Ashtabula State Scenic River Designation Study

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A study of the Ashtabula River for inclusion into Ohio's Scenic Rivers System

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Introduction

Ohio pioneered the river preservation movement with the enactment of Senate Bill 345 by the 107th General Assembly on February 28, 1968. The Ohio Wild, Scenic and Recreational River Act was the first of its kind and predated the National Wild and Scenic River Act. The purpose of establishing scenic rivers is to help protect and preserve the few remaining, high-quality natural rivers in the state.

Ohio's Scenic Rivers Program is administered by the Division of Natural Areas and Preserves, within the Ohio Department of Natural Resources (ODNR). The mission of the Ohio Scenic Rivers Program is to work cooperatively with local governments, businesses, landowners, non-profit organizations and other state and federal agencies to protect the aquatic resources and terrestrial communities dependent on healthy riparian habitats. The state's Scenic River Act (see page 73) provides for three categories of designation.

Wild rivers are those which are generally inaccessible, the flood plain is undeveloped, the river is free flowing and 75 percent of the adjacent corridor is forested to a depth of at least 300 feet.

Scenic river designation is representative of a waterway which still retains much of its natural character for the majority of its length. Shorelines are for the most part undeveloped, but the river may exhibit signs of disturbance by human activities. The adjacent corridor must be forested to a minimum depth of 300 feet for 25 percent of the stream's length.

Recreational rivers are those rivers which do not possess the same degree of natural quality found in wild or scenic rivers, yet warrant protection due to unique cultural and/or important historical attributes. The influence of human activities is much more apparent on rivers with this classification.

Ohio currently has 13 designated Wild, Scenic and/or Recreational rivers comprising 23 stream segments. More than 754 river miles are protected in Ohio's scenic rivers system. Three state designated streams, the Big and Little Darby Creek, Little Beaver Creek and Little Miami River are also designated as national scenic rivers.

The Little Miami State and National Scenic River was the first river to join Ohio's scenic river system. Today, there are 13 state scenic rivers in the program.

ODNR recognizes that partnerships and local cooperation are key to effective river preservation efforts. Rivers are studied for possible designation only after receiving resolutions of support from a majority of local governments adjacent to the river. Designation studies incorporate extensive field investigations and data review with the assistance and input of numerous local organizations and individuals.

Upon designation of a river as Wild, Scenic or Recreational, the director of ODNR appoints a 10-member Scenic River Advisory Council which represents local interests within the watershed. Members often include private citizens, local government officials, conservation organizations and property owners. Scenic River advisory councils advise ODNR on local interests and areas of concern related to the preservation of a designated river.

Ashtabula River

Designation as a Wild, Scenic or Recreational river is not a river restoration tool designed to restore a degraded stream to an improved natural condition. It is much more effective as a means of recognizing the unique characteristics of a stream and coordinating river preservation activities among diverse state and local government agencies, organizations and individuals. When combined with statutory authority to review and approve publicly funded projects on designated rivers, designation helps ensure that decisions and activities which may impact a river are conducted in an environmentally sensitive and responsible manner.

To best understand the context of the information provided in this report, it is important to recognize that the role of Ohio's Wild, Scenic and Recreational Act is to identify and protect those rivers and streams possessing characteristics of state significance. The Division of Natural Areas and Preserves' Scenic Rivers Program seeks to identify and designate the few remaining river systems that have retained their most natural characteristics.

The purpose of this examination of the Ashtabula River watershed is to determine whether the Ashtabula River meets state Wild, Scenic or Recreational river designation criteria. Additionally, this report represents a recommendation related to whether any of the watershed should be recognized as a component of Ohio's scenic rivers system.

Executive Summary

Located in northeast Ohio, the Ashtabula River watershed supports an exceptionally beautiful river system. High-quality natural features include an outstanding wooded riparian corridor and diverse populations of wildlife and plants. The exceptional biological communities found in the river's main stem, East Branch and West Branch include populations of several species with declining ranges in Ohio. Unique recreational opportunities combined with pristine natural qualities further illustrate the importance of protecting the Ashtabula River as an Ohio Scenic River.

According to a review of data from 1997, 2006 and 2007 Ohio Environmental Protection Agency (EPA) reports, 93.6 percent (or 25.8 of 27.54 river miles) of the Ashtabula River is in full attainment of the warmwater habitat water quality standards. Of the remaining river miles, 3.6 percent (or 1.0 river miles) is in non-attainment and 2.5 percent (or 0.7 river miles) is in partial attainment. In 1997, the Ohio EPA reported that 100 percent of the East and West branches of the Ashtabula River are in full attainment of warmwater habitat water quality standards.

The non-attainment and partial attainment portions of the Ashtabula River are located in the river's harbor area and are not recommended for designation. Sediments in these sections were contaminated by hazardous waste from factories located in the Fields Brook watershed, a tributary of the Ashtabula River that flows into the harbor. Although these contaminated sediments were removed in 2006 and 2007, other impacts precluded further consideration for Wild, Scenic or Recreational designation. These impacts include channel modifications, riverbank retaining walls, shipping and railroad yards, combined sewer overflows, stormwater runoff, and industrial development.

Three segments of the Ashtabula River—the main stem as well as both the East and West branches—meet or exceed the qualifying criteria and are recommended for designation as an Ohio Scenic River:

- **Ashtabula River main stem – from the confluence of the East and West branches of the Ashtabula River at river mile 27.54 downstream to the East 24th Street bridge crossing at river mile 2.3. The total distance recommended for Scenic River designation on the Ashtabula River main stem is 25.24 miles.**

- **East Branch – from Pennline Fen at river mile 12.0 downstream to the mouth of the East Branch at river mile 0.0. The total distance recommended for Scenic River designation on the East Branch is 12.0 miles.**

- **West Branch – from the North Richmond Road (County Road 302) bridge crossing at river mile 9.05 downstream to the mouth of the West Branch at river mile 0.0. The total distance recommended for Scenic River designation on the West Branch is 9.05 miles.**

A total of 46.29 miles of the Ashtabula River, including the main stem and East and West ***branches, qualifies for and is recommended for*** *designation as an Ohio Scenic River.*

Criteria for Wild, Scenic and Recreational River Designation

The following criteria were developed by the Division of Natural Areas and Preserves (under authority of Ohio Revised Code 1517.14) to determine the standard used by the division for establishing and developing Wild, Scenic and Recreational rivers.

To obtain **Wild River Designation**, the following criteria must be met:

1. The proposed Wild river segment must be 100 percent free flowing (i.e. existing or flowing in a natural channel condition without impoundments, diversions, straightening or other modifications of the river channel).

2. Roads are permissible within 300 feet of the river, but may not comprise more than 10 percent of the Wild river segment. Limited access highway crossings are permitted but no more than one crossing per 15 miles of river. Other bridge crossings are permitted, but no more than an average of two bridges per 5 miles of river. No more than an average of two residential dwellings are permitted within 300 feet of the river per mile of river length.

3. For maximum benefit, the total length of the designated section of the Wild river segment may be no less than 15 continuous river miles.

4. No commercial or industrial development is permitted within 300 feet of the stream or within the visual corridor, whichever is less. No more than 5 percent of the river's watershed may be covered with impervious surfaces upstream of the Wild river segment.

5. The area adjacent to at least 75 percent of the stream length, considering both banks, shall be in native forest or wetland outward from the river to a depth of 300 feet or greater. In addition, 50 percent of the remaining corridor shall be in native forest or wetland outward from the river to a depth of 120 feet or greater.

6. All of the Wild river segment must equal or exceed the Ohio EPA's exceptional warmwater or coldwater habitat standards unless natural conditions (i.e.

gradient or flow) within the river segment limit the stream's ability to attain these standards. The stream segment, however, must be performing to its highest potential with regard to biological diversity and water quality given the naturally occurring limitations. *If the quality of the waters at any time falls below these criteria, a means to meet the criteria must be readily available and a pollution control and abatement plan must be developed to meet the criteria and be approved by the Ohio EPA.*

To obtain **Scenic River Designation**, the following criteria must be met:

1. The proposed Scenic river segment must be 75 percent free flowing (i.e. existing or flowing in a natural channel condition without impoundments, diversions, straightening or other modifications of the river channel). The river must have connectivity to its natural floodplain along a majority of its length. Where such impacts have occurred, the river channel shall have been restored or recovered to the point of being capable of supporting a warmwater or coldwater habitat community.

2. Roads are permissible within 300 feet of the river, but may not comprise more than 25 percent of the Scenic river segment length.

3. For maximum benefit, the total length of the designated section of the Scenic river segment may be no less than 20 continuous river miles unless connected with segments bearing other designations.

4. Some commercial, industrial and other types of development may occur within 300 feet of the river. However, this development shall not negatively impact the habitat and quality of the stream and its floodplain. No more than 10 percent of the river's watershed upstream and adjacent to the Scenic river segment may be covered with impervious surfaces at the time of designation. If the upstream and adjacent watershed is at 10 percent impervious cover and is contained within an urbanizing area then that river segment may not be considered for designation.

5. The area adjacent to at least 25 percent of the stream length, considering both banks, shall be in native forest or wetland outward from the river to a depth of 300 feet or greater. In addition, 50 percent of the remaining corridor shall be in native forest or wetland outward from the river to a depth of 120 feet or greater.

6. All of the Scenic river segment must equal or exceed the Ohio EPA's warmwater or coldwater habitat aquatic life use designations unless natural conditions (i.e. gradient or flow) within the river segment limit the stream's ability to attain such standards. However, the stream segment must be performing to its highest potential with regard to biological diversity and water quality given the naturally occurring limitations. *If the quality of the waters at any time falls below these criteria a means to meet the criteria must be readily available and a pollution control and abatement plan must be developed to meet the criteria and be approved by the Ohio EPA.*

To obtain **Recreational River Designation**, the following criteria must be met:

1. The proposed Recreational river segment must be 60 percent free flowing (i.e. existing or flowing in a natural channel condition without impoundments, diversions, straightening or other modifications of the river channel). The river must have connectivity to its natural floodplain along a majority of its length. Where such impacts have occurred, the river channel shall have been restored or recovered to a point of being capable of supporting a warmwater or coldwater habitat community.

2. Roads are permissible within 300 feet of the river, but may not comprise more than 50 percent of the Recreational river segment length.

3. For maximum benefit, the total length of the designated section of the Recreational river segment may be no less than 20 continuous river miles unless connected with segments bearing other designations.

4. Some commercial, industrial and other types of development may occur within 300 feet of the river. However, this development shall not negatively impact the habitat and quality of the stream and its floodplain. No more than 10 percent of the river's watershed upstream and adjacent to the recreational river segment may be covered with impervious surfaces at the time of designation. If the upstream and adjacent watershed is at 10 percent impervious cover and is contained within an urbanizing area then that river segment may not be considered for designation.

5. The area adjacent to at least 50 percent of the stream length, considering both banks, shall be in native forest or wetland outward from the river to a depth of 120 feet or greater.

Scenic River Designation Process

Step 1: Determine if the river proposed for designation meets the minimum length and width requirements.

The portions of the Ashtabula River main stem, West Branch and East Branch proposed for study exceed the minimum length of 5 miles and also has a mean surface width greater than 10 feet.

Step 2: Obtain resolutions of support for the designation study from at least 50 percent of the local political subdivisions located within 1,000 feet of the area proposed for designation.

In 2005, the Ashtabula River Watershed Steering Committee organized to protect the Ashtabula River. The steering committee began collecting resolutions of support for the designation study from local political subdivisions in late 2006. By February 2007, the committee had obtained 100 percent support from all 10 local political subdivisions. In addition to the Ashtabula City Council and the Ashtabula Board of County Commissioners, the following townships passed resolutions of support: Ashtabula, Denmark, Kingsville, Monroe, Pierpont, Plymouth, Richmond and Sheffield.

Step 3: Collect background and resource information on the natural and cultural history of the watershed.

Topographic maps were obtained from ODNR's Division of Geological Survey. River mile maps from the Ohio EPA were used as references for this study.

Biological information was acquired from the Ohio EPA, U.S. Army Corps of Engineers, U.S. Department of Commerce, National Oceanic and Atmospheric Administration, Cleveland Museum of Natural History, ODNR's Division of Wildlife, and the Natural Heritage Program, which was administered by the Division of Natural Areas and Preserves.

Division staff collected information about the Ashtabula River from a variety of sources. GIS (Geographic Information System) mapping technology was extensively used for this study. Many different GIS layers were used: 2006 aerial photographs, land use data, wetlands, soils, endangered threatened species and other details.

Information was also obtained by conducting private interviews and researching local historical books. Meetings, workshops and tours were held to discuss the Ohio Scenic River Program, scenic river designation process, as well as provide additional information about the study.

Step 4: Conduct a river inventory to document the existing condition of the river's corridor within 300 feet of the river.

Field work for the Ashtabula River designation study included seven canoe trips along 35 miles of the Ashtabula River main stem, East Branch and West Branch. Walking surveys were done when landowner permission was obtained, especially along the East Branch where canoeing was not possible because of low water conditions. Digital photographs were taken to document any problem areas which were observed.

Step 5: Complete the designation study report and submit recommendation to the Director of ODNR.

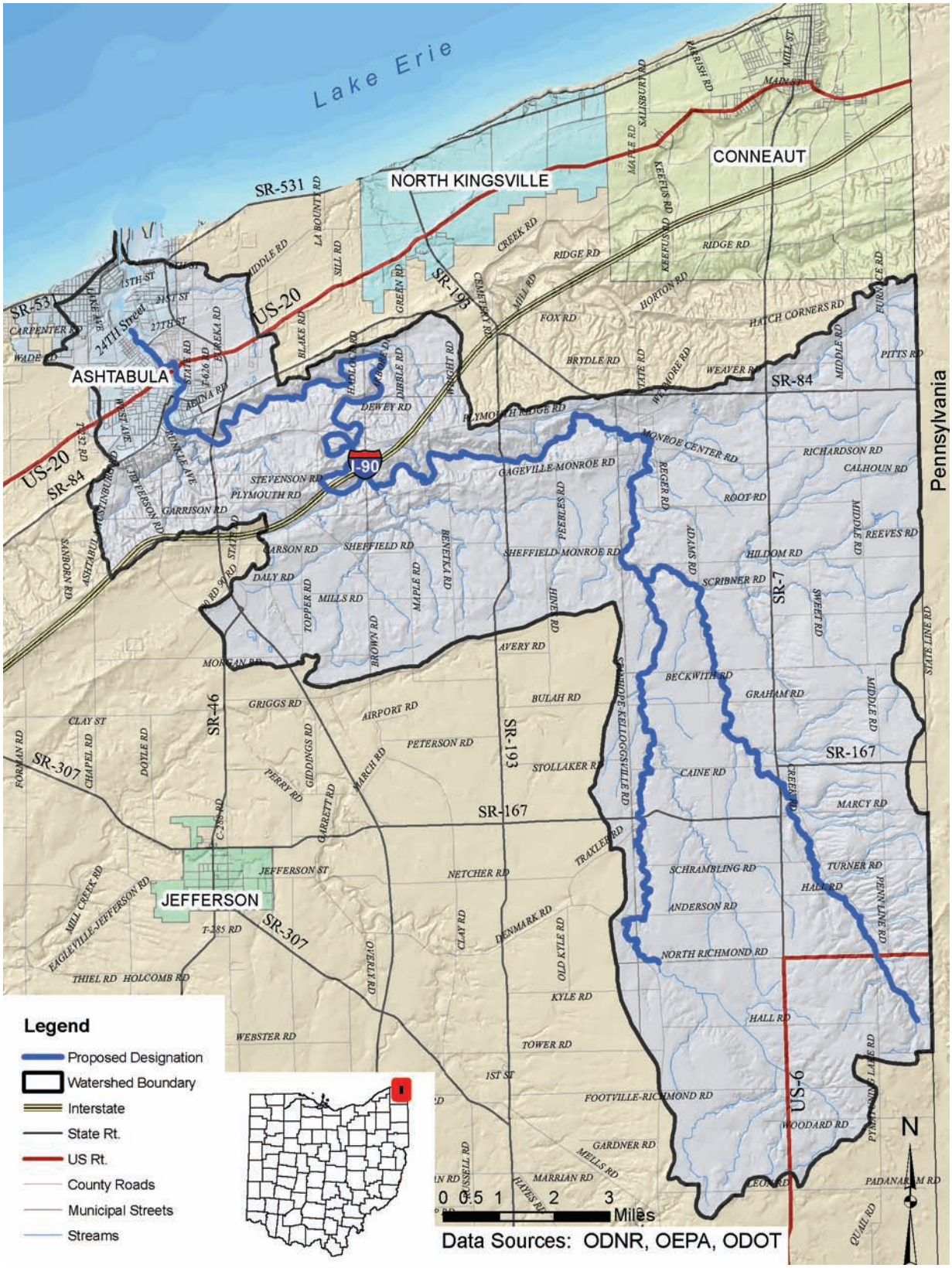
Pertinent information from the research and field work phases was compiled into this designation study. Based on field surveys and the supporting background data, it is recommended that the following portions of the Ashtabula River be designated:

- **Ashtabula River main stem** – from the confluence of the East and West branches of the Ashtabula River at river mile 27.54 downstream to the East 24th Street bridge crossing at river mile 2.3. The total distance recommended for Scenic River designation on the Ashtabula River main stem is 25.24 miles.
- **East Branch** – from Pennline Fen at river mile 12.0 downstream to the mouth of the East Branch at river mile 0.0. The total distance recommended for Scenic River designation on the East Branch is 12.0 miles.
- **West Branch** – from the North Richmond Road (County Road 302) bridge crossing at river mile 9.05 downstream to the mouth of the West Branch at river mile 0.0. The total distance recommended for Scenic River designation on the West Branch is 9.05 miles.

