

*THE CALUMET AREA:
AN INVENTORY OF THE REGION'S RESOURCES*

by Ruth Sparks

Seeking natural areas in the Calumet area seems, at first, a hopeless task. Several Chicago neighborhoods and southern suburbs are located here, as well as the industries, service providers, and retail establishments that provide employment for thousands of people. With nearly a million people living here, the human population density is more than 4,000 people per square mile. A few natural nooks and crannies still exist, however, some of which contain unexpected treasures.

The area is part of the Greater Chicago Metropolitan Region and includes five townships in southern Cook County and a small fraction of Will County. The core of the area is Lake Calumet, but the Calumet Area as defined in this report extends from the Illinois-Indiana border west to just beyond Tinley Park and Burbank and, north to south, from 95th Street in Chicago to Lansing, covering 185 square miles within the watersheds of the Calumet River and the man-made Calumet Sag Channel. Sizeable tributaries include the Little Calumet River and the Grand Calumet River, which drain the eastern portion of the area before joining to form the Calumet River. Stony Creek, in the northwestern part of the area, has a mild slope and gently flowing water. Midlothian Creek and Tinley Creek are located in hillier country south of the Calumet Sag Channel and so have steeper slopes and faster moving water. The Calumet Union Drainage Ditch is a man-made drainage canal which flows into the upper L

on the surface and had its own system of hills and valleys, or lay on the floor of a shallow ocean. Gradually each successive layer was covered by more and more sediment. As new layers slowly built up, the older layers beneath hardened into stone.

Four hundred million years ago the dolomite was forming on the bottom of a warm tropical sea; one million years ago the continent had moved north to its present location and northeastern Illinois was covered with ice. During the Great Ice Age, several different glaciers bulldozed back and forth, melting during warmer periods and expanding during colder ones. The most recent cold period ended about 14,000 years ago. Visitors at that time could have walked across Lake Michigan on ice hundreds of feet higher than the present day surface of the lake. In summer they could have watched streams of meltwater flowing into Lake Chicago at the base of the glacier, and seen spruce forests struggling to become established on the moraines — rocky piles of debris that marked the glacier's farthest reach — to the southwest. Eventually the waters of Lake Chicago broke through the moraines, carving out the Saganaskee Valley and sending a torrent of water down the Illinois River Valley.

Even after the ice had melted back from the Chicago area, the glaciers remained nearby, advancing and retreating in response to small changes in the climate. The level of Lake Michigan also rose and fell substantially during this period before reaching its present level. In the process the waves along the successive shorelines deposited sand in beach ridges, sandbars, and spits at several elevations, and the strong winds blowing southeastward across the lake built the sand into large dunes in the Indiana Dunes National. In the early days, these sandy ridges provided paths for people moving through the generally swampy lowlands around the lake and these sand-rich shoreline features remain visible in several places, especially in the eastern part of the area. The development of these beach ridges, sandbars, spits and dunes along the southern coast altered the course of the Grand Calumet and Little Calumet Rivers.

Today most of the Calumet Area is located on the Chicago Lake Plain, the flat, nearly featureless lowland that was once the bottom of glacial Lake Chicago. The names of at least two area locations bring to mind this early history. Blue Island is built upon a moraine that was high enough not to have been inundated and was indeed an island surrounded by the iceberg filled waters of Lake Chicago. Stony Island, in the Calumet Heights neighborhood of Chicago, is built on ancient bedrock that started out as a reef in a tropical sea, and became dolomite so hard that even the glaciers couldn't destroy it. They did shave off the top, but the rest of it persists today as a rounded hill of ancient rock surrounded by the geologically young lake plain.

GEOLOGICAL RESOURCES

The geological processes that have operated for hundreds of millions of years have left the Calumet area rich in natural resources, including building materials, water and soil.

The golden-hued dolomite quarried near Joliet and Lemont has long been a popular building material. Many 19th and 20th century buildings were faced with it or built from it, including Chicago's famously fireproof Water Tower. When the city was being rebuilt after the Chicago fire, the lesson of the Water Tower was not ignored — new buildings had to be less flammable than the wooden ones destroyed by the fire. While the stone from Joliet and Lemont was extensively used for foundations and structures, as facing material, and as flagstone for sidewalks and curbstones for newly paved streets, it remained comparatively expensive despite its easy transport by railroad and along the Illinois and Michigan Canal. The problem of the high cost of stone was partly solved when a layer of clay 20 feet thick was discovered under the bed of Lake Calumet. The high quality clay dredged from the lake was used to make millions of bricks for building new factories, warehouses and homes. The clay dredging operations also extracted great quantities of sand and gravel from the lake bed that were used as aggregate in concrete and to fill marshy land.

vegetation was present. This work was done under the most difficult circumstances — heat, cold, biting insects, muddy swamps and thick forests — yet the work was so carefully done that we can use their data today to determine what the vegetation patterns were at that time.

