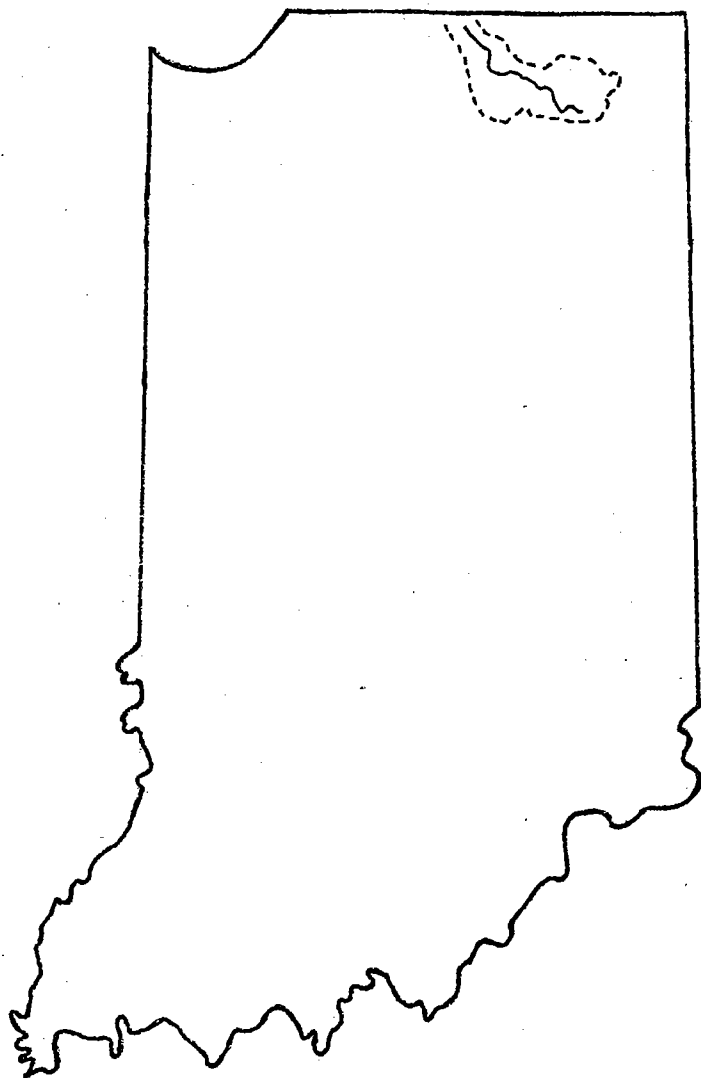


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Elkhart River

Noble and Elkhart Counties

EVALUATION FOR SUITABILITY FOR THE
INDIANA NATURAL STREAMS SYSTEM

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I SUMMARY OF FINDINGS

The portion of the South Branch Elkhart River from county road 100 North near State Road 9 south of Albion to U.S. Route 6 has been found to meet the highest criteria for classification as a natural stream. The Elkhart River to Elkhart Millpond has from fair to good recreational value but many problems and is greatly disturbed and modified. It does not qualify as a free flowing stream. The free-flowing unchannelized portion of the North Branch Elkhart River is too short to meet the criteria.

This evaluation was conducted by the Department of Forestry and Conservation, Purdue University. Glenn Patrick Juday was the principal investigator.

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II INTRODUCTION

A. The River

The Elkhart River is named for one of its islands, which the Indians thought resembled an Elk's heart (4). The sources of the Elkhart River are the North and South branches. The North branch begins above Waldron Lake north of Rome City in Noble County, Indiana. The South branch begins in the marshes just west of Albion, and in the lakes just west of Chain O'Lakes State Park in Noble County, Indiana. The river flows generally westward after the branches come together at New Paris, Elkhart County, Indiana. From there it flows generally northward through Goshen to Elkhart, Indiana, where it joins the Saint Joseph River to flow into Lake Michigan (2).

The South branch is deep, about 4 feet uniformly, flat and slow flowing. It drops only about 12 feet from the marshy headwaters to its junction with the North branch. There are no riffles or rapids.

The watershed of the South Branch is covered with marshland. The wetlands on either side of the South branch comprise the largest single unit of wetland remaining in the state.

