. Soils that develop under wetlands are distinctive and remain so even when the water that formed them is drained away. Measuring the present extent of these soils, scientists conclude that about a quarter of the Des Plaines basin was wetlands of one kind or another.

Much of the landscape east of the river in southern Lake and northwestern Cook counties was covered with savanna and pockets of prairie (including wet prairie) and marsh.



UPPER DES PLAINES RIVER BASIN LAND COVER

Approximately 18% of today's upper Des Plaines basin is woodland. Spring woods with May apples, Ryerson Conservation Area

Because the river blocked the advance of prairie fires driven by westerly winds, dense growths of trees flourished mainly on the east side of the river. (Remnants of these forests survive in Lake County as MacArthur Woods—a haven for rare warblers—and Lloyd's Woods nature preserves.) West of the river was a more complex landscape dominated by small lakes formed when blocks of ice melted after having been buried by glacial debris, leaving potholes in the surface.

This landscape existed during the 10,000 years or so after the great ice sheets ceased shaping the land and before Euro-American settlers began to reshape it. After 150 years or so of urbanization, little of it is left. Approximately 18% of today's upper Des Plaines basin is woodland, mostly upland forest along the Des Plaines in forest preserves. Today, nonforested wetlands in the form of marshes, wet meadows, and ponds (the last often occurring as part of marshes) cover but 3.5% of the surface. Most of the lakes (ponds larger than 20 acres) have long since been drained.

In the northern reaches of the basin, however, it is still possible to get a feel for that vanished landscape. No fewer than 167 pothole lakes survive in the Illinois portion of the upper Des Plaines basin, mostly in Lake County. Most of these lakes are small—only one is larger than 40 acres—and their mean size is about 22 acres. These lakes are nature's gift to developers who made them the centerpiece of resort towns, like Grayslake, that were reincarnated as suburbs a century later.

In scenic terms a post-glacial landscape of this sort offers little, but the basin is a place of subtle ecological variety. Mucky low spots that retain water most of the time are separated by ridges of pebbly clay glacial debris known as moraines. Soils vary too, in chemical composition and texture. In many places, for example, the presence of calcium-rich rock debris near the surface has turned the

The Area at a Glance

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SIGNIFICANT RESOURCES IN THE UPPER DES PLAINES RIVER BASIN

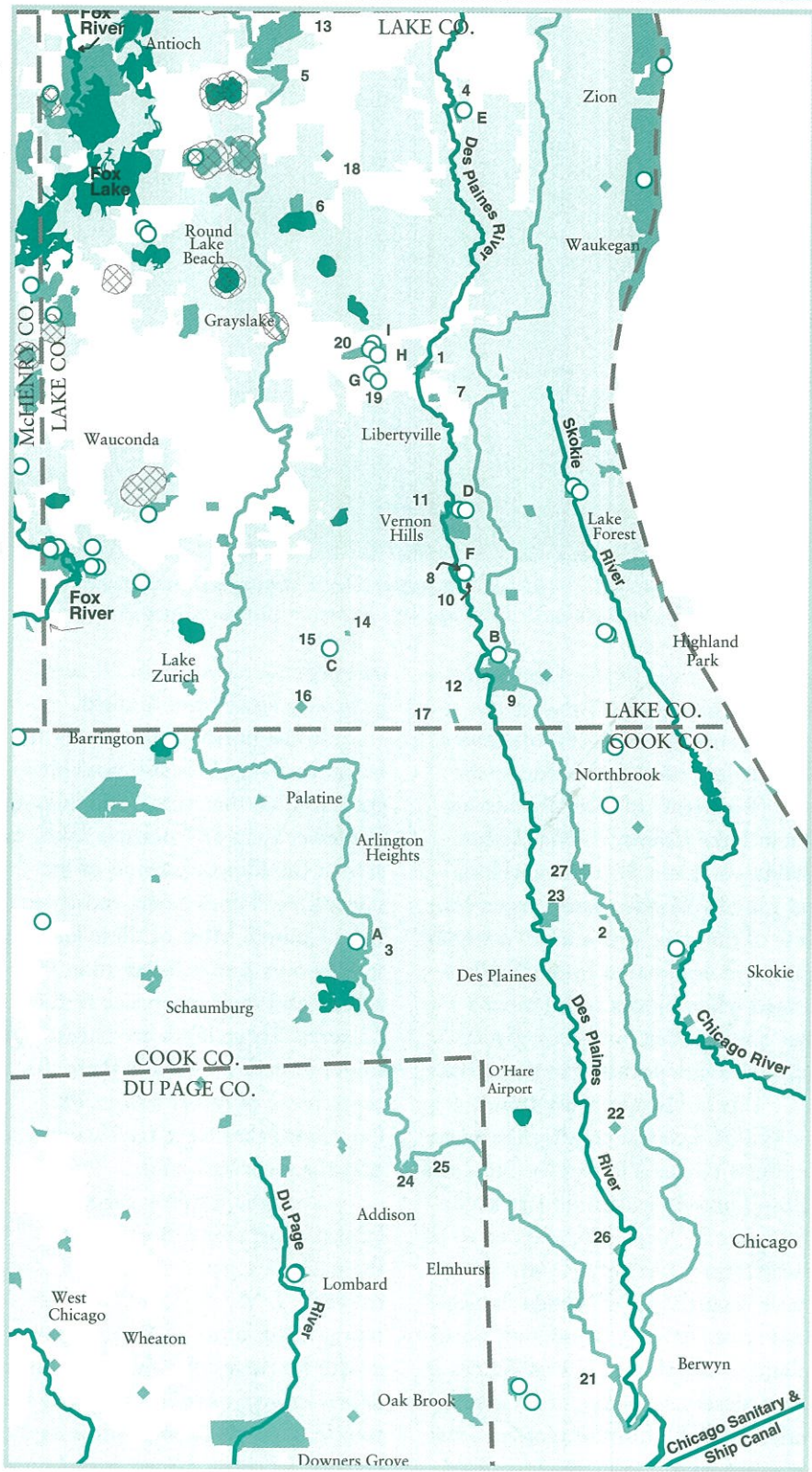
NATURAL AREA INVENTORY SITES

1 St. Francis Boys' Camp
2 James Woodworth Prairie Preserve
3 Busse Woods
4 Wadsworth Prairie and Savanna
5 Antioch Bog
6 Fourth Lake
7 River Road Woods
8 Lloyd's Woods
9 Herrman's Woods
10 Sarah Fenton Hinds Preserve
11 McArthur Woods
12 Edward L. Ryerson Conservation Area
13 Deer Lake-Redwing Slough
14 Prairie White Fringed Orchid Preserve
15 Old McHenry Road Site
16 Long Grove Site
17 Buffalo Grove Prairie
18 McDonald Woods Marsh
19 Liberty Prairie
20 Almond Marsh
21 Brookfield Prairie
22 Schiller Woods
23 Carle Woods
24 Wood Dale Grove
25 Fischer Woods
26 Thatcher Woods Prairie
27 Kennicott's Grove

ILLINOIS NATURE PRESERVES

A Busse Woods
B Edward L. Ryerson
C Reed-Turner Woodland
D MacArthur Woods
E Wadsworth Prairie
F Lloyd's Woods
G Liberty Prairie
H Oak Openings
I Almond Marsh

= Biologically Significant Streams



soils alkaline. The combination of different moisture, terrain, and soil types produces 16 distinct habitat types in the basin.

