

Stream Reach Survey

The Stream Reach Survey was conducted on October 31, 2007.

Methods

The Stream Reach Survey was conducted by a two-person team including an aquatic biologist and a plant ecologist. The Environmental Protection Agency's Rapid Biological Protocol (RBP) was conducted at 24 sites along the river (Barbour, M.T., J. Gerritsen, B.D. Snyder, and J.B. Stribling. 1999. Rapid Bioassessment Protocols for Use in Streams and Wadeable Rivers: Periphyton, Benthic Macroinvertebrates and Fish, Second Edition. EPA 841-B-99-002. U.S. Environmental Protection Agency; Office of Water; Washington, D.C.). The RBP scores represent the general habitat quality of a particular stream reach visible to the surveyors from each survey location in either direction. The RBP habitat assessment looks at multiple key features including available cover, sediment deposition, channel flow status, channel sinuosity, bank stability, and riparian vegetative zone. Appendix 15: Rapid Bioassessment Protocols Data Sheets contains a habitat assessment field data sheet that was used to analyze the condition of the stream. RBP scores were recorded at locations where *E. coli* water quality sampling was also conducted to assist in the interpretation of physical factors on *E. coli*. A photo log was also conducted as part of the survey. Photo locations are shown in Figure 4.44 and Appendix 16: Stream Reach Survey Photos contains the photos.

The surveying scientists made every effort to collect habitat information and other scientific observations from as many accessible sites along the river as were possible to reach by car and by foot while respecting private property. The surveying team also canoed a few segments of the river; however, it was impractical to conduct on-stream evaluations in a number of areas given the number of culverts and available launch points. It is the professional judgment of the team that the number of sites assessed provides a comprehensive look at habitat along the Little Calumet River. While conducting formal RBP assessments, the surveying scientists also made observations and field notes regarding the following: invasive species, shoreline erosion, visible pollution hotspots, buffer widths, low-flow/stagnant areas, important natural area, and areas of notable human influence/degradation.

Findings

The Little Calumet River and associated waterways within this watershed have seen significant human alteration. As a result, public perception about the habitat and natural resource value of the stream tends to be negative. The stream reach survey results do not support this perception. In fact, some stretches of the stream provide important habitat and water quality function for this highly urbanized watershed. Other isolated stretches, do however; suffer from some narrow buffers and adjacent land use impacts (Figure 4.48).