A total of 46.29 miles of the Ashtabula River, including the main stem, East and West branches, qualifies for and is recommended for designation as an Ohio Scenic River.

Step 6: The Director of ODNR may then declare his intent to designate a river as wild, scenic or recreational by placing a legal notice in the principal county newspaper and by informing applicable public officials in writing.

Step 7: After 30 days have elapsed and a public hearing has been conducted, the Director shall make the designation official by making an entry into his journal.



STREAM SEGMENTS RECOMMENDED FOR SCENIC RIVER DESIGNATION

General Description of the Ashtabula Watershed

Overview

Located almost entirely in Ashtabula County, Ohio, the Ashtabula River flows northwesterly from its headwaters in Pennsylvania into Lake Erie. The river's watershed covers 147.14 square miles or 87,770 acres; 92.4 percent is in Ohio and 7.6 percent is in Pennsylvania.

The main stem of the Ashtabula River is formed by the confluence of the East and West Branch tributaries. It drops in elevation from 1,033 feet at its origin to 573 feet above mean sea level, creating an average gradient of 11.6 feet per mile. Other principal tributaries of the main stem include Ashtabula Creek, Hubbard Run and Fields Brook.

The following description of the East Branch, West Branch and main stem of the Ashtabula River was developed during 2007 field inspections conducted by Ohio Scenic River Program staff using canoes or kayaks, beginning in the headwaters of each stream and progressing downstream. The location descriptions are based on river miles which are measured upstream from the mouth of any river or stream. For example, river mile 5.5 is 5.5 miles upstream from the mouth of the river. River mileage numbers correspond with river mileage maps developed by the Ohio EPA. The terminology river left and river right refer to the left-hand side of the river channel and the right-hand side of the river channel when facing downstream.

A key component in this river study is the width of riparian buffer which exists adjacent to the study area. Riparian means adjacent to water. Intact riparian buffers are essential to preventing erosion, maintaining high water quality and protecting the aquatic diversity of a river. Floodplain forest and wetlands are two of the most critical types of riparian buffers. For the purpose of this study, 120 foot and 300 foot buffer widths that are specified in the Wild and Scenic River criteria were evaluated. These criteria are consistent with studies which have determined that 300 feet is needed to maintain stable river channels for rivers with watersheds exceeding 20 square miles. These and other key distances related to the Wild and Scenic River designation criteria were measured from aerial photographs taken in 2006 or by using GIS data.

As with most scenic rivers, the Ashtabula River typically has riparian corridor meeting or exceeding the 300 foot requirement unless otherwise noted.

East Branch

The East Branch of the Ashtabula River is formed by water flowing from seeps, some of which originate just across the state line in Pennsylvania. These seeps give rise to Pennline Fen, a globally rare fen, nearly a mile long that harbors more than 21 state-listed plant species including tamarack (Larix laricina). The future of this unique ecosystem is currently threatened by logging, farming, gravel mining activities and expanding home construction on nearby Pennline Road.

The East Branch of the Ashtabula River is a narrow channel with a wooded corridor, generally greater than 300 feet deep. It flows northward out of Pennline Fen toward State Route 6. Just upstream of the State Route 6 bridge at river mile 10.37, the river enters another wetland complex interspersed with old field which provides additional excellent buffer.

Leaving this wetland complex, the river returns to a well-defined stream channel with a gravel and cobble substrate. At river mile 9.5 the west side of the stream has a forested buffer that is at least 300 feet wide, however some stream modification has occurred resulting in a straightened stream channel downstream to river mile 8.85. The land uses on the east side along this stretch include farm fields, hay fields and a large pond interspersed with very narrow buffers of one to two trees wide. Despite the past channelization, the stream has recovered to some degree and possesses a good substrate composition of gravel, cobble, sand and some silt.

Pennline Fen

The next landmark,Hall Road bridge crossing, is located at river mile 8.85. Excellent forested corridors border each side of the stream until Turner Road at river mile 7.95. At this point there is a large pasture located on both sides of the stream extending down to river mile 7.7. Although the pasture does not appear to be overgrazed, cattle have complete access to the stream and have caused heavy trampling and erosion of the stream banks. An exposed pipe crosses the stream at river mile 7.9 and only a few trees are present in this area.

From river mile 7.5 downstream to the Marcy Road bridge at river mile 6.85, the riparian corridor is narrow on river right, ranging from 20-50 feet wide, and gives way to agricultural fields planted in row crops. A deeper buffer, ranging from 120-300 feet wide, exists on the opposite bank with baseball fields and a township maintenance garage beyond. The stream bed through this section has a good substrate consisting of cobble, gravel, sands and some fines.

Downstream of Marcy Road at river mile 6.85 to State Route 7 at river mile 6.1, wooded riparian buffer widths range from 0 to 120 feet in depth. Local land use is primarily agricultural and ranges from wood lots and hay fields to row crops and pastures, with some bank erosion occurring where cattle have free access. A township cemetery, located on Creek Road at river mile 6.5, is set back from the river about 300 feet with a wooded buffer between the cemetery and the stream. The stream bottom in this area continues to be high quality comprised of cobble, gravel and sand substrates.

Wooded buffers vary from narrow, 25-55 feet, on river left at river mile 6.1 (State Route 7) to wide downstream to Caine Road at river mile 5.48. Land uses in this

section include a farm house and pasture fields. The right bank of the river through this stretch has a better wooded buffer extending to 120 feet in depth with residential homes beyond. Downstream of river mile 5.9, the riparian buffer widens to 300 feet or more for nearly a half mile to Caine Road.

Downstream of Caine Road to river mile 4.25, there is a wooded riparian buffer on river right exceeding 300 feet wide except at river mile 5.1 where a heavy select cut was conducted in 2005 on approximately 5 acres of floodplain. The left bank of the river from river mile 5.48 to river mile 5.0 consists of pasture with a narrow buffer ranging from 50-120 feet wide. From river mile 5.0 to 3.9, on river left, a 300-foot-wide or greater forested riparian buffer is present. Buffers are typically narrower on river right from river mile 4.25 to 3.73 at Graham Road, averaging about 70 feet in width with adjacent land being used for row crops. The substrate is still comprised of cobble, gravel and sand.

North from Graham Road at river mile 3.73 downstream to river mile 3.6 the maximum buffer depth is 40 feet. From this point to river mile 3.0 at Beckwith Road, the riparian buffer exceeds 300 feet on both river banks and then narrows considerably from 120 to 35 feet on both sides of the stream. Bedrock substrates are present here which limits the diversity of habitat available in the stream substrates. Adams Road parallels the East Branch in this area and is located within 300 feet of the stream.

There is no wooded riparian buffer from river mile 2.6 to 2.4 as the flood plain is being utilized as pasture and cattle have free access to the stream. From river mile 2.4 to 1.4 the wooded riparian buffer is about 120 feet wide on each side of the stream. Adams Road continues to run parallel to the stream and is within 300 feet of the stream through this stretch.

On the north side of the Scribner Road bridge, at river mile 1.35, an unnamed tributary enters the East Branch. From river mile 1.4 to 1.2, there is no riparian forest present, but some vegetated buffer exists in the form of tall grasses, wildflowers and a few small trees. Barbed wire has been stretched below both the Scribner Road bridge at river mile 1.35 and the Adams Road bridge at river mile 1.31. This has apparently been done to allow cattle access to the river while preventing their movement beyond the two bridge crossings.

At river mile 1.2 heavy equipment has pushed the left bank into the stream, creating a wide dirt path down to the water's edge. In addition to the large amounts of sediment, construction debris was also pushed into the stream and onto the opposite bank. From river mile 1.5 to the river's mouth at 0.0 the wooded riparian buffer on both sides of the stream is 300 feet wide. The only exception is on river right from river mile 0.7 to river mile 0.45 where the wooded riparian buffer narrows to approximately 120 feet.

The East Branch is a total of 12 miles in length; approximately 64 percent is bordered by riparian forest buffer 300 feet deep or greater. Eighty-nine percent of this reach also has a wooded buffer that is at least 120 feet wide.

West Branch

The West Branch begins southeast of Richmond Center in Richmond Township, Ashtabula County and flows in a northwesterly direction. From river mile 13.0 (at Footville-Richmond Road) to river mile 10.3 the stream has been channelized. It has very little wooded riparian buffer and now functions primarily as a ditch. At river mile 11.26 the Hall Road crossing is a good example of how the stream's quality has been altered by this activity.

At river mile 10.3 the West Branch begins to revert to natural stream conditions with a wooded riparian buffer. At river mile 9.05, the North Richmond Road crossing, the stream substrate is composed of cobble, gravel and sand with evidence of beaver activity along the banks. From this point downstream, the vegetation on river left consists of 10- to 15-year-old successional woody growth and river right has a narrow, 20-foot-wide wooded buffer with a residential dwelling.

The stream riparian zone changes at river mile 8.9 with row cropping on river left and an old field with small trees on river right. A residential driveway bridge has also been constructed to span the stream at this point. On river right at river mile 8.75 there is a 30-foot-wide wooded buffer between the stream and an old field area. No buffer is present on the left where a construction equipment storage area was evident about 40 feet from the stream. Two I-beams have been placed across the stream at this location as part of a possible stream crossing. The substrate composition in this area of the West Branch is comprised primarily of gravel, sand and silt.

A more substantial wooded riparian buffer is present downstream from the construction storage area. At river mile 8.5, on river right, the wooded riparian buffer is more than 300 feet wide. Across the stream on the left bank, the riparian buffer is 150 feet deep. On river right the wide wooded buffer continues down to river mile 8.3, but the wooded buffer on river left becomes a narrow wooded corridor with a littered slope at river mile 3.5. Beyond this point the wooded buffer on river left widens to more than 150 feet down to river mile 8.3. The substrate of the stream bed is sand and gravel through this section.

At river mile 8.2 the stream turns to the north and flows across a riffle where a temporary culvert crossing had been placed but has washed out. A 300-foot-wide wooded riparian buffer is present on river right and a home and small farm with an active pasture is present on river left at river mile 8.1. The livestock in this pasture are fenced out of the stream, but no buffer is present. Downstream from this small farm the wooded buffer continues on river right and varies from 60-120 feet wide. Stanhope- Kelloggsville Road runs parallel to the outer edge of this buffer.

At river mile 7.9 a wooded riparian buffer is present on river right, but river left is a farm field with no buffer. However, the forest corridor does begin to redevelop downstream. The Anderson Road bridge spans the stream at river mile 7.32 with an intact forest buffer greater than 300 feet deep on both sides of the stream down to river mile 6.4. From river mile 6.4 to Schrambling Road at river mile 6.3, a 120-foot-wide wooded riparian buffer exists on both sides of the stream. The substrate consists of sand, gravel and cobble.

At river mile 6.15, on river left, the wooded riparian buffer becomes narrow downstream to about river mile 5.5, while the wooded riparian buffer on river right continues to be 300 feet wide or greater. Near the State Route 167 bridge crossing at river mile 5.15, the wooded riparian buffer measures 300 feet wide on both sides of the river. However, a set of power lines runs parallel with State Route 167. A residential dwelling on river left breaks up the wooded buffer, but has little impact. From river mile 5.15 to 4.2 the wooded riparian buffer widths on both sides of the river range from 120 feet to more than 300

feet deep. The only intrusion on this section, at river mile 4.4, is a home located at the top of the slope about 50 to 100 feet from the streambank.

On river left at river mile 4.2 the wooded riparian buffer changes to a sparsely wooded old field while the wooded riparian buffer is still approximately 300 feet wide on the right bank. At river mile 4.1 a channel modification, made during the 1986 construction of the Caine Road covered bridge and an adjacent pond, has impacted the stream. The channel modification stretches from river mile 4.1 downstream to 3.95. The stream is beginning to recover, however, on river right from river mile 4.1 to 4.05 the channel is constricted by the pond dike which pushes high water to the opposite stream bank and is ultimately slowing the recovery of this section. The Caine Road covered bridge was the first Pratt truss bridge constructed in Ohio in honor of Ashtabula County's 175th anniversary. It spans 124 feet across the river.

An old pasture dominates the riparian corridor from river mile 4.05 to 3.9 on river right while on river left there is a wooded buffer ranging from 120-200 feet deep. Beaver activity is heavy in this area; a very large dam is

located at river mile 3.88 impounds water upstream to the Caine Road covered bridge. From river mile 3.88 to 3.65 both sides of the river has a wooded riparian buffer wider than 300 feet.

The wooded corridor again gives way to a farm field on river left at river mile 3.6 which extends to river mile 3.3. Beyond this point a narrow wooded buffer begins and continues until river mile 3.0. From river mile 3.5 to 3.37, on river right, the wooded corridor is only 60-90 feet wide. A small unnamed tributary enters the West Branch at river mile 3.5 on river right. On river right, from river mile 3.37 to 3.0, a substantial wooded riparian buffer exceeding 300 feet wide is present.

A large area, providing storage for farm equipment, and adjacent farm fields are present at river mile 2.7 with a very narrow wooded riparian buffer separating this from the stream. An agricultural stream ford also exists at this location, apparently to provide access to the farm fields located across the stream beyond the narrow 60- to 120-foot-wide wooded buffer.

Graham Road Covered Bridge Metropark begins at river mile 2.65 on river left. The covered bridge at this park does not cross the stream. This 97-foot-long example of Town Truss construction was built from remnants of a covered bridge that washed downstream during the 1913 flood. At this location the Ashtabula County park district maintains a small gravel parking area off of Graham Road and a mowed lawn down to the West Branch; no wooded riparian buffer is present.

The Graham Road bridge spans the West Branch at river mile 2.6. The substrate is composed of gravel, sand and silt in this stretch. From Graham Road to Beckwith Road at river mile 1.85, the wooded riparian buffer on both sides of the stream ranges from 120 feet to more than 300 feet wide. At Beckwith Road a bedrock substrate is present with a small waterfall/ledge in the stream on the north side of the road. From river mile 1.85 to the mouth of the West Branch the wooded riparian buffer often exceeds 300 feet in width on both sides of the stream. Only for a very short length at river mile 1.5, on river left, does the buffer narrow to 120 feet wide.

The West Branch is 14.6 miles long. From North Richmond Road at river mile 9.05 to the river's mouth, 67 percent of the West Branch's riparian corridor is forested to a depth of 300 feet or greater. Ninety-one percent of the length of the West Branch has a riparian forest corridor which is at least 120 feet wide.

Main Stem

The main stem of the Ashtabula River begins at the confluence of the East and West branches, 27.54 river miles upstream from Lake Erie. The floodplain of the river varies from very wide to narrow with steep shale cliffs immediately adjacent to the river. A variety of tree species, such as hemlock, oak, maple, sycamore and others, can be found in the river valley. Along its dense, wooded banks, a wide variety of animals are supported including bald eagles which were documented twice during canoe surveys in 2007.

At the beginning of the Ashtabula River main stem at river mile 27.54, a riparian corridor of more than 300 feet wide is present on both sides of the river to Hilldom Road at river mile 27.05. Channel modifications have

occurred from this point downstream to river mile 26.85, however, the channel is recovering. Along this section, pasture without a wooded riparian corridor is maintained on both sides of the river.

From river mile 26.8 to river mile 26.1, a riparian corridor, greater than 300 feet wide, continues on the right bank to the Root Road covered bridge with some sections measuring more than a half-mile wide. The left bank corridor narrows, ranging from 40-100 feet wide, between river miles 26.1 and 25.77. Substrate along the length of the entire stretch is composed of boulders, cobble, gravel and sand.

The 114-foot Root Road covered bridge is located at river mile 25.77. A small parking area on the right bank of the river, along Root Road, allows viewing of the covered bridge. Originally constructed in 1868, the

bridge was rehabilitated in the early 1980s when it was raised 18 inches. During rehabilitation, new laminated girders and a center concrete pier was added to the middle of the river channel.

At river mile 25.45, the main channel is braided into three separate smaller channel sections. From river mile 25.0 to 24.72, the riparian corridor varies in width from 45-120 feet along the left bank. At river mile 24.75 an oil well storage tank is located within 100 feet of the left bank of the river and the corridor narrows to 100 feet wide. From river mile 24.65 to 24.5, the corridor narrows again, ranging from 40-80 feet, with farm fields lying directly beyond.

The Ashtabula Creek tributary enters the Ashtabula River main stem at river mile 24.46. Along this stretch, the substrate is comprised of cobble, gravel and sand. Three homes occupy the right bank within 200 to 300 feet of the river. Reger Road runs along this stretch of river approximately 200 feet from the right bank, and an old field sits along the left bank. A power line crosses at river mile 24.35.

No buffer is present on the left bank at river mile 24.1, which is causing heavy erosion and siltation. Rip-rap consisting of concrete slab has been placed along the river bank to slow erosion but that has not been successful. Stanhope-Kelloggsville Road runs parallel to the river approximately 270 feet from the bank and eventually crosses at river mile 23.8.

Between river miles 23.7 and 22.3, bedrock becomes the dominant river substrate with gravel, cobble and sand as secondary substrata. A small island has formed along river mile 23.6. The areas of sandy substrate

contain substantial freshwater mussel beds that were observed during field observations in the spring of 2007. The high-quality river corridor within this stretch has been partially protected by the landowner through a conservation easement. Along the right bank of the river, Gulf Road sits on top of a steep wooded slope roughly 180 feet from the river.

Along river mile 22.0 and 20.9, bedrock gives way to slab, cobble, sand and gravel substrata. In the spring of 2007, a massive log jam was observed at river mile 22.0. The left bank of river mile 21.8 contains an early successional forest that appears to have been logged within the last 20 years; it eventually gives way to an established wooded floodplain containing a cell phone tower approximately 600 feet from the bank. The right bank is comprised of a steep wooded slope. A pipe, 8 inches in diameter, crosses the river at mile 21.6. In 2005, a clear cut was conducted on the right bank of river miles 21.2 to 20.9. The cut was conducted on more than 10 acres of floodplain, leaving no wooded corridor.