Several of them—bogs, fens, marl flats—are more typical of Canada than Chicago's collar counties. Most of the rare plants in the basin are more often found far to the north and northeast; the hairy white violet, for example, is common in boreal eastern Canada. Among the more exotic local habitats are calcareous floating mats. In lakes filled with cold oxygen-poor water, new plants grow faster than dead ones decay. The partially decomposed plants accumulate as a peaty mat that floats atop the water. A high-quality example may be seen at Fourth Lake in northern Lake County.

Among the plant life there are several species whose survival in Illinois is considered by state conservation experts to be threatened or even endangered, including downy willow herb, bog bedstraw, and common bog arrow grass.

A survey in the 1970s by the Illinois Natural Areas Inventory (INAI) found 26 top-quality remnants of presettlement natural communities in or within a few hundred feet of the upper Des Plaines basin. Nine of the basin's INAI sites have been designated Illinois Nature Preserves. Eight are in Lake County, including Liberty Prairie, Oak Openings, and Almond Marsh, which together form a complex of wet prairies, fens, sedge meadows, marsh, oak savanna, and oak woods that suggests the jumble of habitats that was typical of the basin 150 years ago.

Losses of presettlement habitat in the upper Des Plaines basin are less severe than in the state as a whole. Natural areas amounting to nearly 2,300 acres survive. However, Category I sites—natural communities that meet the INAI's most exacting standards of ecological integrity—make up but 440 acres, or 0.2% of the basin. Of the nearly 90,000 acres of prairie thought to have been present in 1840, about 18 acres survive in high-quality condition. Of the estimated 58,000 acres of presettlement wetlands, about one-fifth is left, although only about 1% of that remains as the first European travelers saw them. In terms of acreage, there is thought to be as much forest in the basin today as then. Species composition in the local woods is rich—a typical chunk of upland forest harbors two dozen kinds of trees and nearly that many shrubs—but only 343 acres is undisturbed forest of high ecological quality.

Many other habitats were disturbed but not destroyed. The region's remnant savanna is typical of these unappreciated, often unrecognized tracts. Savanna is a not-quite-forest, not-quite-prairie ecosystem in which scattered large trees (usually oaks) dominate an open landscape of prairie grasses and forbs. Savanna used to cover half of Lake County alone, but today not one acre of savanna survives in the entire basin as an INAI Category I natural area. However, savanna damaged by plowing or grazing still exists across the basin.

Most large mammals, including the American bison, had been hunted out long before the Euro-American arrival. Several bird species—the sharp-tailed grouse and yellow rail among them—also vanished from the basin. However, the humanization of the basin's ecosystems doomed surprisingly few large animals. Forty-

The Area at a Glance

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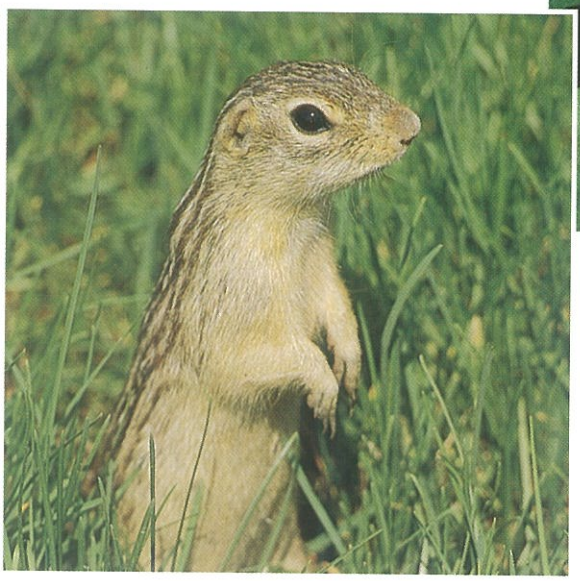
The green frog (right) thrives in upper Des Plaines habitats such as wetlands, forests, rivers, and creeks; the 13-lined ground squirrel (below) is a denizen of grasslands.



three mammal species are still known or are thought likely to occur here, along with 16 amphibian and 23 reptile species. Among the latter is the massasauga, a state-listed snake, which has been found in pockets of habitat along the Des Plaines River from the Ryerson Conservation Area near Lincolnshire to Willow Road in Cook County.

Bird life is especially varied. At least 270 of the 299 bird species that regularly occur in Illinois may be found here at least part of the year; diligent birders have spotted 116 species in a mere 33 acres of the Reed-Turner Nature Preserve in Long Grove. The basin lies far enough north that it is a summer home to northern species like the least flycatcher, and far enough south that southern species such as the Kentucky warbler also nest here occasionally. Wetlands (especially the Deer Lake-Redwing Slough complex) are considered the most significant avian habitat in the basin. Some three dozen bird species nest there, including 14 listed species such as the least bittern, the double-crested cormorant, and great egret. The basin also may be intensely used by migratory birds, from forest songbirds to various shorebirds, rails, and long-legged waders such as bitterns.

Human presence does stack the survival odds in favor of certain kinds of animals. Chicago's suburbanized hinterland is most congenial to adaptable generalist species able to feed and breed in widely varied settings. The gray squirrel, which ordinarily is a denizen of deep forest, is found in leafy basin towns like Libertyville and Arlington Heights. In the wild, the Kirtland's water snake shelters in crayfish burrows, but the snake has been found in vacant lots under boards and other urban debris. Raccoons thrive on garbage, deer graze in home gardens often enough to be pests, and coyotes may be succeeding locally at the expense of the red fox. Thirty-nine or so bird species breed in developed land such as lawns and parks, making up a bird community that has no parallel in the natural world.

Species that need more specialized habitat tend to do less well in humanized landscapes. The water quality of the basin's streams, while improving, is not good enough to sustain the full panoply of riverine creatures found in similar but undisturbed streams. While limited data suggest that the array of aquatic macroinvertebrates—among them, worms, leeches, insects, and snails—is no less diverse than in most Illinois streams, mussel populations are much less varied. Mussels feed on stream bottoms, where many pollutants accumulate; the Des Plaines River is home to only

four mussel species, whereas Illinois' more pristine rivers boast as many as four dozen.

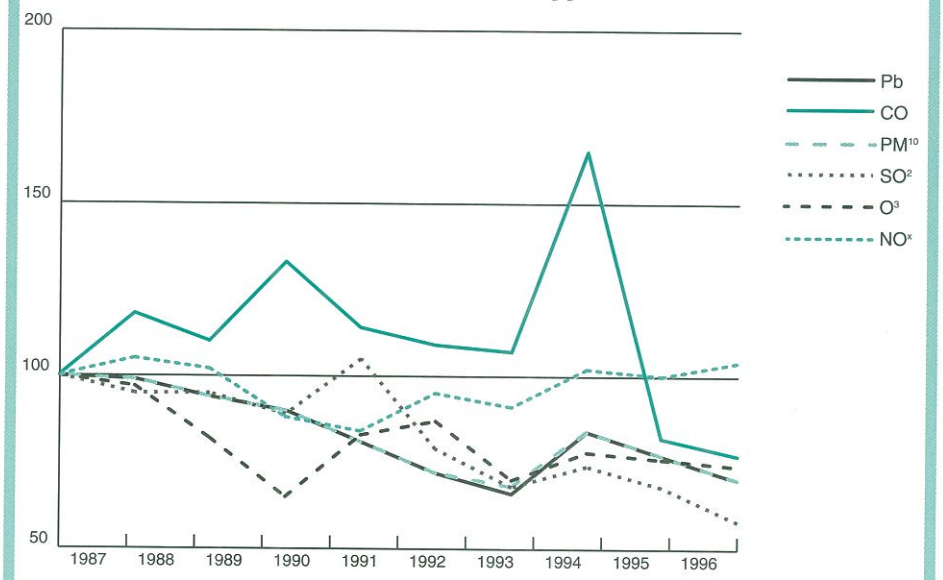
Sustaining the basin's fauna is an abundant and varied flora. Even an incomplete listing of vascular plants adds up to more than 600 species. Twelve bird species, two reptile, and one species of fish are on the official list of endangered or threatened species. So are 24 of the basin's plant taxa (most of them known from Lake County). The prairie white-fringed orchid once was widespread in northern Illinois prairies and wetlands, but today its survival in the U.S. is considered threatened by federal conservation officials. Scattered populations hang on in old fields and in cattail patches very near the basin's boundaries, and similar habitat within the basin may still harbor other small populations.