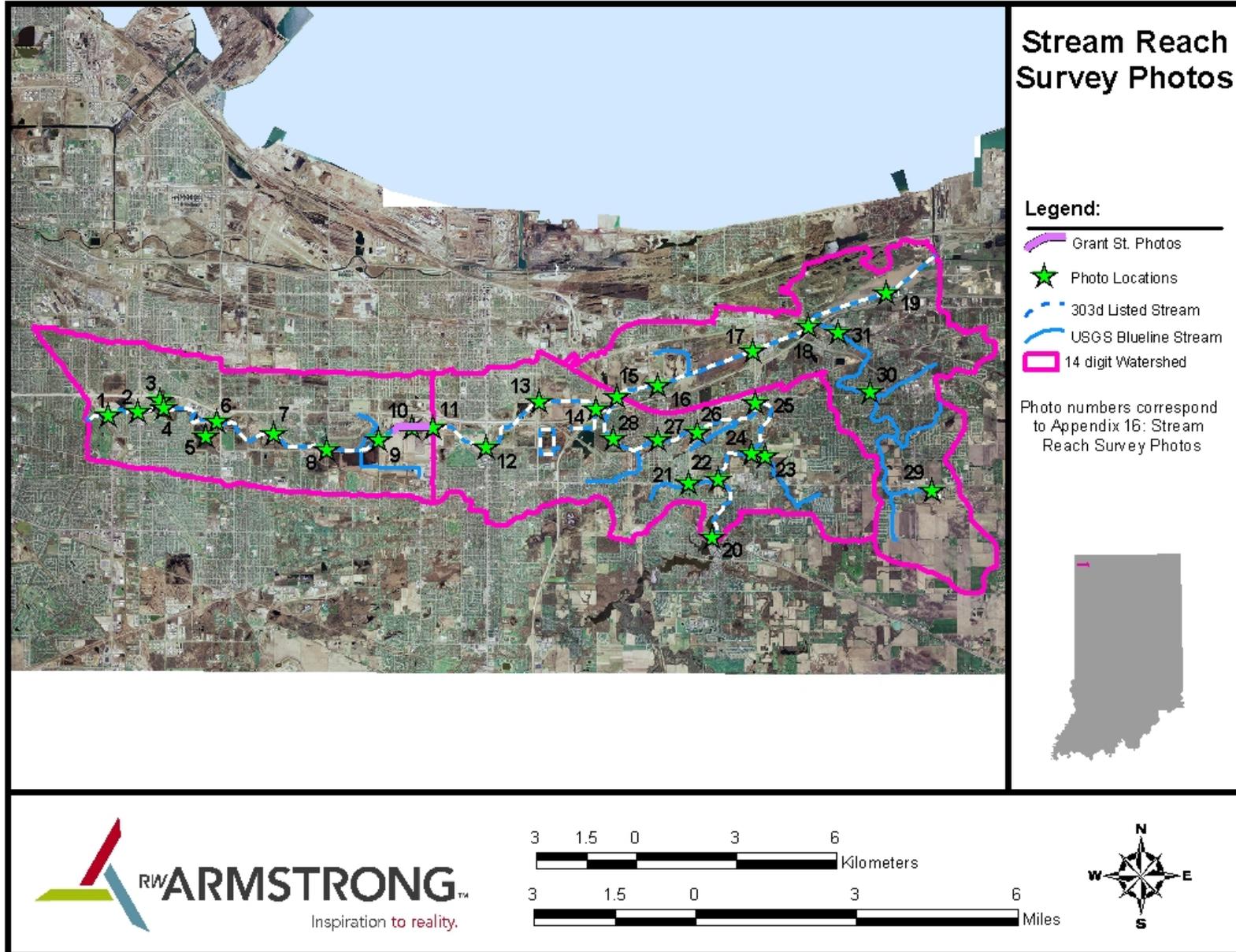


Figure 4.44: Locations of stream reach survey photos.