Gageville Road parallels the left river bank from river mile 21.1 to 20.4 approximately 130-600 feet from the river with wooded corridor between the river and the road. Eight homes and a store are located on the left bank in this section. Despite a heavily wooded corridor, concrete slabs have been placed along the right bank to slow erosion.

From the State Route 193 crossing at river mile 20.4 to 19.1, a high-quality corridor exists with the exception of river miles 20.0, 19.15 and 19.1. Along the left bank of river mile 20.25 and downstream from the Route 193 bridge, a cemetery sits 400 feet from the river. The river corridor narrows at river mile 20.0 to 19.1 along the right bank; a farmed field lies beyond the corridor. At river mile 19.15, a home sits about 180 feet from the eroding left river bank. The corridor is a mowed lawn with trees sparsely planted throughout.

The Benetka Road covered bridge spans the Ashtabula River at river mile 19.05 where substrata include boulder, cobble, gravel, sand and silt. Originally constructed in 1900, the bridge was renovated in 1985. A launch pad for canoe access and a small parking area are available. In the Ohio EPA's 2007 fish survey, it was found that the shallow waters below the bridge support a significant population of smallmouth and rock bass.

The corridor narrows along this section and eventually widens at river mile 18.6. Several homes are located along the river bank including the Forest Ridge housing development at river mile 18.55. At river mile 18.25, there is a slight amount of bank erosion with moderate undercutting occurring at the river's bend. Downstream, the corridor narrows to a 50-foot-wide strip separating the river from farmed fields.

Between river mile 17.7 and 15.9, there are a few areas in which the corridor has been reduced for agriculture. The Pine Creek tributary joins the Ashtabula River at river mile 16.98; another small tributary, Coffee Creek, enters the river at mile 16.2. The twin bridges of Interstate 90 cross the main stem at mile 15.9. A slight amount of slumping and erosion has occurred on along the west bank of I-90. Substrata, cobble and boulder material along this corridor appears to have originated from the eroding embankment. From river mile 15.5 to 15.1, the river divides into several channels and braids around an instream island.

On the right bank of river mile 14.65, Green Hill Road is located within 15 feet of the river at the top of a shale cliff. Green Hill Road bridge spans the Ashtabula River at river mile 13.92. Along this stretch, three homes are built on the floodplain; one of the homes extends out over the river with large iron beams supporting the home. In this area, the substrate is predominantly bedrock with interspersed gravel bars in slow regions of the river channel. Plymouth

Ridge Road sits atop a 70-foot-high exposed shale bluff from river mile 13.8 to 13.4 and cuts across the river at mile 13.1 where a curved shelf has been formed in the bedrock. The existing bridge has a single concrete support pier in the center.

From river mile 13.0 to 12.01, the wooded corridor ranges from 120 to 300 feet wide. Two bedrock shelves, both approximately 4 feet high, are located at river mile 12.6 and 12.3. Although beautiful, the shelves can create dangerous hydraulic currents below them during periods of high water.
The 115-foot-long Olin's covered bridge, also known as the Dewey Road bridge, crosses the Ashtabula River at mile 12.01. The bridge was built in 1873 and renovated in 1985, leaving a center concrete pier in the river channel. On the north side of the bridge there is a small bedrock shelf in the river channel that gives way to a larger shelf and subsequent waterfall. As water flows over the small waterfall the river makes a direct turn to the east. During high flows this area is extremely dangerous and should be portaged by those who are canoeing or kayaking the river. Two homes are built downriver from the waterfall.

During periods of high water, a large gravel bar at river mile 11.55 forms an island comprised of cobble. At low flow the gravel bar creates significant riffles on the primarily bedrock substrate. In this stretch of river, it is common for several islands composed of gravel, cobble and boulders to form during high water. These islands have the potential to grow small trees and sparse vegetation, but are highly unstable. At about river mile 11.5, a home is located approximately 70 feet back from the edge of a 50-foot-high cliff.

The Hadlock Road ford crosses the Ashtabula River at river mile 10.03. The ford causes impediment of flow, creating a small dammed area. Despite three culverts located under the ford, most of the water flows over the road. An approximate 6-foot difference exists between the riverbed and the top of the ford. Just east of the ford, on the right bank of the river, a home and barn sit within 240 feet of the river. Substantial clearing has been conducted on this property; some trees have been left between the home and the river. A power line runs parallel with the ford and a gas line is buried underneath.

From river mile 9.9 to 6.5, there are a few short sections where the wooded buffer narrows to 120 feet wide. No homes, roads or other development are located within

300 feet of each side of the river with the exception of one home on river mile 9.9; however, a disconnected phone line, high tension power line and partially buried gas line each cross the river. At river mile 6.5, the Indian Trails Park begins and extends downstream to river mile 2.4.

River mile 6.23 is the site of Ashtabula County's newest covered bridge, Smolen-Gulf bridge, which is also the nation's longest covered bridge. When conducting the river survey in 2007, erosion control structures were not in place and the situation was documented with notes and photographs. The substrate of the river through this area is a combination of bedrock, boulder, cobble, gravel, sand and silt.

From river mile 6.2 to 5.70, a paved, blacktop trail has been constructed between 60-200 feet from the

river's edge with a wooded buffer between the trail and the river. This trail is used each spring for a botany challenge by Ashtabula County schools. State Route 11 crosses the Ashtabula River at river mile 5.75. According to U.S. Geological Survey topographical maps, the section of river flowing from river mile 5.85 to 5.4 has been historically modified. The stream channel has since recovered with the support of an intact floodplain and wooded corridor. A large gravel bar is present along the right bank of mile 5.5.

Between river mile 5.27 and 4.8, the substrate consists of bedrock, boulder, cobble, gravel, sand and silt. Hubbard Run enters the Ashtabula River at river mile 5.27; a parking lot at the top of Plymouth Road allows access to a foot path leading to the mouth of Hubbard Run. As the corridor narrows, several homes and the Chestnut Grove Cemetery sit along the steep river slope. On the left, a stormwater pipe discharges into the Ashtabula River at mile 4.8.

The Norfolk and Western railroad bridge and the East 46th Street bridge cross the Ashtabula River at river mile 4.45 and 4.3, respectively. A large amount of ground glass has been placed on the south side of the slope flanking the East 46th Street bridge. The river continues to flow downstream through Indian Trails Park where walking and horse trails wind through the riparian corridor. At river mile 3.65, the U.S. Route 20 bridge crosses the predominately bedrock section of river.

At river mile 3.4, the Tannery Road bridge crosses the river as the substrate changes to cobble, gravel, sand and bedrock. Between the bridge and river mile 2.9, several residential homes, businesses and the Cedarquist baseball field line the narrow river corridor.

A Penn Central railroad bridge crosses the Ashtabula River at mile 2.9 where the substrate is composed of cobble, gravel, slab and bedrock. Downstream of the railroad bridge, on the left bank, the wooded corridor quickly narrows and varies in width from 30-250 feet. The Ashtabula Hospital, a substantial wetland and Indian Trails Park sit adjacent to the river. The proposed Scenic river designation ends at the East 24th Street bridge at river mile 2.3.

Immediately north of the East 24th Street bridge, the character of the river dramatically shifts. From river mile 2.35 to 0.0 the river channel has been drastically altered so that almost no natural habitat exists. Historically, from river mile 2.3 to 2.0, the river channel was relocated and a wooded peninsula was converted to marina. In an attempt to leave a spawning area, a very small section of shoreline on the right was not bulk headed during the conversion. However, this section

is routinely mowed to the river's edge and no aquatic vegetation is present.

Environmental dredging of the Ashtabula River was conducted in 2007 from river mile 1.9 to 0.75 at the 5th Street lift bridge. Primary and secondary dredged sediment was pumped into a landfill; the access water was treated and discharged back into Fields Brook. The dredging was completed in the fall of 2007, with some of the remedial work still to be completed.

Fields Brook and Strong Brook flow into the Ashtabula River at river mile 1.61 and 1.62 respectively. The Penn Central Railroad lift bridge crosses the river at mile 1.6. Between river miles 1.5 and 1.06, a peninsula previously used as a marina by the railroad companies, named the 5½ Slip, has been allowed to revegetate and is a promising location for environmental restoration.

The historic 5th Street lift bridge crosses the river at river mile 0.75. The ODNR Division of Watercraft office and dock is located just downstream from the 5th Street lift bridge along the right bank. The U.S. Coast Guard office and dock and the historic harbor district featuring shops and restaurants may be found on the left bank. Extensive docking used to load and unload coal and iron ore flank the banks of the river from mile 0.6 to 0.0. A coal conveyor belt crosses the river at mile 0.6.

Of the Ashtabula River's 27.54 mile long main stem, river miles 27.54 to 2.3 are under consideration for Scenic river designation. Along this stretch, 85 percent of the river's wooded corridor is wider than 300 feet on each side of the river and 95 percent is at least 120 feet wide.

Natural Features of the Ashtabula River Corridor

Geology

The Ashtabula River watershed is situated within the gently rolling, dissected glacial plateau of the Erie-Ontario Lake Plain eco-region. This region reaches from Lake Erie in northeastern Ohio to the west along the Maumee River near Toledo.

The northeastern portion of this eco-region is dominated by level highlands crossed with ravines that contain flat floodplains adjacent to rivers and streams in their valleys. In the western portion, the steep ravines and valleys give way to the expansive flat Lake Plain with little topographic relief.

The exposed bedrock found along the Ashtabula River is the Chagrin member of the Devonian-age Ohio shale, which is a gray shale ranging up to 1,200 feet thick. Devonian-age Ohio shale began as sediment which accumulated at the bottom of an ancient lake bed about 360 million years ago. This bedrock has very low permeability, restricting the vertical movement of groundwater, which greatly limits the opportunity for groundwater recharge.

During the Pleistocene era, between 1.8 million and 10,000 years ago, varying thicknesses of glacial drift was deposited over the Devonian-age Ohio shale. Glacial drift consists of eroded material that was carried by glaciers from one location and deposited in another location.

The majority of the Ashtabula watershed is comprised of glacial till, which is earthen material ranging in size from fine clay to boulders, and end moraines, which are deposits of glacial till laid down in mounds. The pre-glacial valleys within the underlying shale bedrock were buried by glacial clay, sand and gravel down to depths of 200 feet from the ground surface. Over time, many of the existing Lake Erie drainage streams have eroded down through these glacial tills to expose the underlying shale bedrock.

The Ashtabula River cuts in a serpentine fashion through shale outcroppings, heading in a north-northwestern direction. The river flows through a narrow valley encased with exposed shale cliffs up to 100 feet high.

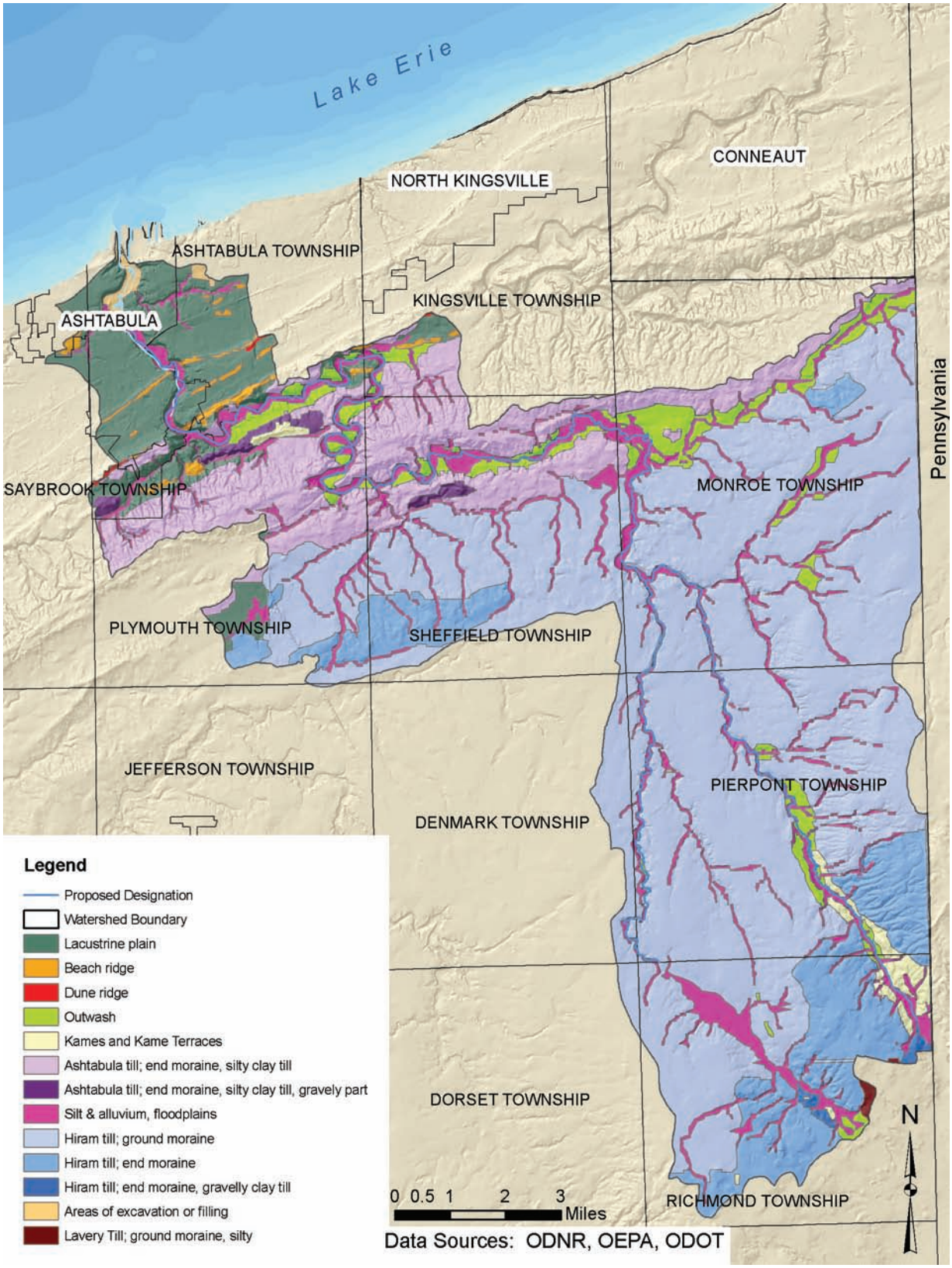
Various fossils of ancient aquatic species, such as brachiopods and crinoids, can be found in the river valleys. Several small waterfalls, about 5 feet high, are created by the river's bedrock. These waterfalls are located between river mile 14.0 and 11.5.

Groundwater, in very limited quantities, may be found throughout the watershed. Groundwater in beach ridge deposits can produce up to 5 gallons per minute (gpm), however, wells drilled in the shale bedrock deposits will produce only 2-3 gpm. The restricted amount of groundwater directly limits the base flow of the Ashtabula River.

Groundwater discharge is the primary component of the stream's stable water flow. Base flow is the stable flow portion of the total stream flow, comprised only of groundwater contributions.

The exposed shale bedrock found in the river channel limits the downward erosion of the channel, preventing the development of deep pools that creates a wider and shallower river channel. The combination of a wide bedrock channel with a low base flow results in high water temperatures and very shallow water conditions in the summer months.

These conditions limit the types of organisms that can live in the river. The Ohio EPA lists these naturally occurring conditions as reason why the Ashtabula River does not attain exceptional warmwater habitat criteria, however, the Ashtabula River does meet the Ohio



Ashtabula River Watershed Geologic Map

The exposed shale bedrock found in the river channel limits the downward erosion of the channel, preventing the development of deep pools which creates a wider and shallower river channel. The combination of a wide bedrock channel with a low base flow results in high water temperatures and very shallow water conditions in the summer months.

These conditions limit the types of organisms which can live in the river. The Ohio EPA lists these naturally occurring conditions as the reason why the Ashtabula River does not attain exceptional warmwater habitat criteria, however, the Ashtabula River does meet the Ohio EPA's warmwater habitat criteria. The description of the Ohio EPA's criteria may be found on page 48 of this report.

Plants

Ashtabula County was largely forested when European settlers first arrived. The size and density of the trees in the Ashtabula River ravine were so great that Native Americans and early pioneers were reluctant to inhabit the area because of how dark it was. The inland forest species were described as oak, whitewood, hemlock, cucumber, beech, maple and black ash (Williams, 1974).

The dominant old growth forests of the late 18th century in Ashtabula County were chestnut (along Lake Erie) and beech-maple (Braun, 1989). In Richmond Township, the low-lying woodlands are said to have been dominated by tamarack and yellow birch (Danchowski, 1912).

Currently the Division of Natural Areas and Preserve's Natural Heritage Database lists 36 rare plant species in the Ashtabula River watershed. These include eight endangered, nine threatened and 19 potentially threatened plant species. A complete list of these plant species may be found on page 26.