In the Calumet area, ‘witness’ trees were scarce because approximately 90% of the land was prairie. Today 267 acres of undegraded prairie remain, or 0.25% of the original extent, a higher proportion than remains statewide. Of the high-quality prairie remaining, 168 acres are growing on the silt-loam soils of the Chicago Lake Plain. This silt-loam prairie comprises almost one-fifth of all the remaining high-quality silt-loam prairie remaining in the state in a land area of only 0.33% of the state.

Silt-loam prairie is usually categorized in community types depending on soil moisture. For example, there are only four acres of high-quality dry-mesic prairie, tall grass prairie that grows on well-drained, permeable soil with moderate water holding capacity. Mesic prairie, on the other hand, is moderately well-drained. Here you might find the state threatened ear-leaved foxglove and small sundrops or the endangered prairie white-fringed orchid. This orchid, along with another, the threatened white lady’s slipper, can also be found in wet-mesic prairies, which have somewhat poorly dra

Typical species include a subset of those found on larger grasslands throughout the state, such as the red-tailed hawk, American kestrel, willow flycatcher, and several sparrows. The only endangered species known to breed in the area is the Henslow's sparrow, and pairs of northern harriers and short-eared owls probably nest here occasionally.

Of the mammals that are primarily associated with prairies, none of those found here are listed as threatened or endangered. The least shrew, the thirteen-lined and Franklin's ground squirrels, and prairie and meadow voles and badgers are a few of the species known or likely to occur in the Calumet Area.

RIVERS AND STREAMS

The rivers of the Calumet region are among the most dramatically altered in the state. Most of the waterways have been created, dredged, straightened, armored, or leveed; some have even been engineered to be reversible. There are more miles of waterway now than there were in presettlement times. Some sections of the 239 miles of flowing water still look like natural rivers, while many others are obviously man-made.

After the glaciers had melted away, the Grand Calumet River and the Little Calumet River flowed westward across Indiana and into Illinois, separated by a low ridge that had once been a beach ridge. At the western end of the ridge, the Little Calumet cut through, made a hairpin turn and joined the Grand Calumet, forming the Calumet River. From this junction it flowed sluggishly past Lake Calumet and into Lake Michigan through a vast and nearly level wetland.

In the 1860s the land around the mouth of the Calumet River was purchased by the Calumet and Chicago Canal and Dock Company, which promoted the area as a good location for iron furnaces. Ore and coal could arrive via Lake Michigan, the company said, and the finished product could then be delivered to nearby markets by rail. All they needed was a harbor. In 1869 Congress appropriated \$50,000 to that end (even though the Army Engineers did not think the benefits were worth the cost). Workers began dredging out a sandbar that lay across the river mouth and building two piers that extended out into Lake Michigan. Congress also directed that the river be deepened and widened upstream to accommodate ships. It took at least 18 years to establish property lines and obtain permission from landowners to widen the river, and another eight years before the Army Engineers carved out a straight channel 20 feet wide and a minimum of 10 feet deep, reaching from the new Calumet Harbor on Lake Michigan inland to Lake Calumet.

Near the beginning of the 20th century, public officials became alarmed at the levels of pollution in the Calumet region. After several years of negotiations, construction of a canal through the Saganaskee Valley finally began in 1911 and, after a few setbacks — permission to divert Lake Michigan water was withdrawn at one point — it opened in 1922. The Calumet Sag Channel, as it was called, reversed the normal flow of the lower Little Calumet River, and diverted the watershed's drainage so that it now flows to the Illinois River (water flows from the Calumet Sag Channel into the Chicago Sanitary and Ship Canal, which flows into the Des Plaines River and on to the Illinois River). In choosing a route, the builders took advantage of low ground and the breaks in the moraines created thousands of years ago by the Lake Chicago floods, which had also drained into the Illinois River. Although originally constructed to help with pollution problems, the channel was later enlarged for barge travel.