The Humanized Des Plaines

Back in 1970, local urban planners predicted that within five years the dust and fumes from expanding operations at O'Hare International Airport, which at one point sits only a mile from the river in the southern end of the basin, was expected to render the environment unfit for businesses or residences for five miles in all directions.

Thirty years later the dust is coming from the construction boom triggered by high property values around the airport. In the upper Des Plaines basin, as across the state, emissions of "criterion pollutants,"—substances regulated by federal law to

Air Quality Trends in or Near the Upper Des Plaines Basin



Pb = lead (sources are primary and secondary smelters and old auto emissions still recycling in the atmosphere); CO = carbon monoxide (8-hour measurement, primarily auto emissions); PM^{10} = particulate matter (less than 10 micrometers in size); SO^2 = sulphur dioxide (from fuels with sulphur impurities, e.g. coal and oil); O^3 = ozone (reactions of hydrocarbons and nitrous oxide in the atmosphere); NO_x = nitrogen oxides (high temperature combustion, automobiles and power plants).

The Area at a Glance

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Forest Preserves

The upper Des Plaines basin contains no large federal parks or preserves, nor even one state park. (The basin includes nine State of Illinois nature preserves and 19 natural areas, but these are not meant for recreation in the usual sense.) The main recreation playgrounds are the chain of county forest preserves along the Des Plaines River itself. Here may be found opportunities for hiking, biking, ball games, picnicking, and nature lore, among other pleasures.

The loss of forest cover to development has been less severe in the basin than in Illinois as a whole largely because of northeast Illinois' pioneering forest preserve system.

Apart from losses for construction of the Tri-State Tollway through Des Plaines, the preserves are thriving, thanks to the broad political support the system enjoys. Indeed, voters have been receptive to expanding it. A 1993 Lake County bond referendum to raise $30 million to purchase land for that county's Forest Preserve District—which already owns 6.4% of the county's land or 19,100 acres—passed handily.

The system was built opportunistically, through purchase or repossession of derelict land in the form of old farms or failed subdivisions. But bargains in land are getting hard to find in the upper Des Plains basin. In the late 1990s, expanding existing forest preserves by acquiring adjacent developable property through condemnation ran into hundreds of thousands of dollars per acre. The average price per acre of any vacant land was nearing $100,000 in some parts of suburban Chicago. Such prices make purchase by public bodies problematic politically as well as fiscally.

In addition to scenery and fun, the woods owned and managed by the Cook and Lake county forest preserve districts remain a rich refuge of species diversity in Illinois. The woods of the Ryerson Conservation area (owned by the Lake County Forest Preserve District) harbor 460 species of flowering plants, 64 species of birds, 19 species of mammals, and seven species of amphibians.

Their name notwithstanding, the forest preserve systems did not seek to preserve forest in their ecologically immaculate condition. The early forest preserve districts did not so much preserve forest as create them, by not interfering with natural succession and allowing old farm fields—many of them originally savanna—to revert to woods.

The mandate to preserve the region's forests "in their natural state" is taken more literally today by a new generation of managers. The founding forest preserve agency, the Cook County Forest Preserve District, was granted power to acquire land containing natural forests or lands for purposes of protecting flora and fauna and scenery.

But what if the flora and fauna being restored are not considered scenic? The native landscape of northeast Illinois is not a landscape that people instinctively respond to. "Nature" to many Illinoisans still means trees. The look of prairies is still not popular, although 20 years of proselytizing on their behalf means that they are no longer automatically derided as weedy-looking.

To help people learn to judge a landscape not only in aesthetic terms but also in terms of its ecological authenticity, forest preserves have become sites of environmental symposia as well as softball tournaments. Forest preserves have added environmental education managers to the list of specialists on the payroll.

But "natural" remains a term of disputable meaning. The mandate was easily satisfied during that system's first 75 years, when the agency sought to preserve nature, not specific native ecosystems. Thanks to the different circumstances of their genesis, "second-growth" forests are not just new forest, but new kinds of forest compared to what grew there before. Attempts to restore savanna in the preserves by ridding it of trees not native to that ecosystem have caused controversy inside and outside the various county agencies. A lot of people still find cutting down trees to preserve a native forest to be unnatural.

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protect public health—have been dramatically reduced since 1970. There is much less sulfur dioxide in the air thanks to cuts in the use of coal by power plants. Lead in soils and the air—formerly a grave public health risk in big city environs—likewise has been substantially reduced. Only at Lyons Township, in the heavily industrialized south end of the upper basin, did "small particulates" (fine dust from various sources) even occasionally exceed the 24-hour standard in the early 1990s.

Pollution of surface water has been reduced too, if less dramatically than air pollution. When the water quality of 38 lakes was assessed for 1994–95, only four showed even moderate impairment because of pollution, and 24 fully satisfied the uses to which they are put. However, water quality in 16 of these lakes has been declining, and their suitability for more demanding uses such as water supply or recreation could be impaired if the trend continues.

About a quarter of the upper Des Plaines basin's roughly 500 miles of streams has been assessed by the Illinois Environmental Protection Agency for quality. Overall water quality must be considered only fair. Too small in these reaches to carry cargo barges and redundant as a water supply, the upper Des Plaines River itself continues to function essentially as a sewer for the basin. Cities and towns do a much better job of treating sewage before they dump it into surface waters, but combined sewer systems still flush a lot of untreated sewage directly into the Des Plaines and its tributary streams when stormwater overwhelms treatment plants.

While pollution from point sources like factory smokestacks has abated, emissions from non-point sources have proven harder to control. Natural winds keep most of Cook County emissions from travel-

The Area at a Glance

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Open Space

The term "open space" as used in urban planning has always suggested a sunny alternative to the closeness of the built-up, locked-in city of the 19th century. However, the suburban upper Des Plaines River basin of the late 20th century remains very open, as measured in terms of population densities and building heights. Much "open space" in the basin is in fact valued because it is closed; many forest preserve drives are popular because the dense growth provides an opaque green screen that hides nearby buildings.

"Open space" might more accurately be changed to "green space." What is significant about such space is that it is natural, not architectural. It is not necessarily native either; the unofficial aim of open space programs until recently was to preserve the aesthetics of the fast-changing countryside, not its ecological integrity. A commuter driving home may find immensely satisfying the view of a forest fragment that an ecologist considers degraded in terms of species diversity or mortality rates.

For years farms were the *de facto* open space system in the upper Des Plaines basin. (To this day many Illinoisans think of "nature" in terms of the cultivated agricultural landscape, not the wild tangle of wetland or woods.) Residents were able to simply appropriate views of the private farmscape as public amenity.

Today, Illinois-style grain and livestock farming appears doomed in the upper Des Plaines basin. Farm acreage in the region dropped 22% between 1978 and 1992 alone, a rate of loss that is much higher than in the rest of the state. In 1925 farms took up 38% of the land in the basin; by 1995 that had dropped to about 9%, and that is concentrated in the northern parts of the basin farthest from the urbanizing fringe. The loss of privately-owned open space means that its provision is increasingly seen as a public responsibility. Voters in Libertyville Township have even authorized a township Open Space District, a revealing extension of Illinois' tradition of special-purpose government.