The following is a list of plant community types found in the watershed (Beach and Bissell, 2007):

- beech-maple forest
- sugar maple-ash-basswood
- northern rich mesic forest
- mixed oak forest
- Great Lakes hemlock-beech hardwood forest
- Lake Plain swamp forest
- silver maple-elm floodplain forest
- emergent deep marsh
- rich shrub fen
- Great Lakes palustrine sand plain
- river and stream aquatic community
- Lake Erie open water community
- glacial slump community

Rare Plants of the Ashtabula Watershed

Ammophila breviligulata (American beach grass – **T**)
Betula populifolia (grey birch – **PT**)
Botrychium lanceolatum
(triangle [lanced-leaved] grape fern – **E**)
Cakile edentula (inland sea rocket – **PT**)
Carex alata (broad-winged sedge – **PT**)
Carex atlantica ssp capillacea (Howe's sedge – **T**)
Carex brunnescens (brownish sedge – **T**)
Carex diandra (lesser-panicled sedge – **PT**)
Carex disperma (two-seeded sedge – **E**)
Carex louisianica (Louisiana sedge – **E**)
Carex pallescens (pale sedge – **T**)
Carex projecta (necklace sedge – **T**)
Clintonia borealis (bluebead lilly – **E**)
Cyperus schweinitzii (Schweinitz' umbrella sedge – **T**)
Euphorbia polygonifolia (seaside spurge – **PT**)
Geum rivale (water avens – **PT**)
Juncus alpinus (Alpine rush – **PT**)
Larix laricina (Tamarack or American larch - **PT**)
Lathyrus japonicus (beach pea – **PT**)
Lilium superbum (Turk's cap lily – **PT**)
Melampyrum lineare (cow wheat – **T**)
Myriophyllum heterophyllum
(two-leaved water milfoil – **E**)
Oenothera parviflora
(small-flowered evening-primrose – **PT**)
Oryzopis asperifolia
(large-leaved mountain rice – **E**)
Poa paludigena (marsh spear grass – **PT**)
Potamogeton natans (floating pondweed – **PT**)
Potamogeton richardsonii
(Richardson's pondweed – **PT**)
Persicaria robustior (coarse smartweed – **T**)
Ribes triste (swamp-red currant – **E**)
Salix serissima (autumn willow – **PT**)
Shepherdia canadensis (Canada buffalo-berry – **PT**)
Sisyrinchium montanum
(Northern blue-eyed grass – **T**)
Sphenopholis pensylvanica (swamp oats – **PT**)
Trillium undulatum (painted trillium – **E**)
Triplasis purpurea (purple sand grass – **PT**)
Viburnum alnifolium (hobblebush – **PT**)

Key:
E - Endangered *T - Threatened* *PT - Potentially-threatened*

Invertebrates

The aquatic invertebrate community is limited by the Ashtabula's seasonal low water flows. Protecting the wooded riparian corridor, vernal pools and wetlands is extremely important for the continued existence of the Ashtabula watershed's current invertebrate populations. The diversity of fresh water mollusks (Unionidae), which need a substrate of clean sand and gravel to thrive, is limited due to the erosion of this material to bedrock in many areas.

Macroinvertebrates

Benthic aquatic macroinvertebrates are organisms that lack a backbone (invertebrate) and are large enough to view with the naked eye (macro). They are found on the stream bottom (benthic) and live at least part of their life cycle in the water (aquatic). Both the Ohio EPA and ODNR's Ohio Scenic Rivers Program sample benthic aquatic macroinvertebrates as indicators of water quality. The presence or absence of certain species indicate recent changes in water quality. The data is used by the Ohio EPA to determine water quality standards, while ODNR uses the data to track water quality trends in Ohio's scenic rivers.

A 1995 Ohio EPA study evaluating macroinvertebrates found a total of 160 taxa at six sites in the basin. Samples were collected from natural substrates and averaged 11 Ephermoptera (E) (mayflies); Plecoptera (P) (stoneflies); and Tricoptera (T) (caddisflies) (T). At five locations, where both quantitative and qualitative data were collected, an average of 71 taxa were found at each site. According to Ohio EPA criteria, the community quality ranges from good to excellent. A summary of results from the Ohio EPA macroinvertebrate stream data may be found on page 49.

Dragonflies (Odonata)

The Cleveland Museum of Natural History has documented 40 species of adult dragonflies at Hadlock Preserve which is located along the Ashtabula River (Larry Rosche, unpublished field reports, Cleveland Museum of Natural History, 2007).

Odonata

Aeshnidae
Aeshna constricta (lance-tipped darner)
Aeshna mutate (spatterdock darner)
Aeshna tuberculifera (black-tipped darner)
Aeshna umbrosa (shadow darner)
Anax junius (common green darner)
Basiaeschna janata (springtime darner)
Boyeria vinosa (fawn darner)
Epiaeschna heros (swamp darner)

Gomphidae
Dromogomphus spinosus (black-shouldered spinyleg)
Gomphus lividus (ashy clubtail)
Gomphus quadricolor (rapids clubtail)
Hagenius brevistylus (dragonhunter)
Stylogomphus albistylus (least clubtail)

Macromiidae
Macromia ill. Illinoiensis (Illinois (swift) river cruiser)

Corduliidae
Epitheca cynosure (common baskettail)
Epitheca princes (Prince baskettail)
Somatochlora tenebrosa (clamp-tipped emerald)

Libellulidae
Erythemis simplicicollis (Eastern pondhawk)
Libellula luctuosa (widow skimmer)
Libellula pulchella (twelve-spotted skimmer)
Pachydiplax longipennis (blue dasher)
Pantala flavescens (wandering glider)
Perithemis tenera (Eastern amberwing)
Plathemis lydia (common whitetail)
Sympetrum rubicundulum (ruby meadowhawk)
Sympetrum vicinum (autumn meadowhawk)
Tramea lacerate (black saddlebags)

continued on next page

Odonata continued

Calopterygidae
Calopteryx maculate (ebony jewelwing)
Hetaerina Americana (American rubyspot)

Lestidae
Lestes forcipatus (sweetflag spreadwing)
Lestes rectangularis (slender spreadwing)

Coenagrionidae
Argia apicalis (blue-fronted dancer)
Argia fumipennis (violet dancer)
Argia moesta (powdered dancer)
Argia tibialis (blue-tipped dancer)
Argia transiata (dusky dancer)
Enallagma civile (familiar bluet)
Enallagma exsulans (stream bluet)
Enallagma geminatum (skimming bluet)
Ischnura verticalis (Eastern forktail)

Eastern pondhawk dragonfly

Molluscs (Unionidae)
The list to the right is a compilation of freshwater mussel species that have been found in the Ashtabula River watershed. (Ohio Freshwater Mussel Atlas, 2007; Dr. Bob Krebs, Cleveland State University, 2007; Tom Pucci, Cleveland Museum of Natural History, 2007).

plain pocketbook mussel (Photograph courtesy of Jeff Grabarkiewicz)

Unionidae

Ambleminae
Elliptio complanata (Eastern ellipto)

Anodontinae
Alasmidonta marginata (elktoe)
Anodontoides ferussacianus (cylindrical papershell)
Lasmigona compressa (creek heelsplitter)
Lasmigona costata (fluted shell)
Pyganodon grandis grandis (giant floater)
Simpsonaias ambigua (salamander mussel)*
Strophitus undulatus undulatus (creeper)

Lampsilinae
Lampsilis cardium (plain pocketbook)
Lampsilis radiata luteola (fatmucket)
Potamilus alatus (pink heelsplitter)
Ptychobranchus fasciolaris (kidneyshell)
Villosa iris novi-eboraci (rainbow)

** species has not been documented since 1978*

Fish

The Native Americans are said to have named the Ashtabula River for its abundance of fish. Over the years industry, shipping, agriculture and timber harvesting have impacted the diversity of fish found in the Ashtabula River. As streamside forests return and environmental restoration efforts continue in the harbor, the fish species found in the Ashtabula watershed may become more diverse.

The following list of 87 fishes have been documented by the Ohio EPA, ODNR, U.S. Fish and Wildlife Service and stream surveys taken by a variety of biologists (Trautman, Sweeny and CLEAR).

Fish of the Ashtabula River

Petromyzontidae
Ichthyomyzon fossor (Northern brook lamprey)
Ichthyomyzon unicuspis (silver lamprey)
Lampetra aepyptera (least brook lamprey)
Petromyzon marinus (sea lamprey)

Acipeneridae
Acipenser fulvescens (lake sturgeon)

Lepisosteidae
Lepisosteus osseus (longnose gar)

Amiidae
Amia calva (bowfin)

Clupeidae
Alosa pseudoharengus (alewife)
Dorosoma cepedianum (Eastern gizzard shad)

Salmonidae
Oncorhynchus kisutch (coho salmon)
Oncorhynchus mykiss (rainbow trout [steelhead])
Oncorhynchus tshawytscha (Chinook salmon)

Osmeridae
Osmerus mordax (rainbow smelt)

Umbridae
Umbra limi (Central mudminnow)

Esocidae
Esox americans vermiculatus (grass pickerel)
Esox lucius (Northern pike)
Esox masquinongy masquinongy (Great Lakes muskellunge)

Cyprinidae
Campostoma anomalum (central stoneroller minnow)
Campostoma anomalum anomalum (Ohio stoneroller minnow)
Carassius auratus (goldfish)
Cyprinella spiloptera (spotfin shiner)
Cyprinus carpio (common carp)
Hybopsis amblops amblops (Northern bigeye chub)
Hypopsis storeriana (silver chub)
Luxilus cornutus (central common shiner)
Lythrurus umbratilis (Northern redfin shiner)
Nocomis micropogon (river chub)
Notemigonus crysoleucas (golden shiner)
Notropis atherinoides (common emerald shiner)
Notropis buccatus (silverjaw minnow)
Notropis chrysocephalus chrysocephalus (striped shiner)
Notropis heterolepis (blacknose shiner)
Notropis hudsonius (spottail shiner)
Notropis rubellus (rosyface shiner)
Notropis stramineus (Northeastern sand shiner)
Notropis volucellus volucellus (Northern mimic shiner)
Phoxinus erythrogaster (Southern redbellied dace)
Pimephales notatus (bluntnose minnow)
Pimephales promelas (Northern fathead minnow)
Rhinichthys atratulus (Western blacknose dace)
Rhinichthys cataractae (longnose dace)
Semotilus atromaculatus (Northern creek chub)

continued on next page

Fish continued

Catostomidae
Carpiodes cyperinus (quillback carpsucker)
Carpiodes cyprinus cyperinus
(Eastern quillback carpsucker)
Catostomus commersoni (common white sucker)
Hypentelium nigricans (Northern hog sucker)
Ictiobus bubalus (smallmouth buffalo)
Ictiobus cyprinellus (bigmouth buffalo)
Minytrema melanops (spotted sucker)
Moxostoma anisurum (silver redhorse)
Moxostoma duquesnei (black redhorse)
Moxostoma erythrurum (golden redhorse)
Moxostoma macrolepidotum macrolepidotum
(Northern shorthead redhorse)

Ictaluridae
Ameriurus melas (black bullhead)
Ameriurus natalis (yellow bullhead)
Ameriurus nebulosus (brown bullhead)
Ictalurus punctatus (channel catfish)
Noturus flavus (stonecat madtom)

Percopsidae
Percopsis omiscomaycus (troutperch)

Gadidae
Lota Lota lacustris (burbot)

Cyprinodontidae
Fundulus diaphanous diaphanous
(Eastern banded killifish)

Atherinidae
Labidesthes sicculus (brook silverside)

Serranidae
Morone americana (white perch)
Morone chrysops (white bass)

Centrarchidae
Ambloplites rupestris (Northern rockbass)
Lepomis cyanellus (green sunfish)
Lepomis gibbosus (pumpkinseed sunfish)
Lepomis gulosus (warmouth)
Lepomis macrochirus (bluegill)
Lepomis megalotis peltastes
(Northern longear sunfish)
Micropterus dolomieui (Northern smallmouth bass)
Micropterus salmoides (Northern largemouth bass)
Pomoxis annularis (white crappie)
Pomoxis nigromaculatus (black crappie)

Percidae
Etheostoma blennioides (greensided darter)
Etheostoma caeruleum (rainbow darter)
Etheostoma flabellare (barred fantail darter)
Etheostoma nigrum (Central Johnny darter)
Perca flavescens (yellow perch)
Percina caprodes caprodes (Ohio logperch darter)
Percina caprodes semifasciata
(Northern logperch darter)
Percina maculate maculate (blackside darter)
Stizostedion canadense (sauger)
Stizostedion vitreum (walleye)

Sciaenidae
Aplodinotus grunniens (freshwater drum)

Gobiidae
Neogobius melanostomus (round goby)

Cottidae
Cottus bairdi bairdi (Central mottled sculpin)

Reptiles and Amphibians

The following list of reptiles and amphibians found in the Ashtabula River watershed is a compilation from the Cleveland Museum of Natural History, Division of Natural Areas and Preserves' Natural Heritage Database and photographic records from the Ashtabula River field verification study.

Reptiles & Amphibians

Proteidae
Necturus maculosus (mudpuppy)

Salamandridae
Notophthalmus viridescens (Eastern newt)

Ambystomatidae
Ambystoma jeffersonianum (Jefferson salamander)
Ambystoma maculatum (spotted salamander)
Ambystoma platineum (silvery salamander)*
*no records as of 2007

Plethodontidae
Desmognathus fuscus (Northern dusky salamander)
Desmognathus ochrophaeus (Allegheny mountain dusky)
Eurycea bislineata (Northern two-lined salamander)
Plethodon cinereus (red-backed salamander)
Plethodon glutinosus (Northern slimy salamander)

Bufonidae
Bufo americanus (American toad)
Bufo fowleri (Fowler's toad)

Hylidae
Hyla versicolor (common gray tree frog)
Pseudacris crucifer (spring peeper)
Pseudacris triseriata (Western chorus frog)

Ranidae
Rana catesbeiana (North American bullfrog)
Rana clamitans (green frog)
Rana palustris (pickerel frog)
Rana pipiens (Northern leopard frog)
Rana sylvatica (wood frog)

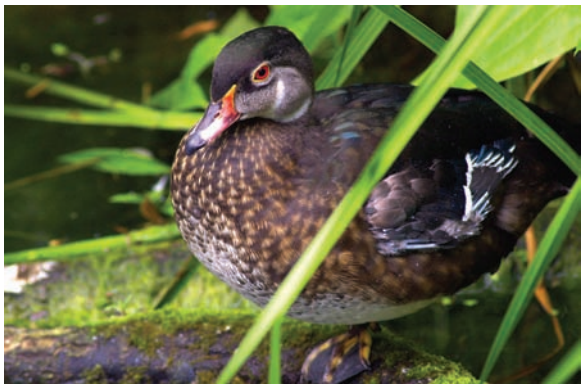
Chelydridae
Chelydra serpentine (common snapping turtle)

Emydidae
Chysemys picta (painted turtle)
Clemmys guttata (spotted turtle – **T)**

Trionychidae
Apalone spinifera (spiny soft-shell turtle)

Colubridae
Diadophis punctatus (ring-necked snake)
Elaphe obsolete (black rat snake)
Lampropeltis triangulum (Eastern milk snake)
Nerodia sipedon (Northern water snake)
Regina septemvittata (queen snake)
Storeria dekayi (Northern brown snake)
Storeria occipitomaculata (red-bellied snake)
Thamnophis sauritus (Eastern ribbon snake)
Thamnophis sirtalis (Eastern garter snake)

Key:
T- Threatened



Wood duck

Birds

The Ashtabula River watershed features an excellent diversity of breeding birds. This is due to the quality of habitats found in the watershed as well as the watershed's location in the Atlantic Flyway Zone. Key habitats include the sand dunes and sandy marshes at the mouth of the river, extensive wooded riparian zones, vernal pools, high shale cliffs and large headwater wetlands.

Protecting breeding habitats is critical for a diverse bird population. Although the watershed is not listed by the National Audubon Society as an Ohio Important Birding Area (IBA), the Ashtabula's extensive and diverse high-quality habitats and proximity to similar IBAs, would make it eligible for IBA nomination.

This report uses breeding bird data from two different sources. Information was gathered from annual Christmas bird counts, which detail birds that overwinter in Ohio, and a listing of the summer occurrences of birds found in the Ashtabula watershed.

A list of rare species (right) was compiled using local Audubon Christmas bird counts held from 1979 to 2006, according to the National Audubon Society. Because these records are not confirmed breeding records, it is only to be used for anecdotal purposes.

A partial list (next page) of bird species identified as summer occurrences in the Ashtabula watershed was compiled from lists by Rosche (1992), Peterjohn and Rice (1991), the Ohio Natural Heritage Database (2007), Cleveland Museum of Natural History, and photographic records from recent field surveys. All the species listed have been identified since 1979.