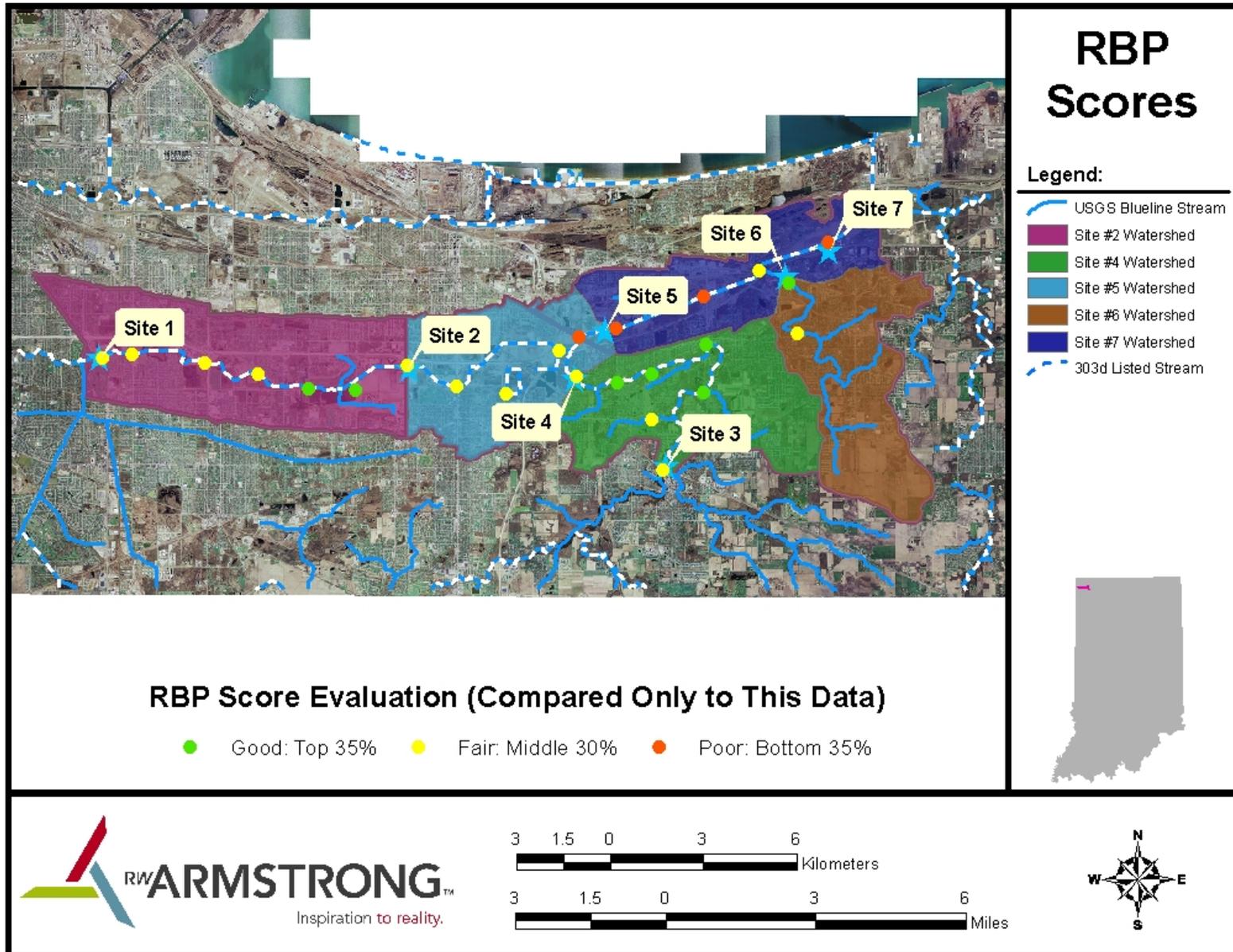


Figure 4.45: RBP scores throughout watershed and their corresponding grade (good, fair, poor)

RBP scores along the Little Calumet River and its tributaries ranged from 44 to 160, with the highest possible score being 200. The total number of sites and their associated scores were divided into three (3) categories based on appropriate breaks in the data set and the judgment of the survey team. Since the watershed study is designed to be a relative comparison of areas that may need protection or restoration, the scores were defined as good, fair, and poor (relative to one another), not necessarily compared to other streams in the state. These conclusions about habitat throughout the project area are shown in Figure 4.45. Data sheets can be found in Appendix 15: Rapid Bioassessment Protocols Data Sheets.

Little Calumet River

The Little Calumet River is for the most part a well buffered stream. Trees and floodplain wetlands line the majority of the stretch of the Little Calumet. The work done by the USACE building levees and creating flood control zones has resulted in a system of wetlands and floodplains that buffer both sides of the Little Calumet along a significant portion of its length. The stream itself is very channelized and turbid. Wood duck boxes have been placed along the stream in areas. Other than the constant roar of traffic, there are many times when you would not think you are in a highly urbanized area.

An important habitat location along the Little Calumet is the heron rookery (Figure 4.46). This large wetland complex contains large trees with numerous, giant heron nests. Other wetland and oxbow complexes along the Little Calumet provide water quality improvement via water filtration and attenuation of floodwaters. Many of these areas also provide habitat for fish, songbirds, and amphibians. Important wetland features are called out on Figure 4.47. Wetland habitat in the area is however negatively impacted by the presence and domination of invasive species. Habitat scores through this stretch ranged from 77 to 120.

Burns Ditch

Burns Ditch represents the most channelized section of the Little Calumet river system. Burns Ditch is a straight line segment of river designed to have a direct route to Lake Michigan. Buffers are minimal in this area as the adjacent land is used for agricultural production. Farming practices occur right up to the edge of the stream bank. Even though it is highly channelized, the waters of Burns Ditch are often hospitable enough for trout and many fishermen fish these waters. Fishermen were observed in this location numerous times throughout the watershed study. A number of marinas are located along Burns Ditch to support the many large boats that travel the waterway to get to Lake Michigan. Habitat scores through this stretch ranged from 44 to 66.