In 1960, the O'Brien Lock and Dam was built on the Little Calumet River to control the water level in the Calumet Sag Channel. When the gates of the dam are closed, the dam is the divide between Lake Michigan and the Illinois River watershed. Under certain low flow conditions, water is diverted south through the dam, establishing a flow

gradient that can draw water south from Lake Michigan. In certain high flow conditions the gates of the dam are opened to reduce flooding in the Calumet Sag Channel and the Little Calumet River again flows northward into Lake Michigan.

Smaller streams in the area have also been altered as urban areas developed around them. Most have been channelized to some degree, although there are a few reaches that still flow through their original channels. Midlothian Creek, for example, has been partly channelized and dredged so that it now has very high steep banks on the upstream end. The creek has a more natural appearance downstream where it follows its natural channel and flows through a wooded area. Most of the lower reaches of Tinley Creek also flow through wooded Forest Preserve lands. In contrast, the Calumet Union Drainage Ditch is man-made, built to drain the land and make it less susceptible to flooding.

None of the streams in the area are high quality; all have been extensively modified, and domestic and industrial pollution continues. The best quality streams are the Calumet Union Drainage Ditch, which the Environmental Protection Agency has determined to have good water quality, and Stony Creek and the lower portion of the Calumet River, which have minor impairments.

Small freshwater animals have not fared well in this disturbed environment, so today there is a low diversity of aquatic species. Creeks and small rivers in the area still contain several species of frogs, such as bullfrogs and green frogs, as well as reptiles like northern water snakes and snapping turtles. Fifty species of fish occur here, including minnows, catfish, bass, sunfish and crappies. Because of its connection to Lake Michigan, the Calumet area suffers from the presence of many introduced fish species, including the common carp, goldfish, alewife,

numerous species almost any time of year.

Wetlands are almost synonymous with amphibians. Almost all frogs, toads and salamanders require aquatic habitats for breeding, so preservation of wetlands is necessary for their continued survival. At least 14 species are known or likely to occur in the Calumet area including northern leopard frogs, American toads and spotted salamanders. Wetlands are also home to numerous reptiles. The painted turtle and common garter snake are typical wetland species. Two state threatened reptiles are present in the area: Blanding's turtle lives in shallow open water areas with mud bottoms and aquatic vegetation. It has most recently been seen in Powderhorn Lake. Kirtland's snake is a rare semi-aquatic animal that prefers seasonally flooded wet prairies. The most recent sightings were in Tinley Creek Park and Palos Hills.

Historically, the wetlands were rich in fur-bearing mammals — beaver, muskrat, mink, raccoon. As habitat was destroyed, the numbers of mammals living in the region declined. Of the 59 mammals that currently

be bought or sold, the last Native Americans living here, the Potawatomi, signed a series of treaties that turned over more and more of their property. They unwillingly sold their last parcel in 1833 and were forced to leave the state.

That same year, the European population doubled as veterans of the Black Hawk war settled in the area. They

Superfund Sites. In addition there are 26 other Superfund sites in the area, although none are on the National Priority List.

Cook County as a whole emits more air pollutants than any other Illinois county and 25 years ago, airport visibility was among the poorest in the United States. The Clean Air Act and its 1990 amendments that mandated reduction of airborne sulfur are expected to decrease haziness and increase visibility.

During the 19th and 20th centuries industrialists were considered visionaries. Their dreams coincided with those of much of the rest of the nation — to push West, tame the wilderness, and reclaim useless land for the benefit of an increasing human population. Natural areas were still too common to be valued, and too little understood to be protected.

The few who protested the destruction of forest, prairie and wetland were out of step with most of their countrymen, yet they persisted until they established the Forest Preserve Districts. Following in the footsteps of the people who set aside those lands are men and women who have a vision for the 21st century. In 1999 many of these visionaries came together to work for the preservation and enhancement of natural resources, and formed the Lake Calumet Ecosystem Partnership. This coalition of industries, governmental agencies, educational institutions and neighborhood groups is designing a plan for the Calumet watershed that will protect and restore the natural areas that remain, especially wetlands and other open spaces, and also revitalize the area's industrial base, while considering the health and welfare of the people who live there. Similar groups have formed in the Calumet area, some focused on a particular stream or park, others on a broader area, but all united in their search for ways to meet human needs while protecting the priceless natural treasures still to be found here.

Black-crowned Night Herons

In the midst of one of the most highly disturbed environments in the Midwest, black-crowned night herons, listed as state-endangered, nest in the wetlands of the Lake Calumet area. These large birds have several characteristics which help them survive. They are mostly nocturnal, so while many people have heard their loud call — quock! quock! — not as many have seen them. They are expert fishers, and will stand motionless in still water for long periods until a fish swims within reach. If no fish are available, almost anything else will do. The diet may shift from fish to other water animals including frogs, crayfish, snakes, mussels and dragonflies, or even become vegetarian and include algae and other water plants. Some birds become nest predators and steal nestlings from their neighbors; others have been known to live on meadow mice.