Audubon Bird Count Rare Bird Species

Circus cyaneus (Northern Harrier - **E**)
Sphyrapicus varius (yellow-bellied sapsucker - **E**)
Catharus guttatus (hermit thrush -**T**)
Nycticorax nycticorax (black-crowned night heron - **T**)
Junco hyemalis (dark-eyed junco - **T**)
Accipiter striatus (sharp-shinned hawk - SC)
Anas acuta (Northern pintail - SI)
Anas americana (American wigeon - SI)
Anas clypeata (Northern shoveler - SI)
Anas strepra (gadwall - SI)
Asio flammeus (short-eared owl - SI)
Aythya americana (redhead - SI)
Cardvelis pinus (pine siskin - SI)
Carpodacus pupureus (purple finch - SI)
Oxyura jamaicensis (ruddy duck - SI)
Troglodytes troglodytes (winter wren - SI)

Key:
E - Endangered
T - Threatened
SC - Species of Concern
SI - Species of Interest

Summer Birds

Accipiter cooperii (Cooper's hawk)
Agelaius phoeniceus (red-winged blackbird)
Aix sponsa (wood duck)
Anas platyrhncos (mallard)
Archilochus colubris (ruby-throated hummingbird)
Ardea herodias (great blue heron)
Bobbycilla garrulous (cedar waxwing)
Branta Canadensis (Canada goose)
Bubo virginianus (great horned owl)
Buterides striatus (green-backed heron)
Buteo jamaicensis (red-tailed hawk)
Cardinalis cardinalis (Northern cardinal)
Carduelis tristis (American goldfinch)
Carpodacus mexicanus (house finch)
Cathartes aura (turkey vulture)
Catharus fuscescens (veery)
Catharus ustalatus (Swainson's thrush)
Chaetura pelagica (chimney swift)
Charadrius vociferous (killdeer)
Coccyzus erythropthalmus (black-billed cuckoo)
Colaptes auratus (Northern flicker)
Columbia livia (rock dove)
Contopus virens (Eastern wood-pewee)
Corvus brachyrhnchos (American crow)
Cyanocitta cristata (blue jay)
Dendroica pensylvanica (chestnut-sided warbler)
Dendroica petechia (yellow warbler)
Dolichonyx oryzivorus (bobolink)
Dryocopus pileatus (pileated woodpecker)
Dumetella carolinensis (gray catbird)
Empidonax alnorem (alder flycatcher)
Empidonax traillii (willow flycatcher)
Empidonax virescens (Acadian flycatcher)
Falco sparverius (American kestrel)
Geothlypis trichas (common yellowthroat)
Hirundo rustica (barn swallow)
Hylocichla mustelina (wood thrush)
Icterus galbula (Northern oriole)
Meleagris gallopavo (wild turkey)
Melospiza geogiana (swamp sparrow)
Melospiza melodia (song sparrow)
Molothrus ater (brown-headed cowbird)
Myiarchus crinitus (great crested flycatcher)
Parus atricapillus (black-capped chickadee)
Parus bicolor (tufted titmouse)
Passer domesticus (house sparrow)
Passerina cyanea (indigo bunting)
Phueticus ludovicianus (rose-breasted grosbeak)
Piciodes pubescens (downy woodpecker)
Piciodes villosus (hairy woodpecker)
Pipilo erythrophthalmus (rufous-sided towhee)
Piranga olivacea (scarlet tanager)
Polioptila melanura (blue-gray gnatcatcher)
Progne subis (purple martin)
Quiscalus quiscula (common grackle)
Sayornis phoebe (Eastern phoebe)
Scolopax minor (American woodcock)
Setaphaga ruticilla (American redstart)
Sitta carolinensis (white-breasted nuthatch)
Spizella passerine (chipping sparrow)
Spizella pusilla (field sparrow)
Sturnus vulgaris (European starling)
Tachycineta bicolor (tree swallow)
Troglodytes aedon (house wren)
Turdus migratorius (American robin)
Tyrannus tyrannus (Eastern kingbird)
Vermivora pinus (blue-winged warbler)
Vireo olivaceau (red-eyed vireo)
Vireo solitairius (solitary vireo)
Wilsonia pusilla (hooded warbler)
Zenaida macroura (mourning dove)

State-listed Species
Circus cyaneus (Northern harrier - **E**)
Haliaeetus leucocoephalus (bald eagle - **T**)
Tyto alba (barn owl - **T**)
Accipiter striatus (sharp-shinned hawk - SC)
Rallus limicola (Virginia rail - SC)
Porzana Carolina (sora - SC)
Carpodacus purpureus (purple finch - SI)
Dendroica virens (black-throated green warbler - SI)
Oporonis philadelphia (mourning warbler - SI)
Pandion haliaetus (osprey - **T**)
Seirus aurocapillus (Northern waterthrush - SI)
Troglodytes troglodytes (winter wren - SI)

Mammals

In the late 18th century, Ashtabula County was home to mammals such as black bears, bobcats, wolves, deer and elk. As the county became settled and land was cleared for homes and farms, many of these species disappeared from the landscape (Williams, 1974).

Some larger mammals are thriving. The deer herd has rebounded and a healthy population can be found in the county. Black bear have now been observed in every township except Denmark within the Ashtabula River watershed. Although no bobcat sightings have been reported, they have been observed several miles of the northern and southern borders of the watershed. (ODNR Division of Wildlife, 1997-2006).

The following is a list of mammals found in the Ashtabula River watershed based on a number of sources including ODNR, Cleveland Museum of Natural History, Wayne National Forest and Cleveland Metroparks. Legal definitions of Ohio's endangered species can be found on page XX.

Mammals

Blarina brevicauda (Northern short-tailed shrew)
Canis latrans (coyote)
Castor canadensis (beaver)
Didelphis virginiana (Virginia opossum)
Eptesicus fuscus (big brown bat)
Glavcomys volans (Southern flying squirrel)
Lasiurus borealis (red bat)
Lasiurus cinereus (hoary bat)
Lontra canadensis (river otter)
Marmota monax (woodchuck)
Mephitis mephitis (striped skunk)
Microtus pensylvanicus (meadow vole)
Mustela frenata (long-tailed weasel)
Mustela vison (mink)
Myotis lucifugus (little brown bat)
Myotis septentrionalis (Northern bat)
Odocoileus virinianus (white-tailed deer)
Ondatra zibethicus (muskrat)
Parascolps breweri (hairy-tailed mole)
Peromyseus leucopus (white-footed mouse)
Pipistrellus subflavus (Eastern pipistrelle)
Procyon lotor (raccoon)
Sciurus niger (fox squirrel)
Sorex cinereus (Cinereus shrew)
Sylvilagus floridanus (Eastern cottontail rabbit)
Tamias striatus (Eastern chipmunk)
Tamiasciurus hudsonicus (red squirrel)
Urocyon cinereoargenteus (gray fox)
Vulpes vulpes (red fox)
Zapus hudsonius (meadow jumping mouse)

State-listed Species

Myotis sodalis (Indiana bat - **E**)
Ursus americanus (black bear - **E**)
Condylura cristata (star-nosed mole - SC)
Napaeozapus insignis (woodland jumping mouse - SC)

Key:
E - Endangered
T - Threatened
SC - Species of Concern
SI - Species of Interest

Cultural History of the Ashtabula River Watershed

The Ashtabula River has played an important role in the cultural history of Ashtabula County. From pre-recorded history to the present, people have used the natural resources of the river. Some of the river, such as the mouth, is greatly altered, but most of the river corridor has returned to its natural conditions.

The Erie Indians, a prehistoric tribe, occupied lands in Northern Ohio until they were defeated by the Iroquois Nation. Little is known about the Erie. Related to the Iroquois, they lived in long houses, with multiple families occupying each house. Eventually war broke out between the Erie and Iroquois. The wars between the Erie and the Iroquois were called the Beaver Wars. During this time, the Iroquois completely pushed the Erie from the area. Some of the Erie Indians were adopted by Iroquois and Seneca tribes, however, most were killed.

Once the Erie tribes were gone, the Ashtabula River served as a boundary between the Iroquois and Algonquin tribes. In his 1974 book, *History of Ashtabula County, Ohio*, William Williams identified evidence of ancient defenses facing each other across the river gorge. According to Williams, the Iroquois lived east and the Algonquin lived west of the river. The Ashtabula River gorge was lined with burial grounds and was a hunting ground for many Native Americans. Temporary dwellings made by hunting parties were observed by early settlers. Williams wrote, "The Ashtabula River was one favorite resort of the wild sons of the forest."

The name of the river may have originated from the abundance of fish found in the river by Native Americans. Both the Algonquin name, Ashtabula (Hash-ta-buh-lah), and the Iroquois name, Conneaut, are said to signify many fish, river of many fish or fish river, but this is debated (Ellsworth, 1988; Williams, 1974).

In 1799 Colonel Stephen Moulton settled just east of the present-day village of Kelloggsville. Then the Hamiltons built a home in 1801, located a mile south of the river's mouth on the west side. Settlers from the Conneaut area helped the Hamilton family finish their cabin. The Hamiltons soon moved out and the Beckwith family moved in, with the closest family about 8 to 10

The Ashtabula harbor in 1873. Photo courtesy of Ashtabula Maritime Museum.

miles away. It is said that after her husband died, Mrs. Beckwith made part of her living helping travelers cross the Ashtabula River. Other early settlers, including the Hubbard, Pierce and Garwood families, arrived and settled in what was to become the town of Ashtabula (Williams, 1974).

According to Williams, the first merchant was Hall Smith and prices before the War of 1812 included "$1.00 per bushel for wheat, $0.25 for oats, and $0.04 a pound for pork." The region was known for wine production, even in the early 1800s. This was partially due to the necessity of farmers converting produce to product, thus making it easier to transport goods (Williams, 1974). Williams said that whiskey and high wine were commonly used as beverages. Cheese production was also an important staple, making the transportation of milk products more viable.

One of the earliest roads in the Ashtabula watershed was Old Girdled Road. Used by pioneers traveling west, this road extended from Conneaut to Cleveland. Another road, Old Salt Road, was built in 1801-02. It ran from the mouth of the Ashtabula to Austinburg (Ellsworth, 1988).

As the population of the Ashtabula watershed grew, bridges became an important transportation link for local inhabitants. Covered bridges were first built in Ashtabula County in the mid-1800s. Roofs and sides were constructed to protect the wooden support structures and decks from weathering, which greatly increased their longevity.

Only five original covered bridges remain in the Ashtabula River watershed today. These bridges include Olin (Dewey Road), Benetka Road, Root Road, Graham Road (located next to the West Branch for viewing) and Caine Road. The Graham Road covered bridge, in serious disrepair, was going to be torn down. With the generosity of a neighboring family, adjacent land was donated for a park which now features the old covered bridge for viewing.

An original Ashtabula County covered bridge (Photo courtesy of the Ashtabula Historical Society).

Olin's covered bridge, located at Dewey Road, is the only covered bridge in Ashtabula that is named for a family. Since 1861, the Olin family lived and owned property in the valley surrounding the bridge. It was reported by several residents that before the 1985 bridge renovation, a large pool existed under the bridge which provided good fishing and swimming. The Olin Covered Bridge Museum is located east of the bridge. It is privately owned and maintained by remaining family members.

Nine covered bridges have been removed from the Ashtabula watershed including some that were destroyed by arson. These bridges include: Spring Street (now 46th Street), State Road (Crooked Gulf bridge), Blaine Road, Gageville (Route 193), Stanhope-Kelloggsville Road, Hilldom Road, Gould (Route 167), Adams Road and Old Route 7.

The Smolen-Gulf covered bridge is scheduled to open in the fall of 2008. It measures 613 feet long and stands 90 feet above the Ashtabula River, which makes it the longest covered bridge in the United States. It will be located near the site of the former Crooked Gulf covered bridge. The old covered bridge was replaced by a steel bridge in the late 1940s. This bridge is the sixth covered bridge along the Ashtabula River.

The covered bridges of Ashtabula County are one of the main tourist attractions in the county. The annual Covered Bridge Festival, which is held annually on the second weekend in October, will celebrate its 25th anniversary in 2008. The event features a self-guided driving tour of all 17 Ashtabula County covered bridges.

The Ashtabula Harbor has been a major factor in both the city's and county's growth. Historically, the Ashtabula River did not have a natural harbor and was not navigable (Ellsworth, 1988). The first attempt to alter the mouth of the river and make it accessible to boats carrying supplies was by Joseph Badger in 1802. It is said that the sandbar at the mouth of the Ashtabula made it possible to walk across the river (Ellsworth, 1988; Williams, 1974).

(Photo courtesy of the Ashtabula Maritime Museum)

As the river's mouth became more inhabited, efforts to expand the use of the river grew. In 1824, the General Assembly of Ohio created the Ashtabula Harbor Company and in 1826 appropriated $12,000 for obstruction removal. In 1833 and 1834, parts of the bedrock channel bottom were removed to allow the channel depth to be increased, and in 1836 the first lighthouse was built (Williams, 1974). From 1815 to 1915, harbor records show that the government spent $2,368,934 and the railroads spent $12 million in improvements (Ellsworth, 1988).

The first of many ships constructed in the Ashtabula Harbor was a schooner named the Tempest. It was built and launched in 1814. The total value of imports and exports in 1825 was $55,575, which increased to $500,000 by 1838 (Williams, 1974). With the ability to transport goods, manufacturing became an established industry. A grist mill arrived on the Ashtabula River in 1806, followed by a sawmill on Hubbard Run in 1809 (Williams, 1974).

As harbor traffic, agriculture and manufacturing increased so did the need to link Lake Erie to the Ohio River. The Erie Canal opened in 1826, but a more effective route was the linking of the Ashtabula Harbor to Youngstown by railroad, which was completely finished, including a link to the coal regions of Pennsylvania, by 1873 (Williams, 1974).

A noteworthy event in the history of the Ashtabula River is the train disaster of 1876. On December 29, 1876, the Lake Shore and Michigan Southern Railroad track bridge crossing the Ashtabula River collapsed while the Pacific Express Number 5 was crossing. The disaster resulted in 94 deaths and 64 injuries (Ellsworth, 1988).

By 1893, the Ashtabula Harbor had become the greatest ore receiving port in the world. In 1897, the railroad lift bridge was built. In 1900, the Hulett ore unloader greatly increased the ability to efficiently unload ore from boats coming into the harbor. In the 1940s and '50s, the manufacturing and chemical industry began to quickly expand and started to replace the farmland east of Columbus Avenue in the Fields Brook watershed. Pinney Docks were built to meet the increased need for shipping and railroads.

With the majority of development surrounding the harbor, many outlying areas became farming communities. The city of Ashtabula grew, however, local farming communities experienced little growth until the automobile improved transportation for these towns. Two of these communities are Kelloggsville and Pierpont. While some vestiges of these towns are still visible, the remains of their grist mills, tanneries and harness shops have disappeared. Some of the small

Photo courtesy of the Ashtabula Historical Society.

taverns and stores still exist including the Old Brick Tavern in Kelloggsville, which was built in 1824.

In 1874 when Kelloggsville was at its height of productivity, "it had two stores, post office, harness shop, foundry, tannery, doctor's office, two churches, three schools, a large repair shop, a machine shop, several sawmills and other businesses" (Kelloggsville Heritage Committee, 1999). The Ashtabula River used to bend north towards Kelloggsville. Because of flooding, a small channel was dug and a large storm cut through this small channel to make the river bypass Kelloggsville before 1900.

The town of Pierpont saw its first permanent settler in 1808. By 1837 this small community had a school, pioneer store, sawmill (on the East Branch), post office, hotel, planing mill, cheese-box manufacturer, steam tanning and steam flouring business. Today Pierpont has a small bank, school, small grocery store, and a few other small businesses.

By the 1960s, the docks upstream of State Route 531 (Lake Shore Drive) were converted from commercial use to recreational boating. Because of an increased interest in boating, people began noticing the water quality in the harbor area. A 1964 letter from a local citizen to the state complained about the pollution in the river. Because of expanded industrial uses in the Fields Brooks watershed, many pollutants were being discharged into the stream which flowed into the Ashtabula Harbor, just south of the railroad lift bridge.

5th Street Bridge

Water and sediment sampling, combined with fish and invertebrate assessments, documented the degradation of biota and benthos leading to the listing of the river as an Area of Concern by the International Joint Commission (IJC) in 1985. The IJC is a joint U.S.-Canadian organization formed to address mutual water quality concerns in the Great Lakes. Both Fields Brook and the Ashtabula River had become highly polluted and needed attention.

In response, the Ashtabula River Remedial Action Plan (RAP) Council was formed in 1988. Membership included local citizens, industry and the Ohio EPA. The Ashtabula RAP Council published its Stage 1 investigation report in 1991. In 1993, 30,000 cubic yards of polluted sediment were removed from river depositional areas. This was done to address the severe navigation hazard to recreational watercraft. To improve local, state and federal cooperation, the Ashtabula River RAP formed the Ashtabula River Partnership. The members of the partnership included ODNR, Ohio EPA, Ohio Department of Health, U.S. EPA, U.S. Army Corps of Engineers, local citizens and entities involved with the degradation of both Fields Brook and the Ashtabula.

Environmental dredging, completed in 2007, was conducted south of the confluence of the Ashtabula River and Fields Brook to the 5th Street lift bridge. The project, which included dredging polluted sediments from the river bed, landfilling the sediments, treating the water discharged from the landfill and dredging the rest of the unpolluted navigable channel, cost $91.3 million. In the spring of 2008 the rest of the navigational channel, from the 5th Street lift bridge and north to Lake Erie, was dredged.