Nature has become politicized in northeast Illinois as it has in few other places in Illinois. This is especially true in Lake County. In the late 1990s, slow-growth activists won election to the county board in Lake County, ousting a pro-growth coalition. The incumbent chairman of the county board was criticized during the race for pushing the $12-million extension of Yorkhouse Road through wetlands in the northeast corner of the county, near the Des Plaines River Wetlands Demonstration Project site.

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Coyotes may be succeeding locally at the expense of the red fox.

ing into the basin. Most of the air pollution is produced locally—mainly in the form of engine exhaust. Symbolically, the automobile tailpipe is to the upper Des Plaines basin of the 1990s what the factory chimney was to Chicago of the 1890s. Criss-crossed with expressways, tollways, and interstates, the larger region of which the basin is a part contains only 10% of Illinois roads (measured in miles) but they carry about 40% of the vehicle-miles traveled in the state. It is fitting that here, in an urban complex based on mobility, the only historical site worthy of national note is a drive-in restaurant—the nation's first McDonald's, which opened in Des Plaines in 1955.

Nonetheless, air pollution from vehicles has not risen nearly as fast as miles driven, thanks to cleaner-burning engines and fuels. In the early 1990s, most or all pollution monitoring stations in the upper Des Plaines basin reported only brief and minor violations of federal limits on ozone, the corrosive gas created when sunlight chemically transforms certain chemicals that are found mostly in auto emissions.

As in the case of air pollution, surface water quality is compromised by hard-to-regulate nonpoint sources. Soils are washed into streams from field and building sites, as are de-icing salts from roads. Nutrients such as phosphorous leached from lush lawns and cropland feed algae that block the light and steal the oxygen that other living things need to thrive. At times, concentrations of Atrazine, a farm herbicide used in the northern reaches of the basin, exceed the federal drinking water standard.

Pollution is only one of the ways that people change the natural environment of the basin. Protecting urban properties from fires and floods also alters natural systems, as does building in them.

Fragmentation Construction of roads, fields, and houses divides once-intact forests, wetlands, or prairies into small habitat "islands." Entire local populations of some plant and animal species may include only a few individuals. The smaller such local populations are, the more vulnerable they usually are to disease and genetic stress from in-breeding. Such splintered tracts also are often too small for species such as badgers that

The Area at a Glance

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Δ Twelve bird species, two reptile, and one species of fish are on the official list of endangered or threatened species. So are 24 of the basin's plant taxa (most of them known from Lake County).

Δ Emissions of "criterion pollutants," or those substances regulated by federal law to protect public health, have been dramatically reduced since 1970.

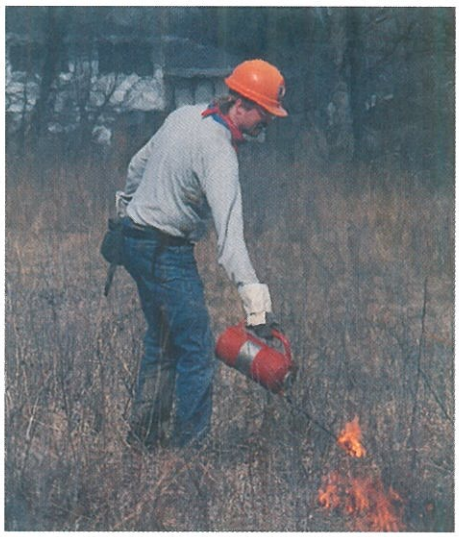
Popular wildflowers or "spring ephemerals" of the basin's upland forests flower and set seed in spring, before the new tree leaves block life-giving energy from the sun: red trillium (right) Trilium recurvatum *trout lily (top below)* Erythrenium albidum *and one of spring's first gifts, bloodroot (bottom below).*

demand far-flung home ranges. Many animals (especially reptiles and amphibians) seek out different habitats at different life stages; fragmentation severs natural landscape links between such habitats, making these migrations hazardous or impossible.

Forested wetland in the basin consists of 390 separate tracts, the mean size of which is 7.5 acres. Research suggests that many forest birds need the protection of at least 500 acres of woods to breed successfully; the two largest contiguous forested tracts on the Des Plaines River (near Gurnee and near Libertyville) measure 239 and 106 acres respectively. The largest emergent wetland in the basin covers 355 acres—massive by Illinois standards—but the average is 3.7 acres. For comparison, the shopping space inside Schaumburg's Woodfield Mall is more than 57 acres.

Fire Looking back, an old settler of the basin noted that the almost annual prairie fires of those days did little harm to mature trees but "seemed to just fit the country for the wonderful crop of grass and the vast floral display that came year after year." The extent of savanna in the presettlement basin is thought to be explained in part by the occasional fires that swept the area, recycling nutrients, clearing the ground for new growth, and killing all but the fire-resistant oak species.

Without fire to stem plant invaders, savanna becomes dense woods. In deep woods, young maples untouched by fire survive to shade the forest floor. Plants that thrive in the sun—including oak seedlings—languish. As a result, the old oaks in the woods of the upper Des Plaines basin are not reproducing themselves. The forest floor, which usually is the most diverse part of the forest, also ends up with fewer kinds of plants. Popular wildflowers or "spring ephemerals" of the basin's upland forests flower and set seed in spring, before the new tree leaves block life-giving energy from the sun. (These include bloodroot, trillium, trout lilies, wild ginger, waterleaf, and wild geranium.) However, mid- and late-summer wildflowers struggle to bloom after the leafed-out trees block the sun. Fortunately these effects can be reversed. For example, some flowering plants, such as the state-listed northern cranesbill that occurs in one



Prescribed burns help stem woody plant invaders, protect savannas from becoming dense woods, and curtail young maples which, if allowed to run rampant, would shade the forest floor and keep spring ephemerals from thriving.

dryish forest in the basin, increase after ground fires are deliberately set to burn off competing plants.

Modification The upper Des Plaines is part of a hydrologically immature landscape whose present contours date from only about 10,000 years ago, when Lake Michigan's shoreline retreated to approximately its present position. Ten thousand years is not enough time for nature to carve an efficient system of rills, rivulets, and streams to carry away rainwater and melting snow from such a level surface. The open land of the basin thus remains dotted with so many emergent wetlands—nearly 1,700—that a map of them looks like a lawn littered with fallen leaves.

Wetlands unfortunately make farming and travel difficult. Even today they are an expensive complication to construction. A proposed 23-mile road project that would extend Route 53 to Interstate 94 near Waukegan carries a $1-billion price tag in part because the road will cut through environmentally sensitive wetlands whose protection will require expensive special engineering.

Humans have long pre-empted nature as engineers of the watershed. Fields were tiled, and the wetlands along the upper Des Plaines were drained. Many natural lakes have had impounding structures installed at their outfalls to stabilize their levels, and now function as artificial lakes do. Low-head dams (mainly for flood control) have been built at five spots on the upper Des Plaines river, altering water levels and the movement of sediments, nutrients, and plants and animals in its channel.

Much of the water that flows through the upper Des Plaines in summer doesn't even come from its own watershed. Low flow in the basin's streams is increased by water that is taken from Lake Michigan and put, via lawn sprinklers, into surface streams. Sewage treatment similarly redistributes water. About 25% of the water in the river above Salt Creek—and when the river runs low, perhaps as much as 95%—consists of treated water from sewage plants; because of it, average flows in the Des Plaines are 80% higher today than in the 1940s and 1950s.

The Area at a Glance

Δ Pollution of surface water has been reduced. When the water quality of 38 lakes was assessed for 1994–95, only four showed even moderate impairment because of pollution, and 24 fully satisfied the uses to which they are put.