B. Man's Influence on the Watershed

Albion is the only town in the South Branch watershed. Goshen, Elkhart, and Ligionier are cities in the Elkhart basin. There are several small towns in the North branch watershed, including Wawaka, Coopersville, Brimfield and Rome City. The population of Elkhart County was 106,790 in 1960 and 126,529 in 1970, an increase of 18.5%. The population of Noble County was 28,162 in 1960 and 31,382 in 1970, an increase of 11.4%. In the same period, the city of Elkhart increased 7.1% from 40,274 to 43,152 (14).

The Elkhart River has been impounded by a series of small dams for the generation of electric power. These segments and the larger Goshen Mill Pond have been turned into parks for recreational use. The water levels are still high, filling up the banks of the river so that there are no riffles or rapids. Grazing by cattle that have access to the river has eliminated much vegetation on the banks of the Elkhart itself as well as caving in the banks. Pollution is quite noticeable at Ligionier, where there are several outfall pipes.

III NATURAL HISTORY OF THE RIVER AND WATERSHED

A. Geology

The South Branch watercourse is unusual in Indiana in that it is not flowing in a river-carved channel with alluvial deposits on either bank. Instead it occupies flat, low ground of glacial outwash sediments. Lakes and depressions of lacustrine origin are connected by this winding river as it makes its way through higher intermittent moraines. The Elkhart River from Goshen to Elkhart is a carved channel (15).

The area was mostly recently glaciated about 13,000 years ago during the Wisconsin age. The South Branch, though it lies mostly in the region covered by the Saginaw lobe, has stretches just at the interface between the Saginaw and Erie lobes. Bedrock in this region is all covered with a very thick mantle of this glacial drift. The bedrock types are of Mississippian and Devonian age New Albany and Antrim shales (11).

The upstream portion of the Elkhart river watershed is in medium texture Wisconsin age till and sandy drift. The downstream portion is in water-sorted glacial outwash, mainly sand and gravel, overlain with sandy loam (13).

During glaciation the following sequence of events occurred. First, the whole region was covered by the Wisconsin ice sheets, which reached their maximum extension about 21,000 years ago. Then the ice melted back faster than it was advancing. Water poured over the edge of the Erie lobe of the ice sheet. These water falls formed delta-like formations of sand and gravel called kames. Diamond Hill is an outstanding example of a kame. It dominates the landscape at 1050 feet. The river elevation of the South branch, by contrast, is about 875 feet. A river flowed over the ice, eventually melted through, and, during late glacial times, was flowing on the ground surface in a canyon of ice. It deposited sand and gravel in a long winding ridge called an esker. The Knobs region, with Edna Spurgeon nature preserve on top of it, is an example of an esker. Both Diamond Hill and the Knobs region are large, outstanding and classic examples of these glacial features.

The glacial melt water produced a very broad valley of water-sorted materials called valley train. The area of this kind of feature is quite large in the South branch watershed. The glacier would often slough off massive chunks of ice into these outwash plains. These ice blocks would be either buried or covered with the rapidly ac-

cumulating outwash sediments. Later they would melt, leaving ice block depressions full of water. The lakes in this region were formed this way. Some of these lakes form the headwaters of the South branch watershed.

The lower Elkhart river was formed by later carving and deposition in outwash and valley train sediments.

B. Biology

The native vegetation of this region on the well drained uplands was beech-maple, and oak-hickory forests and one small area of dry prairie near Elkhart (12). There were many areas of wetland here though; as a result there were large acreages of marshes, swamps and aquatic plant communities.

The beech-maple forests were dominated by the American Beech and Sugar Maple with other common trees being tulip poplar, ash, red oak, black walnut, wild black cherry and others. Beech-maple forests were especially associated with glacial till which provided a soil of fine texture that held water well.