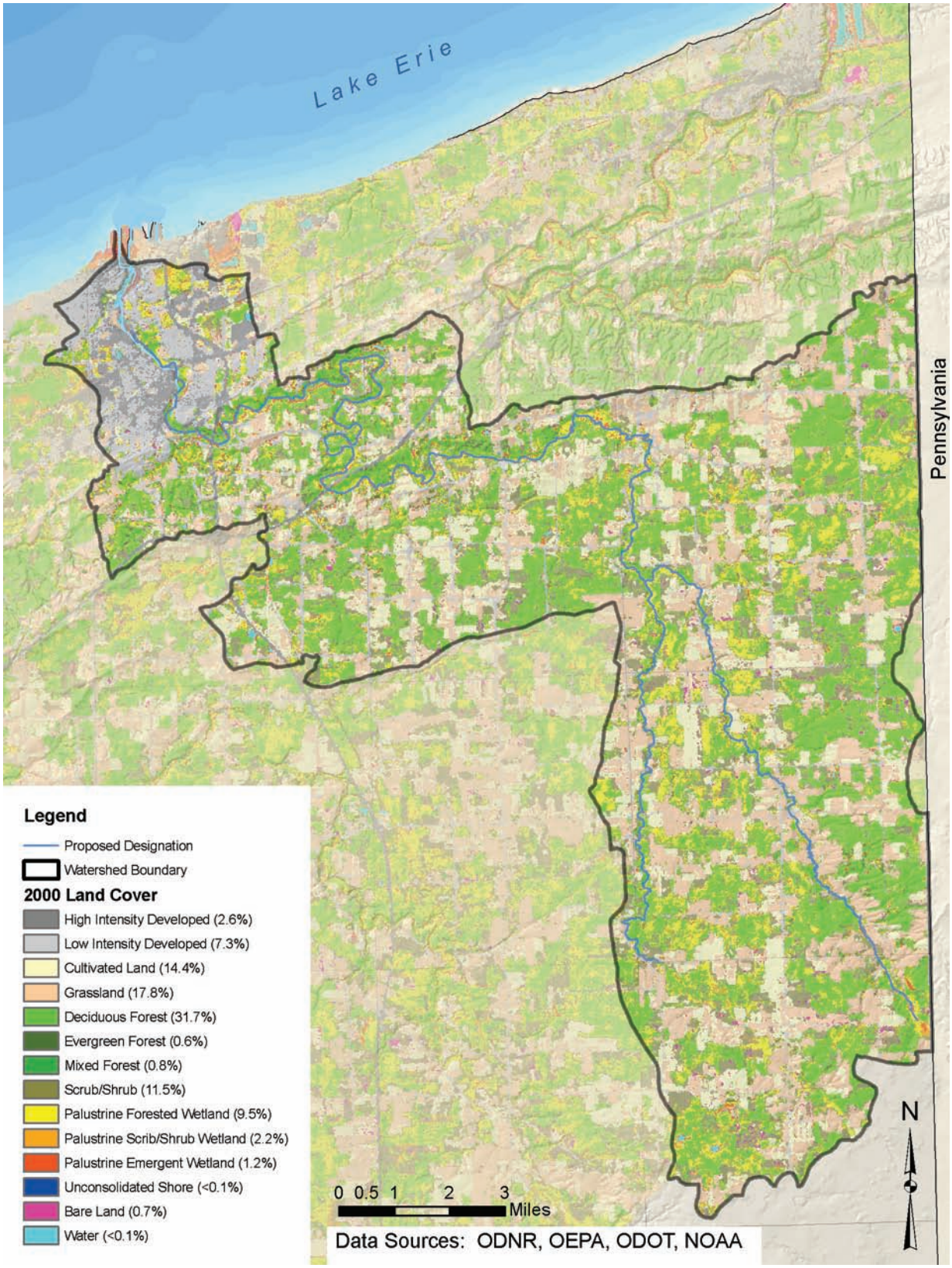
As the watershed's population grew, so did the demand for public lands. Several entities were established to set aside land for public use and protection. The Ashtabula Township Park Commission was formed in 1906. The commission's first land purchase became the first section of Indian Trails Park in 1908. Other early purchases included 52 acres which became Lake Shore Park (originally Harmon Park) and a parcel of land which became Walnut Beach Park. Today, the 405-acre Indian Trails Park provides critical wooded buffer for the Ashtabula River.

Hubbard Run confluence

In 1959, the Ashtabula County metropolitan park district was established. It owns several properties throughout the county including two parcels in the Ashtabula watershed. Currently the agency is working on providing links to the Western Reserve Greenway Project, which seeks to link Lake Erie to the Ohio River via bike trails. The park district has completed its portion of the trail from Ashtabula to the southern boundary of the county, and are currently working on establishing a route through the city of Ashtabula to Lake Erie.

The Ashtabula River has become a spectacular stream for steelhead trout fishing. Indian Trails Park provides 3.9 river miles of public fishing access. Other access areas require permission from respective landowners.

From fall to early spring, the Ashtabula is a wonderful stream to canoe and kayak. Except after rain events, water levels in the Ashtabula River usually become too low for paddling by mid-May. Charter boats from the Ashtabula Harbor are used to fish Lake Erie for perch, walleye, smallmouth bass and other species. The Ashtabula Watershed has a rich cultural history. With the economic decline in the county resulting from the disappearing industry in the harbor area, many leaders are trying to revitalize the area. Revitalization is focused on the resources and natural characteristics of the Ashtabula River. Many have realized the recreational value of the river. People are fishing and canoeing the river. Natural areas have been set aside for hiking and bird watching. As harbor dredging is completed, a renewed recreational boating surge is expected. Along with revitalization efforts, wise use of this high- quality natural resource will be key to protecting the Ashtabula River for future generations.



Ashtabula River Watershed Land Cover Map

Land and Water Resources

The quality of our natural resources—land and water—and their biological diversity is inherently interconnected to each other. Water quality mirrors land use.

Analyzing land use patterns has shown that a relatively low amount of urban land use and associated impervious cover can begin to degrade water quality. Biological communities have been found to be impaired when as little as 8-10 percent of a stream's watershed has impervious surfaces (Miltner, White and Yoder, 2004).

Urban impervious surfaces,such as roofs and roadways, do not allow water to infiltrate the soil which increases the amount of water that runs off the land, thereby increasing flooding and stream channel instability. Various contaminants, such as metals, nutrients, sediments, pathogens and debris, are associated with impervious land use.

Urban and agricultural land use leads to stream channel modifications which increase stream flow, temperature and decrease channel stability. Runoff from agricultural land use contains sediments, nutrients and possibly pesticides (Peterjohn and Correll, 1984).

Limited urban development exists within the Ashtabula River watershed. The city of Ashtabula remains the main area of residential concentration. Since most of the urban land use is near the mouth of the river, it has a limited impact on the proposed designated sections. Outside of the city of Ashtabula, the majority of land use in the watershed is agriculture and woodland. The approximate percentages of major land use categories within the Ashtabula watershed are as follows:

Woodland	39%
Row crops	20%
Pasture/hay	19%
Water/wetlands	17%
Urban	5%

Surface Water Resources

The Ashtabula River has an average flow of 160 cubic feet per second (cfs). Summer dry weather produces very low flows, which range from 0 to 10 cfs. According to the Ohio EPA, the low flows which occur during dry periods are limiting factors to the river's biological community. (Ohio EPA, 2007).

Low flows also limit recreational possibilities on the Ashtabula River. During spring and fall, periods of rain make canoeing and kayaking possible, however flows must be closely monitored to ensure consistent paddling conditions. During 2007 field studies, DNAP staff monitored river flows at Olin's covered bridge located on Dewey Road. Water level markers have been painted on the bridge structure. When the river is running 1.5-2 feet at the Dewey Road bridge, little or no portaging is necessary on much of the river.

In contrast, summer low flows make canoeing and kayaking impossible except after substantial rainfall. The U.S. Geological Survey gauging station at river mile 5.5 was removed in 1980, so water levels must now be physically checked. Recreational boating in the Ashtabula harbor is not impacted by low summer flows because of its connection with Lake Erie.

During low flow conditions fishing opportunities are limited because of the long distance between pools where smallmouth and rock bass occur. Once the water flows increase in the fall, steelhead (rainbow trout) enter the river from Lake Erie and spend fall, winter and spring in the Ashtabula River. In late spring when water

levels begin to drop and water temperatures rise, the steelhead begin to make their way back into Lake Erie.

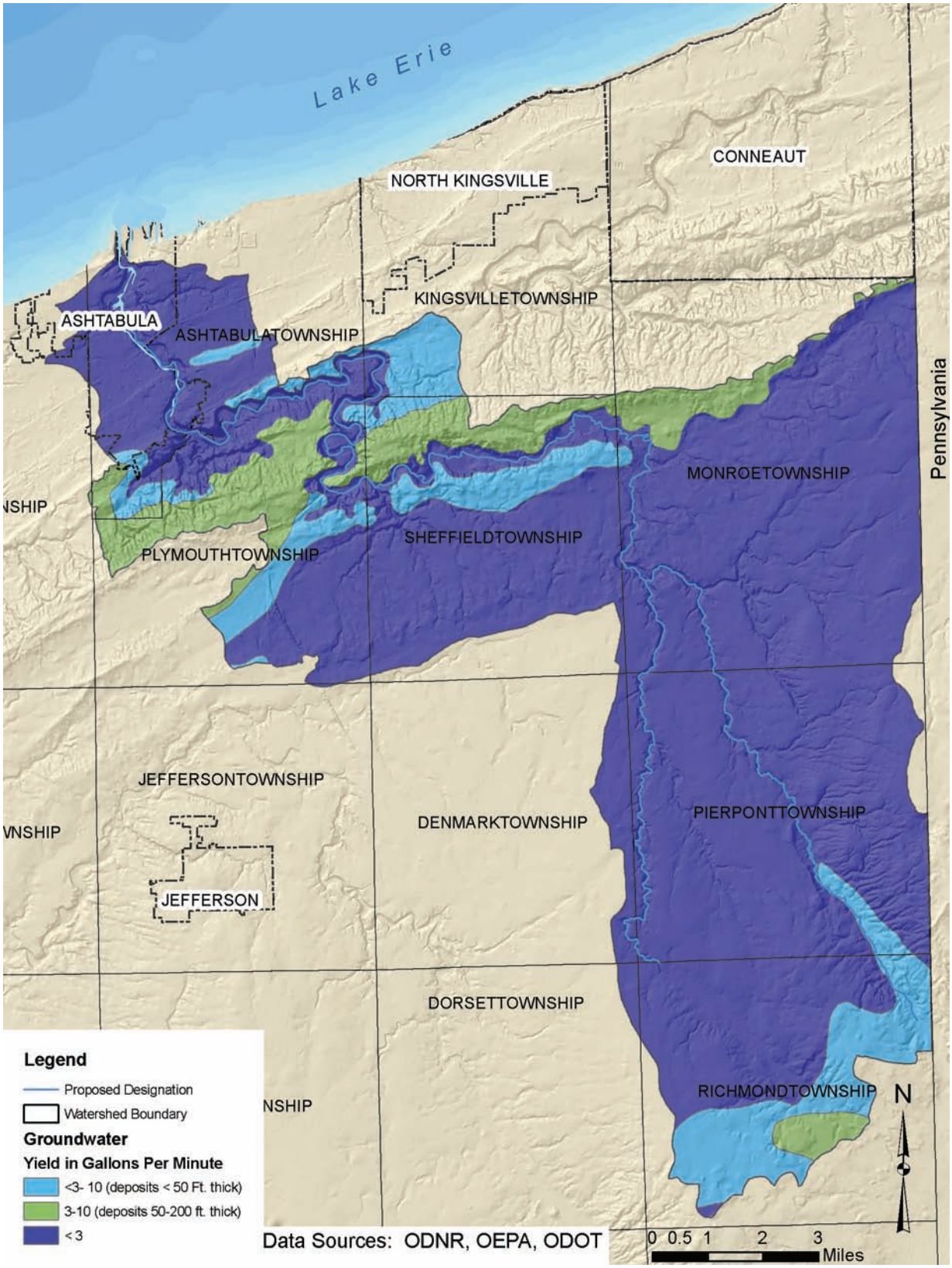
The Ashtabula River flows into Lake Erie and the lake provides drinking water to about 38,000 residents of the city of Ashtabula and surrounding townships. There are three water intakes in Lake Erie that supply the Ashtabula area. The Ohio American Water Company operate two water intakes located west of the Ashtabula River approximately 1,500 feet from the shore. East of the river, the Ashtabula County Port Authority operates the third water intake which extends approximately 4,000 feet off shore. (Ohio EPA, 1991).

According to a 1991 Ohio EPA report, the Ashtabula RAP said that because of the proximity of the intakes to the river's mouth, there is a concern that the quality of the water supply may be threatened by river discharge under certain weather conditions or during river dredging of contaminated sediments. Dredging was completed in 2007.

Groundwater Resources

A limited amount of groundwater is available in the Ashtabula River watershed. While much of the population uses water from Lake Erie and from excavated ponds, some residents are able to use water wells. Wells in the beach ridge deposits may produce 5 gallons per minute (gpm), while wells located in shale will yield an average of 2-3 gpm (Ohio EPA, 1991). There are very few cold water springs or seeps in the Ashtabula watershed due to the limited groundwater supply.

Considering the low groundwater output, it is imperative that land use activities are conducted in a manner as to not impair groundwater recharge, water quality or quantity. Because of the lack of groundwater, the quality of the surface water is even more important. Continued landowner protection of the wooded buffers and wetlands is essential to the water quality and quantity of the Ashtabula River. Caution should be taken when planning land use along the river, giving consideration to conservation activities and best management practices.



Groundwater Resources Map

Ashtabula River Corridor Protection

Riparian Forest Buffers

The diversity of wildlife habitats and the high-quality streams found along the Ashtabula River can be attributed to a number of contributing factors. The most important factor is the presence of an intact system of deciduous riparian forest buffers along the river. Protecting the riparian corridors along the Ashtabula River should be the highest priority in land management.

Preserving riparian forest buffer results in a number of benefits to water quality, wildlife habitat and natural aesthetic qualities (Thibault, 1997). These buffers help protect the Ashtabula River from the effects of nonpoint source pollution. Trees and understory shrubs absorb nonpoint pollutants from overland runoff and from the near surface groundwater zone.

The riparian forest buffers also perform the vital task of filtering out sediment which originates from cropland and construction site erosion (Fetherston et al., 1995). This sediment is considered a nonpoint pollutant which if allowed to occur will degrade the aquatic environment. Sediment that settles out of the water column and covers other substrates is called silt. Silt can fill in the critical spaces within a stream's substrates, smothering aquatic invertebrates and reducing the ability of fish to successfully spawn (Bennett, 1970; Boyd, 1990; Watters, 1999). The sediment that stays suspended in the water column can reduce the ability of fish to take in oxygen through their gills, thus slowing growth (Bennett, 1970).

Forest buffers are also instrumental in removing two of the major nonpoint pollutants—nitrogen and phosphorus (Decamps, 1993; Peterjohn and Correll, 1984). If too many of these nutrients are allowed to enter the river, they will negatively impact the water quality by causing excessive algae growth (Peterjohn and Correll, 1984). It is important to avoid an overabundance of algae because it reduces light penetration and photosynthesis which causes submerged aquatic vegetation to die.
Aquatic plants are essential to the survival of fish and other aquatic organisms by providing habitat for fish and invertebrates, and adding oxygen to the

water. Dissolved oxygen naturally declines in water because of the lack of photosynthesis at night (Boyd 1990 and Schmitz 1996). Levels of dissolved oxygen begin to drop at 6 p.m., reaching their lowest point by 6 a.m. Once sunlight is available and photosynthesis can occur, dissolved oxygen levels increase. The naturally low oxygen levels at night are compounded by the use of available oxygen during the subsequent decomposition process of organic matter and by the reduced photosynthesis resulting from algal or sediment turbidity. Fish kills may result in these situations.

Studies have determined that in relatively flat areas with slopes of 4 percent or less, a buffer strip as narrow as 50 feet can remove the majority of the sediments containing nitrogen and phosphorous from surface and sub-surface runoff (Decamp, 1993; Klapproth and Johnson, 2000). This should be considered the minimum width needed for small tributary streams. Forest buffers with a minimum of 120-foot widths are needed on steeper slopes and for rivers like the Ashtabula. This 120-foot distance—measured on each river bank in a horizontal plane outward from the ordinary high water mark (also known as bank full)—has been determined to be the minimum width buffer necessary for trees to be wind firm and create a forest habitat.

A riparian forest buffer width of 300 feet or greater is preferable where maximum water quality protection and wildlife diversity benefits are desired. This width is needed in areas where steep slopes or highly erodible soils are present. The exceptional water quality of the Ashtabula River and its pending status as a state

Scenic river warrants protection of the riparian forest buffers to widths of at least 300 feet. The linear nature of riparian forest buffers is preferred by wildlife over fragmented woodlots because they provide contiguous traveling corridors.

Riparian forest buffers of 120 feet or more generally support a greater variety of wildlife than upland forests. This is due to the many differing habitats found along the edge and interior of the riparian buffer. Where conditions are suitable, vernal pools may be found in the riparian buffers. Vernal pools are critical breeding sites for frogs, toads and salamanders.

Protecting the riparian corridor found along the Ashtabula River will provide additional benefits related to maintaining healthy and diverse aquatic communities. Tree roots help to stabilize stream banks and uncut roots provide shelter for fish and aquatic invertebrates (Fetherston et al., 1995; Swanson and Franklin, 1992). Leaves that fall into the stream are a primary food source for the aquatic invertebrates that feed on the leaves and shred them into smaller pieces, creating the foundation for the aquatic food chain. In turn, aquatic invertebrates become food for minnows, which then become food for larger fish like sunfish, bass and trout. Birds, snakes, turtles and mammals all feed on fish.

Forested buffer zones also help moderate water temperatures (Fetherston et al., 1995; Swanson and Franklin, 1992; and Thibault, 1997). Shade reduces water temperature fluctuation, which decreases the stress on aquatic life. Some fish cannot tolerate higher water temperatures, such as trout, red-bellied dace and mottled sculpins. Reducing exposure to direct sunlight reduces the demand for dissolved oxygen by aquatic organisms.