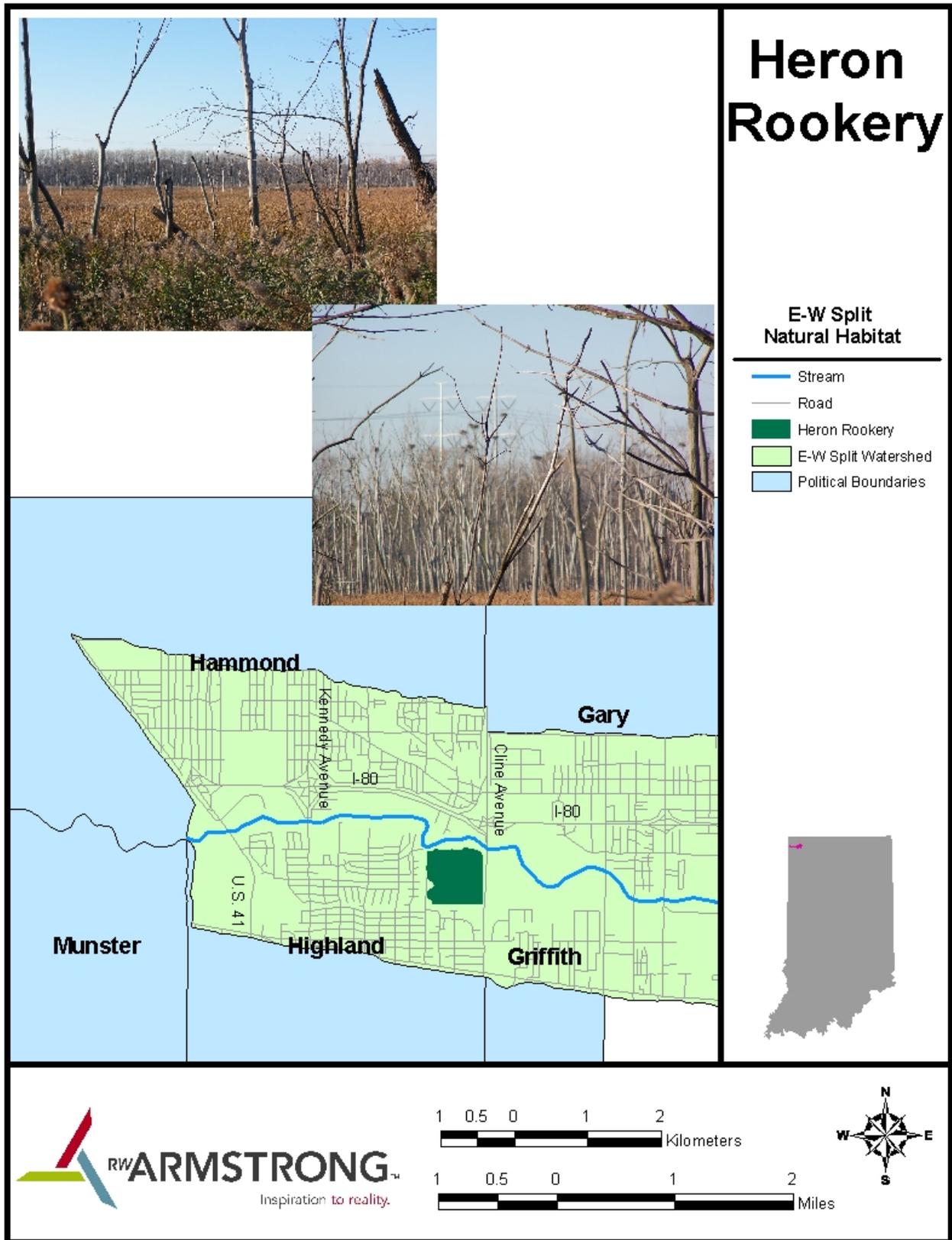


Figure 4.46: Location and condition of Heron Rookery located along Cline Avenue.