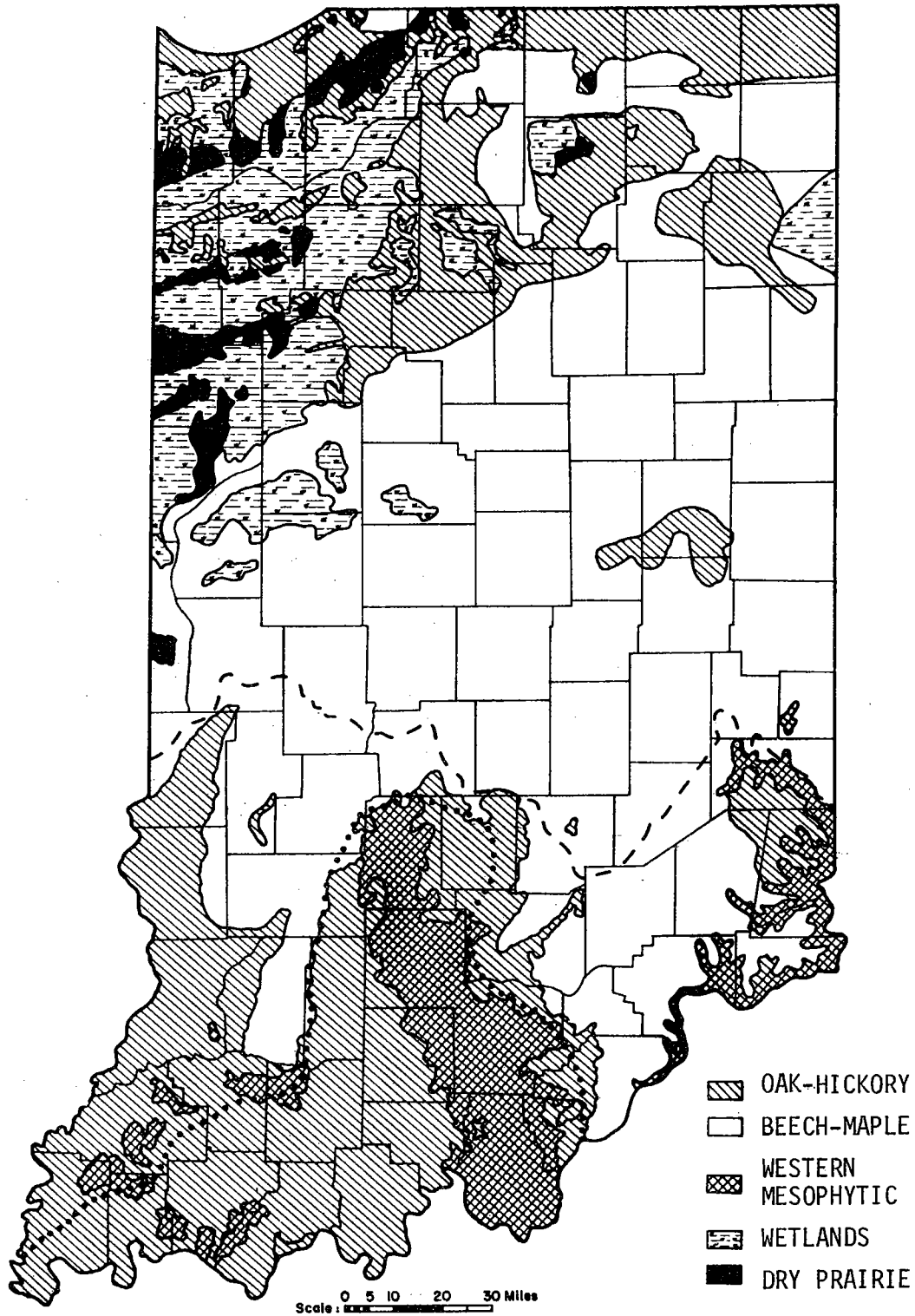
Drier areas, sandy or gravelly soils and steep slopes as well as areas on the margin of a slight climatic change supported Oak-Hickory forests. The important species were white, black and chinkapin oaks and shag-bark, pignut and bitternut hickories.

The wild flowers characteristic of the forest floor in beech-maple forests are trilliums, spring beauty, water leaf and many others. Characteristic shrubs are spicebush and paw-paw.

In oak-hickory woods hepaticas, bloodroot, Jacob's ladder, and Solomon's seals are characteristic wild-flowers. Common shrubs include dogwood, service berry and in the driest areas, blueberries and huckleberries.

Marshes in this region are just the shallow upper extensions of a continuum of changing plant communities that started with the submerged plants in open water. When water depths are less than 20 feet plants such as pondweeds (Potamogeton spp.) hornwort and naiads begin to grow on the bottom. Then in lesser depth and among the preceding plants grow eelgrass, chara, and bladder-worts. Next, in depths of 6 to 8 feet, grow various floating leafed water lilies pondweeds and smartweeds. The water lilies are rooted in the bottom with large

Presettlement Vegetation of Indiana



From Lindsey, A. A., W. B. Crankshaw and S. A. Qadir. 1965. Soil relations and Distribution map of the vegetation of presettlement Indiana. Botanical Gazette 126: 155-163.

rhizomes. Then, the depths of 1 to 4 feet grow the various plants of a reed marsh. Included here are cattails, tall bulrush, large blue flag and reed grass. Finally in soggy lands that usually dries out regularly in the summer a sedge meadow is formed. Rushes, spike rushes and sedges are characteristic here.