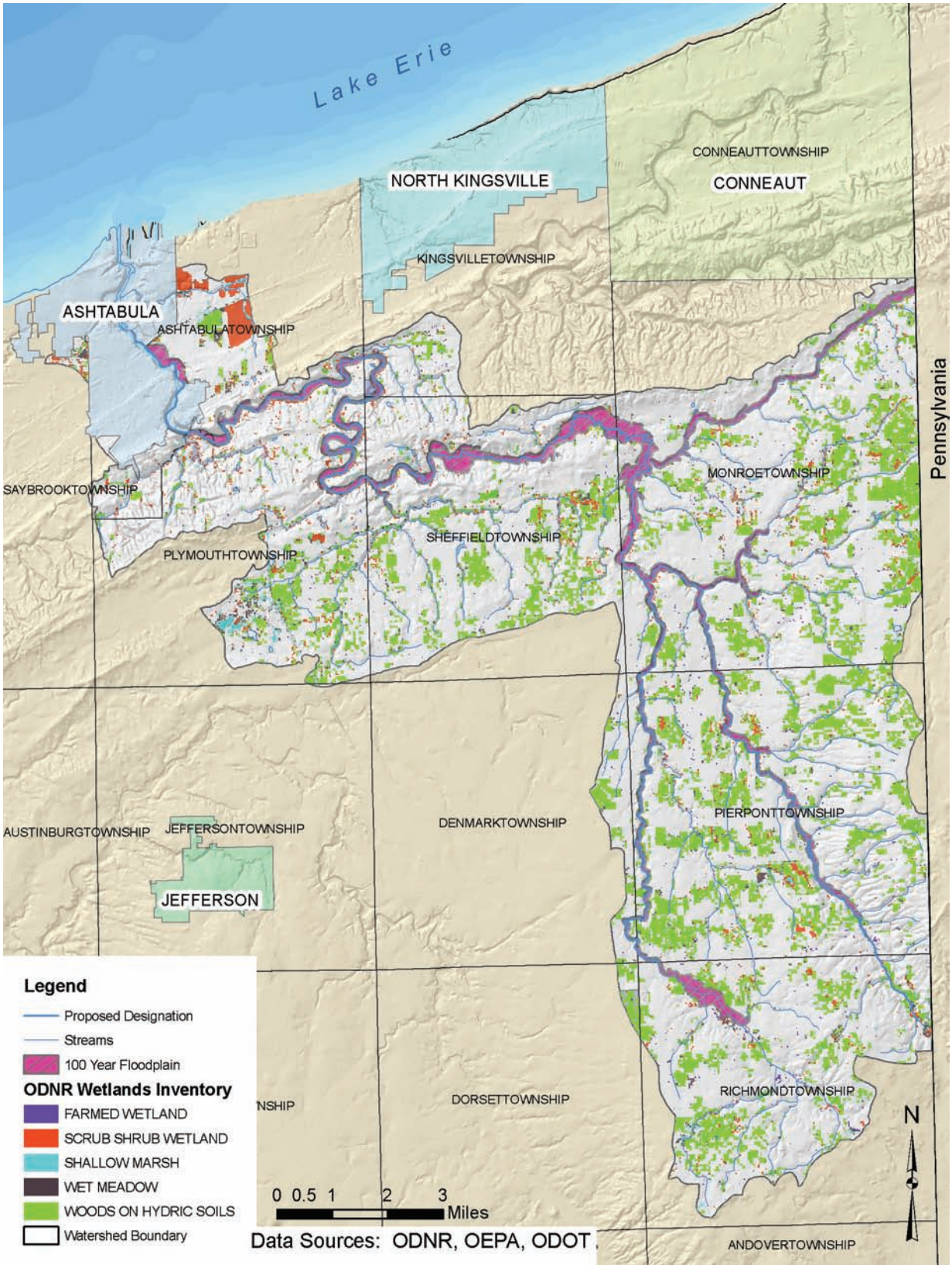
Floodplains

It is important to protect the floodplains along the Ashtabula River in order to maintain the functions they provide. Floodplains provide storage capacity during periods of high water (Fetherston et al., 1995), thereby moderating flood levels and water velocities. When water is allowed to spill into the floodplains, sediment is also allowed to settle out of the water column. The floodplain forests are vital to maintaining a stable river channel. A reduction in floodplains will begin to adversely impact the river through increased erosion and turbidity, increased nutrient fluxes (Vought et al., 1995), destabilized river banks, and substrate scour and downcutting of the stream bed. All have an obvious negative impact on water quality and adversely impact the aquatic diversity. Therefore, protecting floodplains should be an important goal for the future preservation of the river.

Wetlands

Wetlands are known by many names including but not limited to: marsh, swamp, bog, fen and vernal pool. The benefits of protecting all wetlands have been well documented. They serve as important areas for filtering excess nutrients from surface runoff. Wetlands can contribute to groundwater recharge, resulting in springs that supply the critical base flow level to the Ashtabula River. Wetland areas also serve as storage areas and help to moderate the impacts of flooding. They produce some of the most diverse habitat for both plants and animals, and often have rare species living in them. Forested buffers around wetlands shade the water and reduce both water temperature and evaporation.

Some wetlands have open water habitat and possess a pool all year round. These wetlands are often connected to a permanent water supply, such as streams or groundwater seeps and springs. They may be home to invertebrates, fish, salamanders, frogs, turtles, snakes, birds and mammals. Other wetlands may be seasonally wet, depending on snow melt and seasonal rain events to maintain water levels. Seasonal wetlands are usually isolated from permanent water supplies. Seasonally wet wetlands are often called vernal pools. Many forest-dwelling amphibians and invertebrates, such as mole salamanders, wood frogs, dragonflies and damselflies, depend on vernal pools for reproduction. Some invertebrates, such as the fairy shrimp, live their entire life in the short wet season of the vernal pool. The initial identification of wetlands along the Ashtabula River for possible future protection



Wetlands and Floodplains Map

can be accomplished through either observation, referral or from national wetland inventory maps.

Steep Slopes

There are a number of steep slopes along much of the Ashtabula River corridor and its tributaries. If left in their natural condition, they will usually remain stable. It is in areas that have been cleared of trees that problems may occur. When the stability provided by tree roots are lost due to clearing, the steep slopes of the Ashtabula River watershed are susceptible to surface erosion and bank slumping. In severe cases, rotational slides occur, creating major problems for landowners. Protecting steeply sloped areas along the Ashtabula River will help reduce negative impacts to water quality and aquatic diversity resulting from erosion and subsequent siltation.

Tributary Streams

The role of tributary streams in protecting the water quality of the Ashtabula River cannot be minimized.

Land use activities on the tributaries will either contribute or detract from the overall quality of the river. Due to their relatively small size, streams are more easily impacted than larger rivers. Protecting riparian forest buffers, floodplains, wetlands and steep slopes along the tributary streams is also important in order to maintain a healthy stable river with excellent water quality and aquatic habitats.

Conclusion

The recurring point discussed in each one of these corridor habitat types is the importance of forested buffers. Identifying these habitat types and associated wooded buffers should be the primary focus of protection efforts in the watershed. Protecting these riparian buffers will help reduce sediment and nutrient loadings, reduce water temperature, reduce evaporation in wetlands, stabilize stream banks and steep slopes, protect groundwater recharge, protect flood storage areas, reduce water velocity, increase stream channel stability, and provide stable habitat for invertebrates, fish, birds, reptiles, amphibians and mammals.

Stream Biological Diversity and Water Quality

Overview

Some of the most important factors influencing Scenic river designation determination include the biological diversity, stream habitat and water quality of the candidate stream. These parameters are reflected in the Scenic river designation criteria, which states that the stream must exceed the warmwater habitat use designation as established by the Ohio EPA.

The Ohio EPA utilizes several indices to evaluate stream habitat, aquatic macroinvertebrate communities and fish communities in rivers and streams throughout the state of Ohio. These indices are as follows:

- **Qualitative Habitat Evaluation Index (QHEI)**: an objective method of measuring physical habitat conditions by examining and assigning numeric values to various attributes of the physical habitat including riparian corridor, substrate types, instream cover, geomorphology, pool and riffle development and others.
- **Index of Biological Integrity (IBI)**: a means of objectively measuring and evaluating biological community performance based on the number of fish species found, the presence of certain indicator species, the numbers of individuals found and other characteristics of the fish community.
- **Modified Index of Well being (MIWb)**: an objective method of measuring and evaluating fish community performance. This methodology is a measure of fish community abundance and diversity using numbers and weight information.
- **Invertebrate Community Index (ICI)**: the ICI is a method of evaluation applied to aquatic macroinvertebrate community performance and characteristics using parameters similar to the IBI.

Once evaluations of stream habitat, water quality, macroinvertebrate and fish communities have been completed, these indices are used to determine the overall condition of a stream and apply the appropriate aquatic life use designation. For purposes of stream evaluation to determine the inclusion in the Ohio Scenic

Rivers Program, several of the following aquatic life use designations are relevant.

Warmwater Habitat (WWH): this designation is for waters that can support and maintain a balanced, integrated and adaptive community of warmwater aquatic organisms having a species composition, diversity and functional organization comparable to the twenty-fifth percentile of the identified reference sites in Ohio's ecoregions. The Ashtabula River is located in the Erie-Ontario Lake Plain eco-region.

Defined in Ohio Administrative Code (OAC) 3745-1, the WWH classification is determined by chemical, physical and biological criteria. Biological criteria for warmwater habitat are tailored to Ohio's five different eco-regions.

Seasonal Salmonid Habitat (SSH): this designation for the Ashtabula river, indicates that a stream and its tributaries are capable of supporting the passage of salmonids from October to May, and the stream is large enough to support recreational fishing for these species. Evidence of the suitability of the Ashtabula River to the SSH designation is its exceptional steelhead fishery and the recreational opportunity it provides.

Ohio's Stream Anti-degradation Rules

Ohio Revised Code (ORC) 6111.12(A)(2) requires the anti-degradation rule to include "provisions ensuring that waters of exceptional recreational or ecological value are maintained as high-quality resources for future generations." The antidegradation rules are contained in OAC 3745-1-05. The antidegradation rules

Macroinvertebrate Sampling of the Ashtabula River by the Ohio EPA								
River Mile	Density (No./ Sq.Ft.)	Quantity Taxa	Quality Taxa	Total Taxa	Quality EPT	QCTV	ICI/LCI	Evaluation
Ashtabula River - 2003								
2.34	458	54	39	73	2	no data	*50	Good
2.15	313	45	31	61	4	no data	*56	Exceptional
1.95	295	41	19	48	1	no data	*48	Good
1.86	767	40	25	51	4	no data	*42	Good
1.66	1,338	33	6	34	1	no data	*22	Poor
1.65	1,021	25	6	29	0	no data	*16	Poor
1.58	645	33	23	46	0	no data	*22	Poor
1.50	662	32	19	40	1	no data	*28	Fair
1.28	703	41	32	55	2	no data	*30	Fair
0.58	470	44	22	49	3	no data	*44	Good
Ashtabula River - 1995								
25.60	589	45	52	81	10	35.6	32	Marginally good
19.10	126	44	46	71	10	37.2	32	Marginally good
11.90	550	40	38	63	9	38.5	28	Marginally good
3.60	140	40	48	71	16	39.2	46	Exceptional
Ashtabula River - 1989								
10.0	no data	29	42	57	18	39.3	42	Very good
Ashtabula River - 1983								
25.60	no data	43	49	71	20	40.0	34	Good
Ashtabula River (West Branch) - 1995								
1.80	780	30	59	71	11	34.1	32	Marginally good
Ashtabula River (West Branch) - 1984								
1.80	no data	32	40	61	11	39.0	40	Good
Ashtabula River (East Branch) - 1995								
1.40	no data	no data	46	no data	9	35.3	no data	Marginally good

EPT - Total **E**phemeroptera (mayflies), **P**lecoptera (stoneflies), **T**ricoptera (caddisflies)
ICI - Invertebrate Community Index
LICI - Lacustuary Invertebrate Community Index

ICI Aquatic Life Use scores and associated designations for Erie-Ontario Lake Plains Eco-region: - a score of at least 22 qualifies as modified warmwater habitat; a score of at least 34 qualifies as warmwater habitat and a score of at least 46 qualifies as an exceptional warmwater habitat

LICI Aquatic Life Use scores and associated designations for the Erie-Ontario Lake Plains Eco-region: a score of at least 42 qualifiesa lacustuary areas for interim lacustuary biocriterion.

have classified some Ohio streams as Superior High Quality Waters. These are defined as surface waters that possess exceptional ecological values, and have been so categorized pursuant to paragraph E of this rule. The Ashtabula River has been categorized as a Superior High Quality Water.

Except as provided below, exceptional ecological values shall be assessed based upon a combination of the presence of threatened or endangered species and high level of biological integrity. The following factors shall be considered in determining exceptional ecological value: providing habitat for state or federal endangered species; providing habitat for state threatened species; harboring stable populations of a declining fish species that coincide with the presence of suitable habitat for that species, or that coincide with an essential migration path between areas of suitable habitat for that species; and displaying a level of biological integrity equivalent to the exceptional warmwater habitat index of biotic integrity and/or invertebrate community index criteria values listed in OAC 3745-1-07. OAC 3745-1-05 lists the species that are considered declining fish species.

Current Conditions

The Ohio EPA's Division of Surface Water has conducted three recent studies of the Ashtabula River watershed. The first of three studies was conducted from June to October in 1995. The results of the survey were published on January 7, 1997 in a document entitled *Biological and Water Quality Study of the Grand and Ashtabula River Basins including Arcola Creek, Cowles Creek, and Conneaut Creek*. This document is available as OEPA Technical Report Number MAS/1996-11-5. The portions of the Ashtabula River main stem that were sampled are from river mile 2.3 to river mile 27.5. The East Branch was sampled at river mile 1.4. The West Branch was sampled at river miles 2.7 and 1.8.

According to a 1997 Ohio EPA study, the Ashtabula River, including the East and West branches, meets the WWH biological criteria at six of seven locations sampled, giving 22.2 miles in full attainment. This reported also stated that one section about 4 miles in length downstream from river mile 19.1 was in partial attainment of WWH criteria largely due to effects from naturally occurring intermittent flows.

A subsequent 2007 study of this same section showed that the 4 miles had reached full attainment status. This data updates the current status of the river as 25.8 miles in full attainment, 0.7 miles in partial attainment and 1 mile in non-attainment. The partial and non-attainment segments are outside of the stream segment that is recommended for inclusion into the Ohio Scenic Rivers Program. The results from this study were published on August 20, 2007 in a document entitled *Fish Community Aquatic Life Use Attainment Study Upper Mainstem Ashtabula River, 2007*. This document is available as OEPA Biological and Water Quality Report NEDO/2007-08-02.

Another Ohio EPA study was conducted from 2003 to 2005 on the Lower Ashtabula River from river mile 0.58 to 2.34. The results from this study were published on November 7, 2006 in a document entitled *Biological Study of the Lower Ashtabula River and Conneaut Creek*. This document is available as OEPA Report EAS/2006-6-3.

The 2006 Ohio EPA study, combined with the 1997 study, showed 21.8 miles in full attainment, 4.7 miles in partial attainment and 1 mile in non-attainment. The non-attainment portion of the Ashtabula River has been contaminated by pollutant sediments which, according to the Ohio EPA, include hazardous substances, such as PCBs, chlorinated benzenes, chlorinated ethenes, hexachlorobutadene, PAHs, other organic chemicals, heavy metals and low level radionuclides.

The current Ohio EPA interpretation finds that river mile 0.0 to 0.6 is in partial attainment; river mile 0.6 to 1.6 is in non-attainment, 1.6 to 1.7 is in partial attainment and river miles 1.7 to 27.54 are in full attainment (P. Anderson, Ohio EPA, 2007).

The Ashtabula River also meets the SSH biological criteria from the mouth of the river to river mile 10.04 (Hadlock Road Ford), as designated in the 2007 Ohio EPA report. This is based on confirmation from ODNR's

Fish Sampling of the Ashtabula River by the Ohio EPA								
River mile	Mean # of species		Mean Rel. # (no./0.3km) (*no./1.0km)	Mean Rel. Wt. (wt/0.3 km) (*wt/1.0km)	QHEI	Mean MIWb	Mean IBI/*LII	Evaluation
Ashtabula River - 2007								
20.50	no data	19	716.9	11.5	66.5	8.6	46	Good/very good
19.03	no data	21	515.0	14.41	78.5	8.5	48	Good/very good
13.90	no data	16	667.5	8.86	71	8.7	42	Good
Ashtabula River - 2005								
1.30	17.5	21	*429.0	*150.14	44	8.7	*35	Fair/good
Ashtabula River - 2003								
1.30	17.5	23	*735.0	*281.13	44.5	8.2	*36	Fair
Ashtabula River - 2002								
1.30	no data	21	*734.0	*301.31	38.5	9.5	*40	Fair/good
Ashtabula River - 1998								
1.30	15.5	20	*833.0	*362.76	no data	7.5	*36	Fair
Ashtabula River - 1995								
27.20	20.0	22	1,037.3	8.1	85	8.6	42	Good
19.10	14.0	17	375.8	5.1	76	7.1sd	47	Fair/very good
12.10	16.0	20	606.8	7.8	78	7.9	46	Good/very good
6.30	20.0	26	417.8	4.2	73	8.1	42	Good
3.50	18.5	22	754.6	2.1	64	7.6ns	36ns	M. good
1.30	12.0	15	*254.0	*110.31	43	6.6	*25	Poor
Ashtabula River - 1989								
9.90	23.0	no data	877.0	no data	47	8.2	42	Good
1.30	9.7	15	*64.0	*21.9	41.5	5.8	*32	Poor/fair
Ashtabula River - 1983								
27.20	20.5	no data	1,127.0	no data	73	8.0	40	Good

continued on next page

Fish Sampling of the Ashtabula River by the Ohio EPA								
Ashtabula River (West Branch) - 1995								
2.70	18	18	590.0	2.7	66	7.7ns	44	M. good/good
Ashtabula River (West Branch) - 1983								
1.90	21	no data	317.0	no data	74	8.2	45	Good
Ashtabula River (East Branch) - 1995								
1.50	18	18	1,202.0	2.4	73	8.2	44	Good

QHEI - Qualitative Habitat Evaluation Index
MIWb - Modified Index of Well-being
IBI - Index of Biotic Integrity
LIBI - Lacustuary Index of Biotic Integrity
MWH - Modified warmwater habitat
WWH - Warmwater habitat
EWH - Exceptional warmwater habitat

Aquatic Life use scores and associated designations for the Erie-Ontario Lake Plains Eco-region:

IBI MWH- 24
WWH - 38
EWH - 50

MIWb MWH - 5.6
WWH - 7.9
EWH - 9.4

Interim Lacustuary Biocriteria:
LIBI - 42 — MIWb - 8.6 — LICI - 42

Division of Wildlife that steelhead trout make a run into the Ashtabula River from Lake Erie, but are limited from migrating further into the Ashtabula than river mile 10.04 by the Hadlock Ford.
The Ohio EPA antidegradation rules, which were effective in July 2003, have given the Ashtabula River, from river mile 2.0 to 27.54, the anti-degradation tier of Special High Quality Water (SHQW). The report states that the Ashtabula River in its free-flowing reaches has sufficient ecological attributes to warrant a SHQW anti-degradation tier. It has good populations of several sensitive, declining species, such as rosyface shiner, river and bigeye chub and mimic shiner. It has good to excellent IBI and ICI scores, and good to excellent habitat. Another declining species, the least brook lamprey, is also found in the Ashtabula River system.