They nest in colonies everywhere from wet marshes to dry woods and prairies, from flat on the ground to high in trees. When building a nest the male selects the site and gathers coarse materials like reeds and branches which the female uses to build the base. He then collects finer material which she weaves into the top and lining. After she lays three to five pale blue-green eggs, both parents incubate them for about three weeks, and care for the chicks another six weeks until they are ready to fly. The first three years are the most perilous, but some have been known to live 10 years or more. So if nesting is unsuccessful one year, they may be able to try again the next.

Even so, the numbers of black-crowned night herons are declining. The species is sensitive to habitat size and structure; they require large habitat blocks with suitable water levels and vegetation, as well as buffers from disturbances, predators and competitors. Many have also been shot while flying back and forth between daytime roosts and nighttime feeding areas.

bass. The zebra mussel was first brought into the G

Dedicated Nature Preserves

In 1963, the Illinois legislature established the Illinois Nature Preserves System. In order to become a dedicated nature preserve, a parcel of land must still maintain a high degree of its presettlement character, or have significant geological, ecological, or archaeological features. Most of the preserves are open to the public for activities like bird watching and nature photography, some of them provide interpretive programs, and a few are open only by permission because of their fragile nature. Within the Calumet region there are seven dedicated nature preserves. Although they comprise very few total acres, they are remarkably rich and varied in plant and animal life because of the great variety of soil types and available water.

The **Sand Ridge Nature Preserve** was dedicated in 1965 as the ninth Illinois Nature Preserve and the first in the Calumet area. It is located on Cook County Forest Preserve land and is a 70-acre remnant of the dunes that occurred on the shores of Lake Chicago. The tops of the dunes are covered with prairie grasses and scattered black oak trees. There are examples of wetland communities in the swales that range from wet prairies to sedge meadows to marshes, depending on the amount of water available in each area.

The **Chicago Ridge Prairie Nature Preserve** is a 13-acre tract that protects one of only two remaining gravel prairies in the state. The site occurs on an ancient shoreline of Lake Chicago where a stream of meltwater dropped its load of gravel. Because gravelly soils drain rapidly, the plants that grow here require less water than those growing nearby on a wet prairie that is underlain by clay. The white lady's slipper orchid is a state threatened species which grows in this gravelly habitat.

Paintbrush Prairie, Sundrop Prairie, Dropseed Prairie, and Gensburg-Markham Prairie, collectively known as the **Indian Boundary Prairies**, are little oases in an urban landscape. The name refers to the boundary of land conceded by the Potawatomi to the U.S. in 1831. The area is now a wapretive

were collected from nearby prairie remnants bloom annually. Since we now understand that animals are a vital part of an intact prairie, some that were once extirpated have been reintroduced, such as Franklin's ground squirrel (reintroduced in 1982) and the rattlesnake master moth (recently reintroduced).

Farther west at the 52-acre **Palos Fen Nature Preserve**, where lake plain meets moraine, interesting habitats occur. The rocks and gravel in the moraine contain a lot of minerals, especially calcium and magnesium. Water percolating through them dissolves some of those minerals and becomes very hard and alkaline. The soil also contains a great deal of partially decayed plant material, making conditions right for a graminoid fen community to develop. The graminoid fen community contains many of the same plants found in neighboring communities, as well as rare special

Caption: The alkali bulrush is considered a state threatened species because of its rarity, but it seems more like an alien. It usually grows in brackish marshes and has never been found in the freshwater marshes of the Calumet area. It is only found in roadside ditches, where runoff from salted highways keeps the salt content of the soil high enough to favor this plant and probably discourage some of its competitors.

Caption: Lands that have high relief have sharply defined divides between watersheds. We usually expect to see some sort of ridge where streams flowing on one side go into a different drainage from streams flowing on the opposite side. The low relief land between Lake Michigan and the Illinois River rises almost imperceptibly — there is no high ridge forming a divide. Before humans intervened, the drainages were separated during low water by moraines on the western edge of the assessment area, but during periods of high water, Potawatomi canoes could glide back and forth from one to the other without portaging. The engineering projects of the last century have permanently connected the two drainages, and built an artificial divide, the O'Brien Lock and Dam on the Calumet River.