Δ About a quarter of the upper Des Plaines basin's roughly 500 miles of streams has been assessed by the Illinois Environmental Protection Agency for quality. Overall water quality must be considered only fair.

Δ Air pollution from vehicles has not risen nearly as fast as miles driven, thanks to cleaner-burning engines and fuels. In the early 1990s, most or all pollution monitoring stations in the upper Des Plaines basin reported only brief and minor violations of federal limits on ozone.

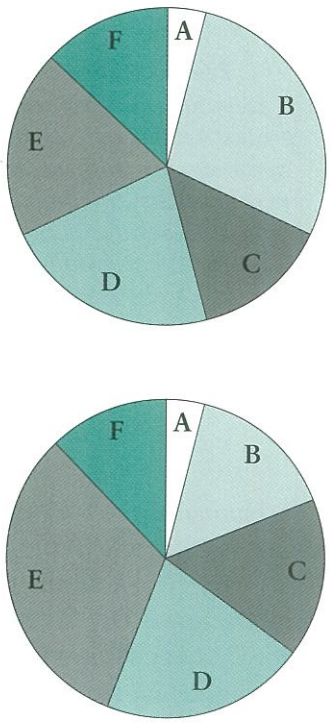
Δ Surface water quality is compromised by hard-to-regulate nonpoint sources, such as soils washed into streams from field and building sites, and de-icing salts from roads.

Such single-minded alteration of a basin's drainage is now widely recognized as having hidden costs that can rival or exceed its obvious benefits. Wetlands store immense amounts of floodwater, reducing peak flows during floods. Riverine wetlands also function as natural water purification systems, allowing suspended soil particles to settle out of the water. Experiments showed that artificial wetlands in the basin trap 88% of sediments contained in water passing through them.

Exotics An arkful of non-native animals and plants have been introduced to the upper Des Plaines basin, often with unintended ecological effects. Pet dogs and cats prey on songbirds in forest preserves. Rusty crayfish were introduced to the Des Plaines River by fishermen who bought them as bait and dumped the survivors into the water, where they outcompete the native (and ecologically similar) clearwater crayfish.

Non-native plants are an even more problematic presence. About 70 of the vascular plant species now found in the basin are not native to it. Escapees from suburban yards such as the common lilac, orange day lily, yucca, and common periwinkle are so familiar a part of the humanized landscape of northeast Illinois that many people mistake them for native plants. Roughly 30 introduced plant species have adapted so well to the disturbed ecosystems of the suburbs that they have become pests. Glossy buckthorn, highbush cranberry, common buckthorn, bush honeysuckles, bittersweet nightshade, and purple loosestrife are ubiquitous and probably permanent additions to the region's landscape. Garlic mustard is invading forest floors, reed canary grass has taken over more than one marsh, and spreading Kentucky bluegrass compromises the floristic integrity of local prairies.

Employment Distribution in the Upper Des Plaines River Basin



1970

A Other (4%)
B Manufacturing (28%)
C Transport., utilities, FIRE* (14%)
D Wholesale/retail (22%)
E Services (19%)
F Government (13%F

*Finance, Insurance and Real Estate

1994

A Other (4%)
B Manufacturing (15%)
C Transport., utilities, FIRE* (16%)
D Wholesale/retail (21%)
E Services (32%)
F Government (12%)

Urbanization Changing country into city is the most widespread and obvious form of ecosystem modification in the upper Des Plaines basin. Urbanization is the third of the great transformations of the basin's landscape in the past 150 years. The first was conversion of the post-glacial landscape into farms, which began around the 1830s. The second was suburbanization, which saw farms gradually replaced by residential subdivisions beginning in the late 1800s and resuming with explosive energy after World War II.

Urbanization began in earnest in the 1960s. No longer do the suburbs consist of bedroom communities linked by shopping malls. The economic base of the basin is diverse and growing. It consists of office parks (many of which house corporate headquarters), R&D facilities, and lodging and conference facilities. "Clean" industries like the one-million-square-foot-plus cellular phone "facility"—they are no longer called factories—that Motorola Cellular Subscriber Group built in Arlington Heights are this era's steel mills. Warehouse and distribution operations stand next to pharmaceutical labs or high-tech shops like Des Plaines's Scientific Device Laboratory. As the density of business in the region has increased, a supporting infrastructure of experts—from accountants and financial advisors to architects, marketing consultants, and

business administrators—has been built up.

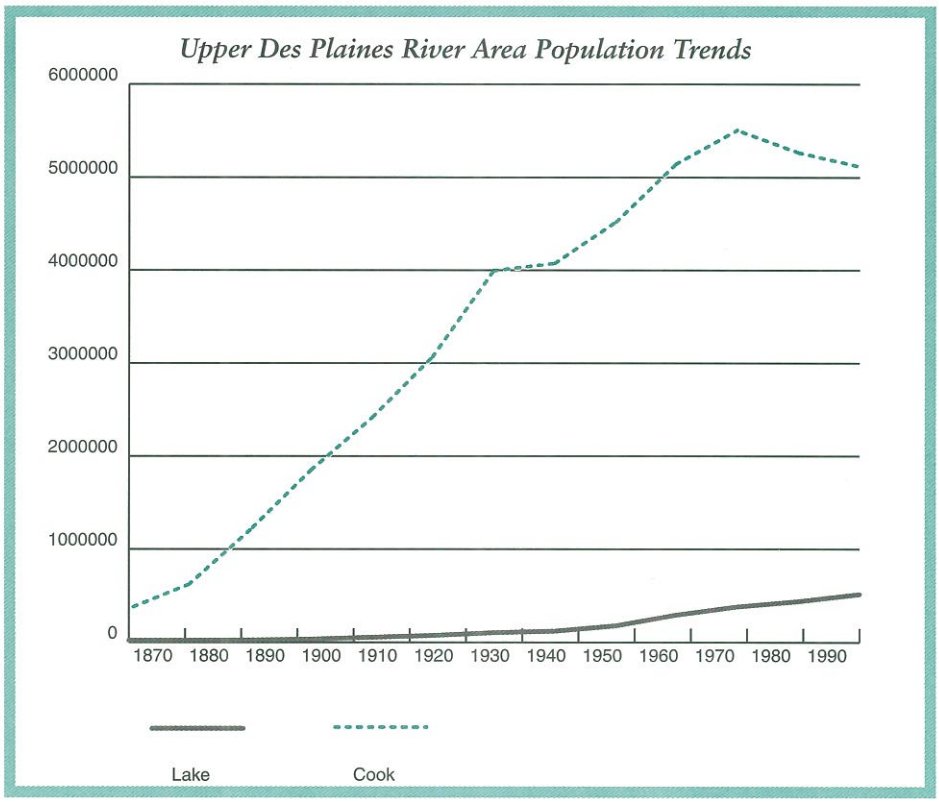
No surprise, then, that the number of jobs in Lake County is twice what it was in 1970, or that in the late 1990s it was increasing at nearly 3% a year. As a result, Lake County has quadrupled its population since World War II (a net increase of 56,000 residents between 1990 and 1995 alone), part of a long-standing shift of the state's population to northeast Illinois.

Resources Then and Now

In the days of the French fur traders who gave the river its name, the economy of the upper Des Plaines basin depended substantially on the extraction of local resources, mainly furs. Later, farmers exploited local mineral resources in the form of soils. Today the most precious natural resource is land—not as a repository of soil or minerals, but simply as a stable platform on which to build things. The basin contains many rich sand and gravel deposits, for example, but land atop them is too valuable to be dug up, so these essential building materials are mostly imported from remoter quarries.