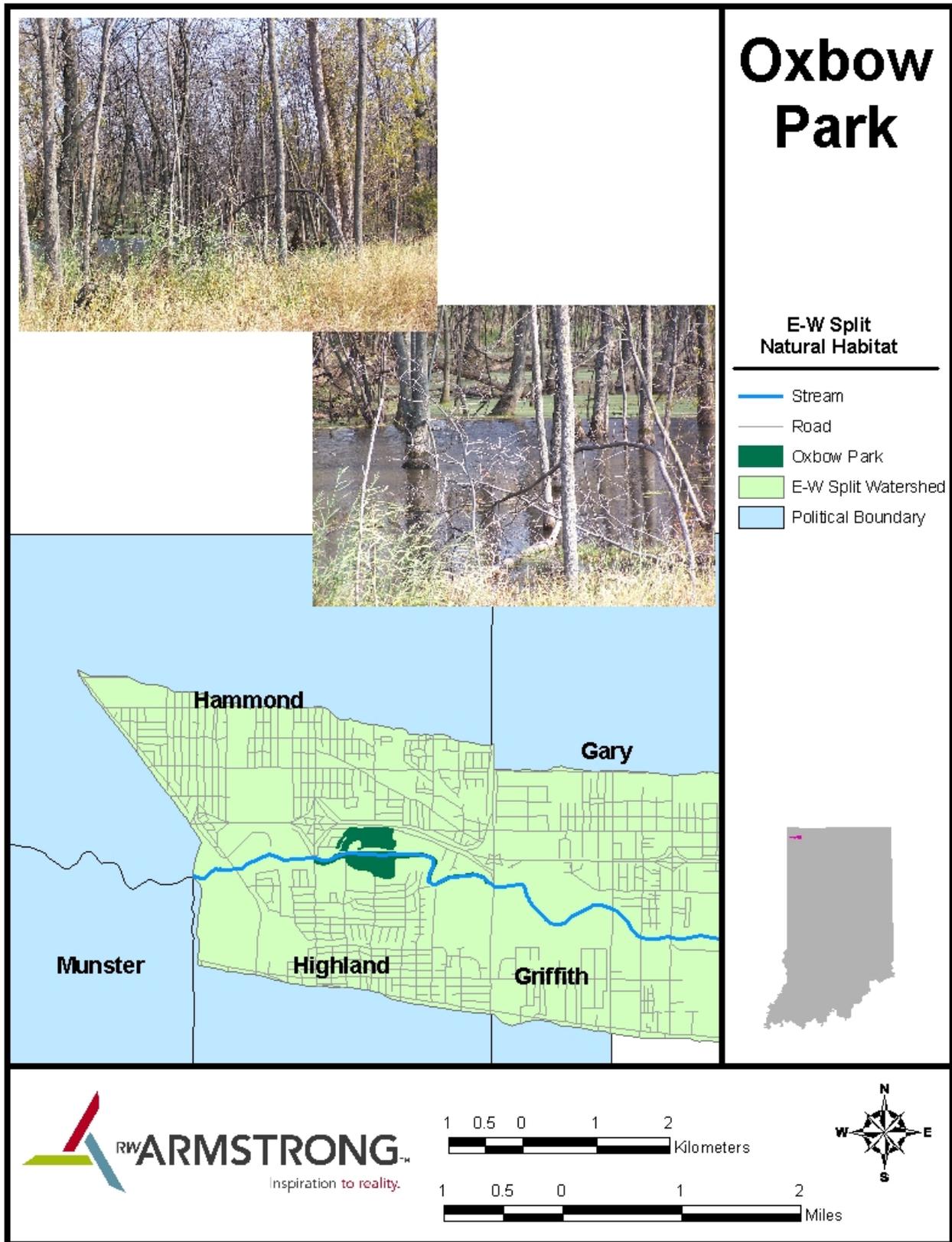


Figure 4.47: Oxbow Park location and wetland photos along the Little Calumet River.