Swamps in this region had such trees as black willow, green and black ashes, cottonwood and soft maples.

Animals in the region once included elk, cougar, bobcat and wolf. These are now gone. Larger mammals that still occur are deer, coyote (perhaps), beaver, and other mammals such as mink, muskrat, raccoon, fox, gray and red squirrels, cottontails, skunks and a multitude of voles, mice and moles.

Birds were abundant but now are reduced in numbers and kind. Waterfowl, however do nest and breed in the Mallard Roost area, mainly black duck, mallards and wood ducks. This is a very special feature of this area.

In short, this area is a diverse mixing ground of biotic formations. It was typical of much of Indiana, yet with a decidedly northern cast of lakes, cooler climate and breeding waterfowl in large northern type marshes. The remaining free-flowing portion of the South Branch of the Elkhart River is a truly outstanding and beautiful example of the best of the natural world in Indiana.

IV HUMAN PRE-HISTORY AND HISTORY

A. Pre-History

The earliest human inhabitants of this area seem to have been the so-called "Paleo-Indian." They probably followed the retreating ice sheets northward which left this region entirely about 11,500 years ago. They were big game hunters of horses, camelop, the giant ground sloth, mastodons, mammoths, and several species of bison. All these animals are extinct now; artifacts of this period would be stone spear points and stone and bone tools and knives (12).

The climate became warmer and drier after glacial retreat and pine forests and prairie grasslands made an advance. This period of human occupancy and utilization of deer, elk and a woods gathering economy is called the Archaic Period. It began about 8000 years ago. This period led gradually into the cultural specialization necessary to fully utilize the woodlands environment. The transition was made into the next or Woodland period about 3000 years ago. The archaic peoples were probably a small family or extended family group nomadically following seasonal plants and hunting areas. Their artifacts are chipping stones, ground stone tools, and the artifacts placed in burial mounds including the first copper in use. Pottery marks the beginning of the Early Woodland period which developed through different stages (introducing agriculture) to the Historic period. Evidently the Potawatomi Indians of this region were late-comers, arriving as late as the 17th or 18th century (6).

B. Indians

Both Miami and Potawatomi Indians inhabited the watershed and remained here longer than nearly anywhere else in the state. There were Indian villages as late as 1848 (1).

These Indians, confronted with the loss of this beautiful and productive homeland, were proud and fierce fighters, who led the attacks on Forts Dearborn, Wayne and Harrison. Most of the warriors under the Prophet at Tippecanoe and those who committed the Pigeon Roost massacre and the following border raids along the White River were Potawatomi (3). Few settlers penetrated this region before 1830. In 1836 their lands were purchased under what the Indians

claim were unfair means with a lease for 2 years. In 1838 squatters surrounded and began to occupy the region, expecting the government to remove the Indians. The Indians had no intentions of leaving and some incidents started by whites occurred. The militia was called out under Indiana's most famous Indian hater, John Tipton. About 700-800 Indians were rounded up about Twin Lakes on the Yellow River. They were herded through Indiana, Illinois and on to the Osage River in Kansas. One fifth of them died along the way. Children died at the rate of three to five per day. Their captors destroyed all their villages before they left, stole some of their horses and deserted along the way (3).

C. Recent History

Noble County was organized in 1836; Elkhart County in 1830. An interesting historical note is that a gang of horse thieves and counterfeiterers called the Blacklegs hid out near Rome City in the 1840's. In 1852 an act of the Legislature authorized the creation of companies of "Regulators" to stop them (1). The Blacklegs were soon out of business. At the intersection of roads Ind. 33 and 5 there is a museum and restored home of Robert Stone, one of the earliest settlers of the area. This whole area was also an important point in the "underground railway." And from the naturalist's standpoint, one of the more important figures in early naturalistic fiction was Gene Stratton Porter who lived in and wrote about this region. She wrote "Girl of the Limberlost" and many other stories. Her "cabin" on Sylvan Lake is now a State memorial.

The Elkhart area now is a world center for the manufacture of mobile homes and also has a musical instruments manufacturing facility and a drug manufacturing laboratory.

Goshen is a trading center for the Old Order of Amish who live in the area, persisting in their unique life style. Goshen College, a Mennonite school, is located here too.