Another still-vital resource that is taken from the ground is water. Flat as it is, there are few natural sites to make into water supply reservoirs. Aquifers in bedrock are the main source for most farm, factory, and public water supplies in the basin. Together they withdraw 7.2 million gallons per day (mgd).

That figure reflects a recent downward trend in groundwater withdrawals. Beginning about 1950, Chicago suburbs were withdrawing groundwater from the deep-lying Ironton-Galesville sandstone aquifer faster than nature could recharge it.



The Area at a Glance

Δ Construction divides once-intact forests, wetlands, or prairies into small habitat "islands." Entire local populations of some plant and animal species may include only a few individuals. The smaller such local populations are, the more vulnerable they usually are to disease and genetic stress from in-breeding.

Δ Forested wetland in the basin consists of 390 separate tracts, the mean size of which is 7.5 acres. Research suggests that many forest birds need the protection of at least 500 acres of woods to breed successfully. The two largest contiguous forested tracts on the Des Plaines River measure 239 and 106 acres respectively.

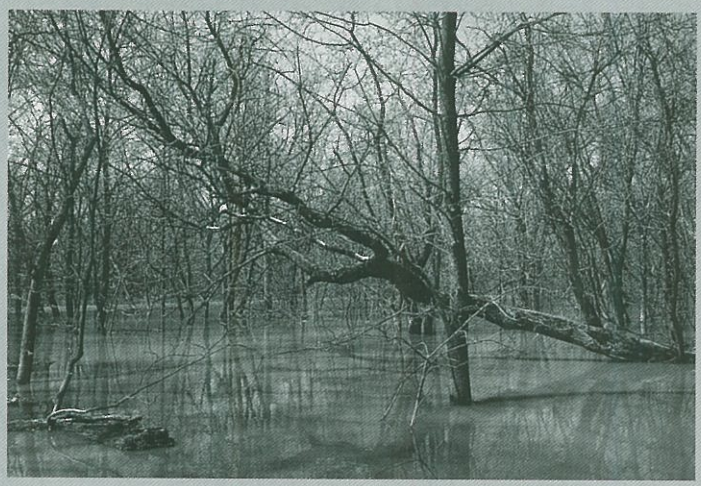
Δ The open land of the basin remains dotted with many emergent wetlands—nearly 1,700. The largest emergent wetland in the basin covers 355 acres—massive by Illinois standards—but the average is 3.7 acres.

Δ Low-head dams (mainly for flood control) have been built at five spots on the upper Des Plaines river, altering water levels and the movement of sediments, nutrients, and plants and animals in its channel.

Flood Control

In most parts of Illinois, the most pressing problem of natural resources policy is how to protect nature from cities. In much of the upper Des Plaines basin, the dilemma is how to protect cities from nature. The Des Plaines River is Chicagoland's most flood-prone waterway. Flooding has long been severe in places such as unincorporated Libertyville. In the late 1980s, two record-setting floods caused an estimated $100 million in damage in Lake and Cook counties. In even an average year, flood damage costs local governments and property owners more than $20 million, a cost that is expected to worsen as development expands throughout the river's watershed.

As is true of most rivers with small watersheds, the flows of the presettlement Des Plaines varied enormously with the seasons. It burst its banks most springs only to run nearly dry by late autumn. The flooding sometimes made it possible for Native American travelers and, later, French traders to float canoes across the several miles that separate the Des Plaines and the Chicago rivers, a barrier between Lake Michigan and the Mississippi river system that in drier times had to be crossed on foot.



High water levels in spring can flood the forests around the Des Plaines River at Robinson Woods.

Aggravating the drainage problem in recent decades is a (so far) short-term climate trend which has seen warmer and wetter weather in northeast Illinois. Interestingly, the river's flood peaks actually have been reduced in the past 25 years, thanks partly to reservoirs built on the Des Plaines's tributaries that intercept flood water before it reaches the river. Floods cause more dollar damage than in the past because there is more (and more expensive) construction in the basin, not because there is more floodwater.

Conventional flood control seeks to speed the movement of water from the surface where it falls into some receiving stream, which carries it away. An alternative approach is to make water run slower, catching it where it falls and letting it linger so as not to overburden the main channel. As noted, peak flows in the basin have already been reduced due to the construction of upstream water-catching reservoirs. Late in 1996, the U.S. Army Corps of Engineers revealed an early version of a $73 million plan to further control flooding from the Wisconsin state line to Brookfield and Riverside. Levees and dikes would be built or enhanced to protect built-up areas, but the engineers also identified sites for future shallow water storage basins that would restore some of the floodplain's now-diminished ability to catch and hold floodwater.

Some local officials complained that the proposed new control structures would be ugly, or were too narrowly conceived. The Lake County Board joined the county's Forest Preserve District, its Stormwater Management Commission, and the Illinois Department of Natural Resources to draft an alternative to the Corps' plan. The revised plan (unveiled in the spring of 1997) sought to mimic natural floodplain function more completely through use of wetland restorations, wetland creations and more shallow, more natural-looking lateral storage areas.

Eliminating a river's own way of coping with floods does not stop floods, it only keeps the river from coping with them. In crowded metropolitan areas like the upper Des Plaines, nature has been teaching a lesson that is beginning to sink in—that the way to live with a river is to keep it alive.

Water levels in some local wells eventually dropped more than 1,000 feet, with lesser declines recorded as far away as Wisconsin. This "mining" of groundwater led to court action by Wisconsin, which led in turn to a long-range plan to reduce pumpage from that aquifer system. In the 1980s many Chicago suburbs began to draw water from Lake Michigan, thus reducing groundwater withdrawals to levels closer to natural recharge rates. Withdrawals for public drinking water, for example, dropped from 15.3 mgd in 1990 to 4.3 mgd in 1995.

Apart from buildable land and water, the natural realm remains a source of visual amenity and diversion. Pleasant views add taxable value to local housing stock, and an affluent public presses local officials to expand opportunities for outdoor recreation such as hiking, birding, and especially biking. Construction of bike trails is ongoing. For example, the Des Plaines River Trail will extend 33 miles (23 miles have already been built) from the Wisconsin border to the Illinois River.

Market hunting decimated populations of waterfowl and other birds to fill Chicago's tables. (The passenger pigeons that once roosted in the woods along the upper Des Plaines were gone by the 1890s.) Hunting for sport in the basin has declined not because there are too few animals, but because there are too many people. Firearm deer hunting is not allowed in the crowded basin, so many local hunters travel out of state for sport.

Fishing is more popular, but here too the region's share of license sales is lower relative to the rest of the state. Many residents bent on angling also venture out of the immediate area, to spots on the Kankakee River or to Wisconsin. As the basin's natural fishing holes disappear, they are replaced by artificial fishing holes in the form of many small fishing lakes like Belleau Lake located just southwest of Rand Road and I-294, which is stocked with rainbow trout in spring and fall and also offers largemouth bass, yellow perch, bluegill, and bullhead catfish. Such managed waters appeal to anglers who seek fish and not a wilderness experience.

A commercial water park in the river's namesake town offers customers a ride in an inner tube "down a lazy river" that is in cleanliness at least superior to the real one that rolls nearby, unused. Nor is the Des Plaines a pleasure boater's paradise. The riffles and rapids that made the early Des Plaines a dangerous stream to boat on are gone, but today's river lacks the open water that draws power boaters to the Fox River and Chain O' Lakes or to the Lake Michigan shore.

However, the progressive, if slow, restoration of water quality is making the stream a more attractive recreational choice, especially as a canoeists' stream. The canoe was the means by which the region was explored, and it remains the preferred vehicle for those wishing to enjoy the quiet of smaller streams like the Des Plaines at a leisurely pace.