Deep River

Of all the streams surveyed in this watershed, the Deep River provides the best habitat and has retained many of its natural features. Deep River has not been notably channelized and can be characterized as sinuous and complex in its structure. Stream banks are well buffered and large trees stabilize the bank providing shade and cover. Deep River has high recreational value and good fisheries habitat. The surrounding landscape provides good aesthetic value for river users. Habitat scores through this stretch ranged from 107 to 160

Willow Creek

Willow Creek also provides areas of good aquatic and riparian habitat and water quality features relative to other streams in the watershed. It was one of the few stream segments where riffle pool complexes can be found. The water in Willow Creek is much clearer than in other streams/segments inventoried in this survey. Stream cover, along with the riffle/pool complexes provide good habitat for fish and other macroinvertebrates. Habitat scores through this stretch ranged from 123 to 140.

Invasive species

The dominance of invasive species is a problem for habitat diversity throughout the watershed. The primary species of concern is *Phragmites australis*, also known as common reed. It is difficult to call out one location where this species is more of a problem than another. *Phragmites* has out-competed most other plants in the floodplain wetland areas. It lines the miles of roadside ditches and stream banks in the watershed. Its density, spacial distribution, and its likely seedbank strong hold, make whole-sale restoration of floodplain wetlands nearly impossible.

Cattails (*Typha sp.*) are also present and dominate emergent areas throughout the watershed. Cattails may or may not be considered invasive and therefore, can be an ecological concern. Many people consider the plant invasive as it is known to take over an area and limit diversity of other wetland plants; however, unlike the *Phragmites*, some cattails are native to the region. Cattails can provide some habitat value for birds and other animals; although, the biggest concern is the limited food supply value they offer by crowding out other flower and seed producing species. It is important to note that cattails can provide important soil stabilization and nutrient and metals attenuation along shorelines, thus positively affecting water quality.

Cattails are a dominant species of many of the floodplains and wetlands along the Little Calumet. At the location of the heron rookery (Figure 4.46), cattails cover the wetland complex for acres. Other than the trees that house the heron nests, cattails are the only visible species in this area.

High Quality Natural Areas

Aside from the challenges of invasive species, there are ecologically important natural areas within the Little Calumet River Watershed worthy of protection and/or restoration efforts. The first is the above mentioned heron rookery located west of Cline Avenue and south of the Little Calumet River. The rookery is important to all species of heron. The location of these trees in an undeveloped wetland complex allows for undisturbed nesting in close proximity to fishing and feeding areas.

Another natural area is the Cline Oxbow Park. The park contains an oxbow wetland complex where many ducks were observed feeding during the survey/evaluation. In addition to the physical habitat this park provides for wildlife, a diverse array of plant species such as touch-me-nots, sedges, and many others valuable wetland plants are also present. The park caters to visitors by providing several trails and an open shelter house and grill. The somewhat diverse community here is unusual among the wetlands and riparian areas in the watershed.

Across the river, on the south side, is another oxbow wetland complex. This area is not a park, but future planning and some restoration efforts could protect this area and provide a larger, opportunity for area wildlife to thrive, given its proximity to the above noted areas.

“Hotspots”

There are a number of locations where stream banks are non-existent along the Little Calumet River. These areas flow directly into floodplain wetland areas that are part of the USACE levee system. The floodplain wetlands adjacent to the stream are often littered with trash – old tires, plastic shopping bags, plastic pop bottles, and other trash. If volunteers picked up trash in these areas three to four times a year the aesthetics and wildlife safety of these areas could be greatly improved. Such clean-up efforts in these floodplain areas would also reduce the amount of pollution moving through the watershed and toward Lake Michigan.

Areas of limited buffer are also a water quality and erosion concern. These areas are somewhat concentrated along the Burns Ditch segment (Figure 4.48). Cost-share programs to restore buffers in this location are recommended. Given the urban nature of the watershed and its associated pollutant load, increased buffers along commercial and residential properties could result in water quality improvements, as well as improved habitat connectivity.

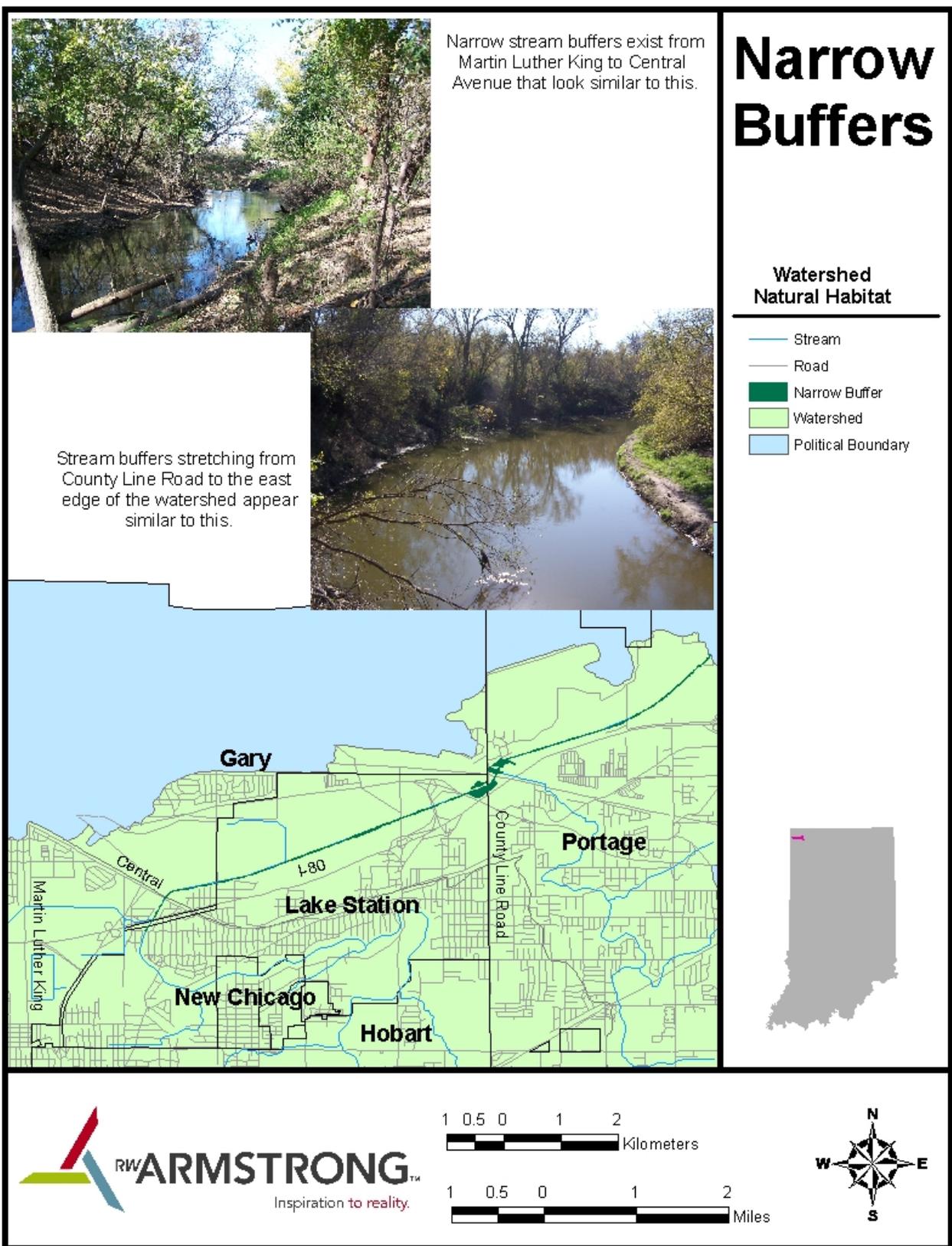


Figure 4.48: Narrow stream buffers from Martin Luther King to Central and County Line to eastern watershed edge.