An Outdoor Laboratory

Management by humans in many cases is the only means to stabilize ecosystems too fragmented or too disturbed to sustain themselves. For example, disturbed ecosystems left in a natural state—meaning unperturbed by people—do not thus automatically recover their original native state. An

The Area at a Glance

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Δ The economic base of the basin is diverse and growing, and the number of jobs in Lake County is twice what it was in 1970.

The Des Plaines River Wetlands Demonstration Project consists of 450 marshy acres along 2.8 miles of the river in northern Lake County. Experiments showed that artificial wetlands in the basin trap 88% of sediments contained in water passing through them.

open savanna, left alone, will become dense, shrubby forest. A sedge meadow, once flooded—as one on Indian Creek near Gilmer was recently flooded by a beaver pond—will probably not revert to sedge meadow if it is drained. Instead, it will become a wet meadow as it is taken over by plants that thrive in silted-up areas, like reed canary grass.

The basin has become an outdoor laboratory for experiments in the restoration and reconstruction of habitats. Probably the best known is the Des Plaines River Wetlands Demonstration Project, opened in 1990 after ten years of planning. The project site consists of 450 marshy acres along 2.8 miles of the river in northern Lake County. Owned by the Lake County Forest Preserve District, the site had been drained, plowed, quarried, and grazed. The terrain was reconfigured and replanted so that water pumped into it from the river moved slowly back into the channel through four wetlands. The site quickly attracted waterfowl. More important, tests confirmed that water quality improved during its leisurely progress through the wetland. Plants caught and held most sediments, and excess nutrients in the river water were consumed by microorganisms and plants so efficiently that 65% to 80% of the water's excess phosphorus was removed.

Driven partly by federal regulations and partly by desire to find lower-cost "softer" solutions to chronic flooding problems, municipalities across the basin are experimenting with restoring and recreating wetlands to both reduce pollution and reduce floods. Libertyville Township, for example, plans to tear out drainage tiles and regrade an 80-acre cornfield it owns to create new wetlands. The $1.2 million project will serve as a "wetland mitigation bank." The U.S. Clean Water Act requires that for every acre of wetland destroyed as a result of public or private development, at least one acre of wetland must be created elsewhere. Developers who want to fill in a wetland elsewhere in the Des Plaines River watershed can satisfy that obligation by contributing toward the cost of building wetlands on the township's property.

Another approach is to restore damaged but still viable ecosystems. As noted, undegraded bits of presettlement habitat are rare in the upper Des Plaines basin, but many damaged sites could be restored to relatively high levels of ecological integrity. One such project is a damaged savanna that is regenerating at the Reed-Turner Woodland, a nature preserve in Lake County. Cutting brush and periodic burning are restoring savanna-like growing conditions.

Plans are underway to link public stream margins, forest preserves, roadsides, even golf courses with appropriately managed private and commercial sites. (Some local corporate campuses have been landscaped

using native plants.) The hope is to create corridors of protected land that allow animals to move through an otherwise perilous landscape.

Restoration, reclamation, and re-creation of ecosystems are all emerging sciences, and not everything being tried will work. Early experiments have made plain that carefully engineered artificial wetlands can catch and hold floodwater, filter sediments, absorb excess fertilizers and other chemicals, and attract waterfowl searching for places to rest and feed on annual migrations. (The Libertyville Township project is expected to attract migratory fowl such as tundra swans and blue-winged teals.) Recreating the botanical complexity of a true wetland is much harder. Because the upper Des Plaines basin is so fragmented, few wetland plants still grow nearby whose seeds might colonize rebuilt habitats. It may take 50 years to get a wetland that resembles a natural system in terms of species composition.

What is true of wetlands seems to be true of all recreated ecosystems. The recovery of once-grazed forests appears to be slow, and invasions by pest plants can be fought off only by management that is as aggressive as they are, such as repeated prescribed burns. Restored savanna at Wadsworth Savanna and Oak Openings nature preserves are species-poor and so far have not developed into communities that match nature's species richness or structure.

Natural systems are not only complex but constantly in flux. Tinkering with any part of one usually shifts it in directions that are not always predictable or desirable. The white-tailed deer, Illinois' largest and most coveted game animal, was considered extirpated in Illinois by 1901. As farm fields reverted to woods and new understory grew in woods no longer grazed by livestock, the animal's habitat expanded. More food (and fewer natural predators) triggered a deer population explosion.

The white-tailed deer population, almost extirpated in 1901, has exploded due to the abundance of food and fewer natural predators.

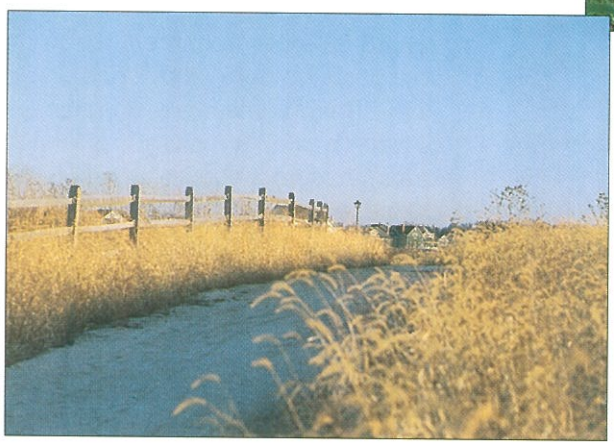
The Area at a Glance

△ Lake County has quadrupled its population since World War II (a net increase of 56,000 residents between 1990 and 1995 alone), part of a long-standing shift of the state's population to northeast Illinois.

△ In addition to buildable land and water, the natural realm is a source of visual amenity and diversion. Construction of bike trails is ongoing. When finished, the Des Plaines River Trail will extend 33 miles from the Wisconsin border to the Illinois River. The progressive restoration of water quality is making the stream a more attractive recreational choice, especially for canoeists.

△ The basin has become an outdoor laboratory for experiments in the restoration and reconstruction of habitats. The Des Plaines River Wetlands Demonstration Project consists of 450 marshy acres along the river in northern Lake County that have been reconfigured and replanted. The site quickly attracted waterfowl, and tests have shown that water quality improved as it progressed through the wetland.

The Liberty Prairie Open-Space Reserve near Grayslake is a cooperative interagency project among county and township agencies and private landowners. A "macro-site" of approximately 2,500 acres combines homesteads, prairie, wetland, and forest. Homeowners pick forb and grass seed in fall (right) to help enrich the site's prairie habitat. Below, one of the roads that leads through protected prairie to homes nestled into their natural surroundings.



The forests of Illinois are now home to more white-tails than were thought to have been present at settlement. In many parts of the upper Des Plaines basin deer are a road hazard and garden pest. Overbrowsing by deer is a serious problem in the northern flatwoods within Busse Woods, the 440-acre nature preserve near Elk Grove Village in Cook County. Deer devastate delectable plants (including wildflowers like the bellflowers) and leave untouched bad-tasting exotics with thorns or bristly fruits. Deer thus act as agents of natural selection, favoring such introduced species as Missouri gooseberry and buckbrush over native ferns, orchids, and trilliums.

Restoration

The pace of conversion will vary, but the city will eventually encompass all the upper Des Plaines basin. New single-family homes are larger than ever and sit on larger lots. Competition among municipalities for taxable development encourages building on virgin sites rather than more intensive use of existing commercial infrastructure. Here and there in the basin, development is being made more dense and thus more land-efficient (usually in land-locked suburbs like Arlington Heights). However, the general trend is for developers to continue to move farther out into the hinterland in search of unbuilt land.

Nature—usually in its simplest form as "non-city"—has always been at the heart of the suburbs' appeal, and thus its economic future. Rural amenities are as crucial as good schools and low taxes in attracting new residents. From local governments' perspectives, the continuing loss of "nature," broadly defined, is an economic development issue. Already a generation of house buyers has passed up the upper Des Plaines basin in favor of remote Kane and McHenry counties, hoping to find there a setting for daily life that has been lost in much of Lake and Cook counties over the past 20 years.

The loss of the basin's quasi-rural scenery to construction is transforming a once-public amenity into a private one. A new generation of subdivision designs seek to duplicate within developments the countryside that has largely disappeared outside them. A typical Lake County "conservation community" encompasses a small lake, 275 acres of surrounding wetlands, and space reserved for parks. Such techniques are a further elaboration of the old impulse to capture and tame nature in the backyard. The difference is that these new communal "backyards" are large enough and managed in ways to provide not just pretty views from

Concerned citizens take their stewardship of natural resources seriously. The Des Plaines River Trail is part of the Des Plaines River Greenway, which in turn is a key part of the 4,200-mile Northeastern Illinois Regional Greenway Plan—recreation, open space, and habitat in a single (albeit complex) entity.

kitchen windows but useful feeding and nesting sites for animals.

The need to make maximum use of scarce land is changing the way public decision-makers do their jobs too. Wetlands, as noted, are being embraced as pollution control systems as well as open space. Forest preserves not only offer visual amenity but also serve as wildlife corridors. A model is the Des Plaines River Trail, which is part of the Des Plaines River Greenway, which in turn is a key part of the 4,200-mile Northeastern Illinois Regional Greenway Plan—recreation, open space, and habitat in a single (albeit complex) entity.

Public officials are not only thinking more about ecology in their cities, but thinking about their cities in more ecological terms. The metropolis that has evolved in the basin is itself a complex and interdependent entity. (There are dozens of municipalities abutting the Des Plaines River.) Flooding and traffic congestion (the latter a key cause of air pollution) are only two of the "green" problems whose cause and cures transcend local government boundaries, and which must be imagined, and managed, in regional (or at least county-wide) terms. Illinois' tradition of local government autonomy has kept management authority over natural resources from being invested in any single agency. Local authorities try to achieve the same kinds of official ends via complicated *Ad Hoc* coordination.

Two examples of many: The Liberty Prairie Open-Space Reserve near Grayslake is a cooperative interagency project among county and township agencies and private landowners to establish a "macrosite" of approximately 2,500 acres. A 1997 workshop called "People on the Water: Planning Water Trails For Northeastern Illinois" was a first step toward what organizers hoped would

The Area at a Glance

Δ Municipalities across the basin are experimenting with restoring and recreating wetlands to reduce both pollution and flooding.

Δ Damaged sites can be restored to relatively high levels of ecological integrity. A damaged savanna is regenerating at Reed-Turner Woodland, a nature preserve in Lake County. Cutting of brush and periodic burning are restoring savanna-like growing conditions.

Δ Plans are underway to link public stream margins, forest preserves, and roadsides with appropriately managed private and commercial sites to create corridors of protected land that allow animals to move through an otherwise perilous landscape.

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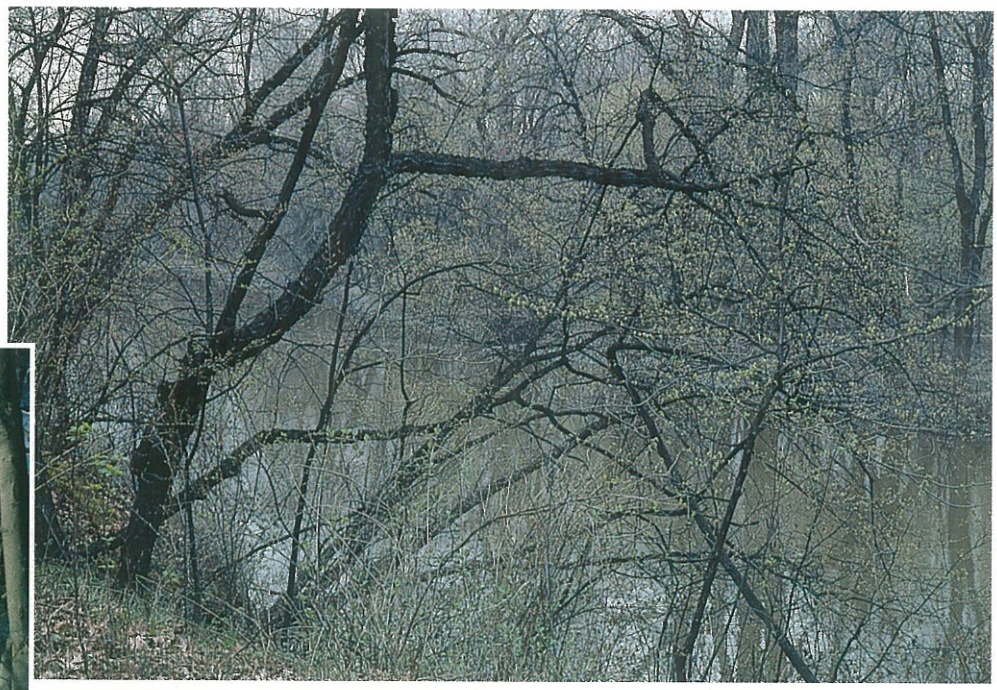
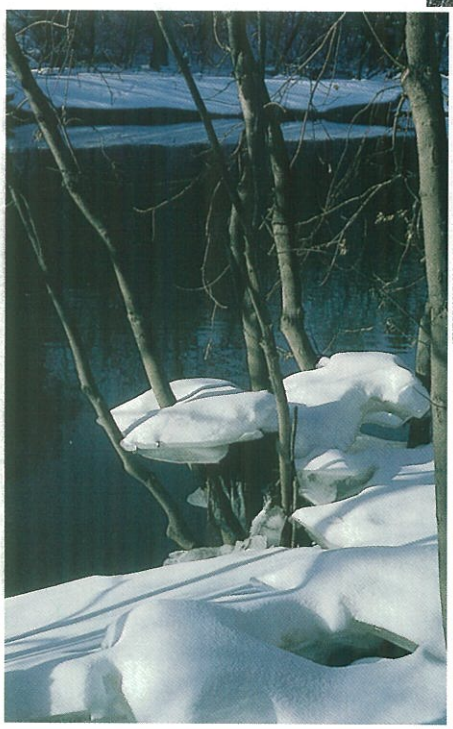
Four seasons in the upper Des Plaines





be a regional water trail system through several towns and counties in the basin. Sponsored by the Illinois Department of Natural Resources, Northeastern Illinois Planning Commission, Openlands Project, and the Illinois Paddling Council, the workshop's agenda included not only access and liability but intergovernmental cooperation. As veteran organizers will attest, establishing a new trail system is like establishing a prairie—success takes much longer than even pessimists usually expect, and the things that take root and grow are not necessarily the ones that were expected when the process began.

It seems likely that the greening of the basin will prove to be a durable public priority like keeping taxes low, controlling floods, protecting views, or reducing pollution. It is possible that some combination of public and private enterprise will someday provide nature as it provides other complex systems on which basin residents depend, from transportation and water supply to the electrical grid and telephones. Whatever form it takes, nature is coming to be understood as more than a presence (much less an obstacle to development), rather as the context within which development must take place. The fundamental question of natural resources management in the upper Des Plaines basin—not how to keep the city out of nature but how to make room for nature in the city—may yet find an answer.

(continued from inside front cover)

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

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

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

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

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

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

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

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