In summary, the proposed designated stream segments fully attain the Ohio EPA's warmwater criteria, are classified as SHQW for 25.54 river miles and support seasonal salmonid habitat.

Present Threats

History

The estuary and harbor of the Ashtabula River have been greatly altered since 1824 when the Ohio General Assembly passed an act to create the Ashtabula Harbor Company. Its mission was to create a usable harbor in the river. Because the Ashtabula did not have a natural habor, much alteration occurred. In 1826, appropriations totaling $12,000 supported obstruction removal and other activities, such as the construction of piers and breakwaters (Williams, 1974; Ohio EPA, 1991).

River Dredging

From river mile 0.0 to river mile 2.3 at the East 24th Street bridge, most of the channel has been dredged and bulkheading has been installed with semi-natural shorelines existing in a few places. (Ohio EPA, 1996). The mouth of the river has been extended out into Lake Erie about 1 mile from the original mouth (Ohio EPA, 1991). This was accomplished by placing fill to create docks.

Industries, such as coal and iron ore shipping, produced docks, handling and railroad facilities at the mouth of the river. From the railroad yard to the shipping dock, a coal conveyor belt transports coal over the Ashtabula River. Coal dust settles onto boats, businesses, homes and the river itself.

Many estuary and wetland areas have been filled in to create five docks at the mouth of the river. Much of the shoreline has been altered with bulkheading to create docking facilities for both industrial and recreational boating. Dredging and bulkheading maintenance activities are required to continue the harbor's current industrial and recreational boating activities. The shoreline alteration and the filling of the estuary and wetlands have impacted fish spawning areas.

The channel has also been dredged and straightened to establish a shipping channel. The outer harbor has been dredged to depths of 21-29 feet while the main channel has been maintained at 16-18 feet. (Ohio EPA, 1991). The 2006-07 environmental dredging of the Ashtabula River from the upper turning basin, north of the railroad lift bridge, to the 5th Street lift bridge varied in depths from 18-23 feet deep. The environmental dredging project removed polluted sediments from the Ashtabula River. These sediments were contaminated with hazardous substances, such as PCBs, chlorinated benzenes, chlorinated ethenes, hexachlorobutadiene, PAHs and other organic chemicals, heavy metals and low level radionuclides (Ohio EPA, 2006).

Contamination

The Ashtabula River from the East 24th Street bridge to its mouth, including the outer harbor, Strong Brook and Fields Brook, has been listed as an Area of Concern by the International Joint Commission, in accordance with the Great Lakes Water Quality Agreement of 1978. The Ashtabula Area of Concern has six listed Use Impairments: restrictions on fish or wildlife consumption; degraded fish and wildlife population; fish tumors or other deformities; degradation of benthos; restrictions on dredging; and the loss of fish and wildlife habitat (Ohio EPA, 1991).

The Ohio EPA's fish consumption advisory for the Ashtabula River was revised in 2008. The following is a summary of the advisory: "from U.S. Route 20 to the mouth (Lake Erie) ALL species and ALL sizes–DO NOT EAT due to PCB contamination. From U.S. Route 20 to Hilldom Road, consumption of largemouth bass limit to one meal per month due to mercury contamination." Smallmouth bass were removed from a 2004 Ashtabula River advisory because of a statewide "one meal per week" mercury advisory for all fish from Ohio waters (U.S. FWS and Ohio EPA, 2005). These are specific to the Ashtabula River, to learn more about statewide advisories, contact the Ohio EPA.

There still exists the potential of impact from industrial sites to be sources of pollution to Fields Brook, Strong Brook and the Ashtabula River. This potential impact could come from the possibility of previously buried chemicals and waste from past industrial practices and spills or discharges from unexpected events. There is no threat from these sources to degrade the proposed Scenic river sections because it is downstream from the proposed designation. Only the fish consumption advisories extend into portions of the proposed designated sections.

Non-native Invasives

Non-native plants and wildlife species continue to threaten native populations in the Ashtabula River watershed. Invasive plants, such as reed grass (*Phragmites australis*), purple loosestrife (*Lythrum salicaria*) and narrow-leaved cattail (*Typha angustifolia*) move in and push out native wetland and rare beach dune species. A rare beach dune plant community located at Walnut Beach City Park, as well as the neighboring property, is currently threatened by reed grass. Invasive fish, such as the round goby (*Neogobius melanostomus*), eat the eggs of native fish. The invasive zebra mussel (*Dreissena polymorpha*) has reduced available planktonic food for native species. There are many other non-native species that need to be monitored. Restoration and management efforts need to be continued to protect the native species in the Ashtabula River watershed.

Potential Threats
Nonpoint Source Pollution

Nonpoint source pollution is the main threat to the majority of the Ashtabula watershed. Nonpoint source pollution results from stormwater runoff from the city of Ashtabula, oil and gas exploration, logging, agricultural runoff, development, failing septic systems and other practices. On the positive side, many agricultural producers and other landowners have maintained a forested riparian buffer along much of the Ashtabula River, which has helped to maintain the river's high quality by filtering out nonpoint source pollutants.

Nonpoint source pollution can be controlled or reduced in many ways through best management practices (BMPs). The Ashtabula Soil and Water Conservation District and the U.S. Department of Agriculture's Natural Resource Conservation Service (NRCS) continue to work in cooperation with farmers to use BMPs on their farms. There are a variety of potential threats to the Ashtabula's water quality, especially during the summer months when the river experiences low flow.

Much of the watershed is influenced by agricultural activities. Because of the poorly drained soils, extensive tile systems have been installed in many fields to help drain excess water. Where field tiles are installed, it is important to make sure that land application of livestock manure is done with care and according to NRCS specifications; otherwise, manure can flow into the tile system or over the surface of the land and discharge into local waterways.

Livestock pastures are potential sources of manure and sediment runoff to streams. This is especially true when agricultural producers do not exclude their cattle from streams with fencing and wooded riparian buffers. If livestock need to cross the stream, they can still be excluded from most of the stream by utilizing a limited-access stream crossing. Stream bank erosion accelerates in areas where cattle have free access to streams and woody vegetation has been removed from the stream banks.

Sedimentation

Sediment from row crops, pastures, logging, construction sites, and oil and gas exploration introduce nutrient loadings in the form of phosphorus and nitrogen to streams. These nutrients are attached to sediment particles. If nutrient loadings become excessive, they can adversely impact the river. In 1984, a study by Peterjohn and Correll found that croplands retain fewer nutrients than riparian forests. Best management practices, such as but not limited to grassed waterways, winter cover crops, no-till, wooded riparian no-cut buffers, construction and logging sediment, and erosion and stormwater runoff controls, will help reduce sediment loadings.

Sediment can cause siltation of the stream bed and turbidity in the water column. This silt and turbidity can impact the organisms living in the stream by reducing photosynthesis, smothering bottom-dwelling animals (mollusks, stonefly larvae, mayfly larvae, caddisfly larvae, etc.) and plants, reducing waste-assimilation capacities, reducing fish growth rates and impacting spawning (Bennett, 1970; Boyd, 1990; Watters, 1999).

Loss of Riparian Buffer

Potential loss of riparian forests due to increased production of corn for bio-fuels, logging activities, development, and oil and gas exploration will negatively impact water quality in the Ashtabula River watershed. Riparian forests serve many functions, such as removing nutrients, controlling sediments, lowering water temperatures, stabilizing stream banks, improving habitat for both fish and invertebrates, and decreasing surface runoff (Peterjohn and Correll, 1984; Swanson and Franklin, 1992; Decamps, 1993; Vought, et al., 1995).

A loss of the riparian buffers would result in increased nutrients, increased sedimentation, warmer water temperatures and loss of habitat, all of which would negatively impact the river's water quality and biodiversity.

Lampricide Treatments

Another potential concern is the possibility of lampricide treatments, which are conducted by the U.S. Fish and Wildlife Service, have yet to occur in the Ashtabul watershed. Only one documented sea lamprey (*Petromyzon marinus*) specimen has been found in the river (Ohio EPA, 2007). They have been found in the nearby Conneaut Creek and Grand River, where treatments are on-going. Primarily a threat to large game fish; sea lamprey feed on Lake Erie fish. They move into the tributaries of Lake Erie and find gravel substrates in swift water to spawn. Sandy/muddy substrates are needed for its larvae to flourish.

Currently, there are several factors controlling the sea lamprey migration into the Ashtabula including lack of prime habitat, low water quality in the harbor and several migration barriers, such as the Hadlock Road ford at river mile 10.0 and waterfall shelves in the river. However, with dredging in the harbor complete, the increased water quality may improve migration.

The lampricide used contains 3-triflurомethyl-4-nitrophenol (TFM) which has been found to lethally impact non-targeted species, such as native lamprey species, mudpuppies (*Nectalurus maculosus*) and members of the catfish family. The endangered lake sturgeon is also lethally affected by TFM treatments (McDonald and Kolar, 2007). It is not currently known if TFM treatments have limited the lake sturgeon's recovery in Lake Erie. In 2007, the Ohio EPA expressed a concern for the possibility of TFM treatments in the Ashtabula River and cautions its use due to low water flows and the presence of vulnerable non-target species.

Conclusion

Of the potential threats to the river, the loss of wooded riparian buffers would have the most impact and could increase other potential threats. When targeting specific threats, priority should be given to protecting the Ashtabula River's healthy wooded riparian corridor. This will be the most cost-effective measure and have the longest lasting effect on the watershed.

Conservation Efforts

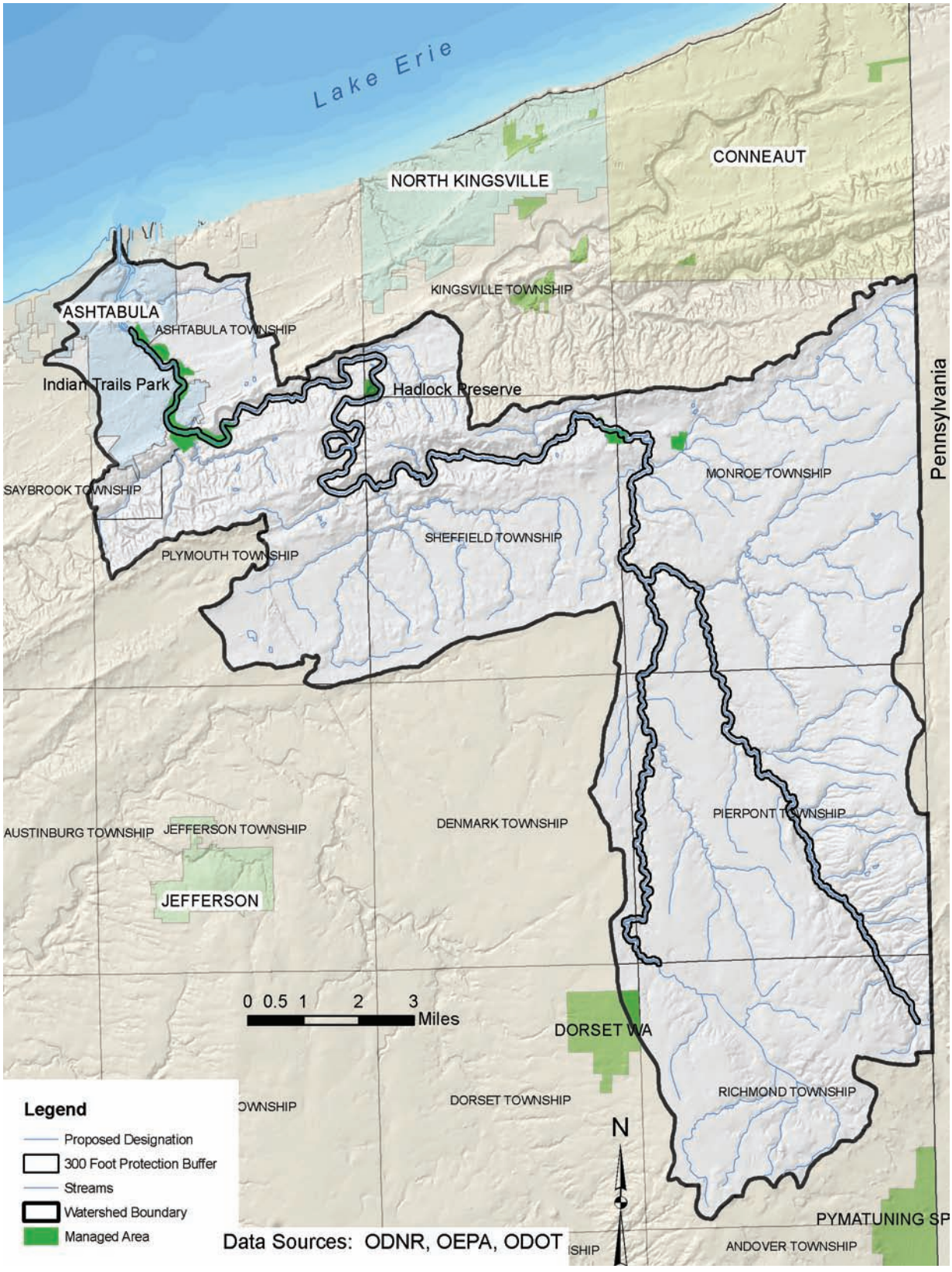
Several organizations have a history of being active in protection efforts in the Ashtabula River watershed. The proposed designation of the Ashtabula River as an Ohio scenic river will bring greater recognition to the high quality of the river, which has long been enjoyed by local residents. If the Ashtabula River receives state designation, it will be recognized as such in brochures, state maps and receive continued support from the Ohio Scenic Rivers Program. The designation will enable the Ohio Scenic Rivers Program to cooperate with local officials in local conservation initiatives and ensure that future improvements to local infrastructures will have minimal impacts on the Ashtabula River watershed.

Efforts will be made to address the few areas that are in need of restoration, as well as encourage the protection of wooded riparian zones. Landowners along the Ashtabula River will have the option to request technical advice from the Ohio Scenic Rivers Program so they may make informed decisions about managing their properties when needed.

Following designation, ODNR will continue to work with partners to develop additional funding sources for the preservation of high-quality riparian corridor and floodplain areas along the Ashtabula River. Since 2000, the Ohio Scenic Rivers Program has cooperated with other agenices to obtain more than $11 million in grant funding for various scenic river watersheds in the state. These funds have supported riparian buffer protection, recreational river access, dam removal, watershed planning and educational programming.

Rare and endangered species communities will also be included in these protection efforts. Priority areas include a variety of high-quality riparian habitats, such as floodplains, vernal pools, channel ponds, abandoned oxbow wetlands, mature hardwood forest buffers, cold water tributaries, steep shale slopes and spring fed seeps. ODNR will work with local partners to develop a watershed action plan focusing on conservation efforts in the Ashtabula River watershed.

The Ashtabula Watershed Steering Committee has been a major asset to the protection of the Ashtabula River. Donating many volunteer hours, they have



Protected Conservation Lands Map

submitted grant applications, assisted with this study, initiated the development of a watershed plan and worked on various conservation activities. The work they are doing is essential to the conservation of the Ashtabula River and will ensure the protection of the river for citizens and tourism for generations to come. After the designation is complete, the steering committee will be a valuable partner in working with local governments to develop a watershed action plan. The plan will document the efforts of various local entities to protect the water quality of the Ashtabula River.

A strong partner in the protection of the watershed is the Cleveland Museum of Natural History. Led by the efforts of Dr. Jim Bissell, the museum has purchased

Hadlock Preserve in Kingsville Township is owned by the Cleveland Museum of Natural History.

land and successfully protected many areas along the Ashtabula River. Hadlock Preserve, located in Kingsville Township, is a significant natural area which protects sensitive habitats, as well as plant and animal diversity. Both Dr. Bissell, curator of Botany, and Dr. Tim Mattson, curator of vertebrate zoology for the museum, have generously contributed their knowledge about the sensitive habitats, and local flora and fauna.

The Ashtabula Township Park Commission has been managing land along the Ashtabula River since 1908. This streamside land became Indian Trails Park, which begins northeast of the new Smolen-Gulf covered bridge and runs about 4 miles north along the river to the south side of East 24th Street. The park commission, through the leadership of Michael Wayman, who was chairman of the park commission during the time of this study, worked to ensure that Indian Trails Park is maintained in a manner that provides both a recreational opportunity to residents and a natural buffer between the city of Ashtabula and the river.

The Ashtabula Soil and Water Conservation District works with farmers and other landowners in the watershed to reduce nonpoint source pollution. They have been actively working with the Natural Resource Conservation Service's Orwell office staff on the Wetland Reserve Program. Two landowners have agreed to protect portions of their properties with conservation easements— one is on the Ashtabula River and the other is on Ashtabula Creek. Nathan Paskey, who is the district administrator during the time of this study, has played a major role in the conservation efforts in the Ashtabula watershed.

The Sam Wharram Nature Club, a long-standing ecological organization, is active in organizing and participating in educational field trips and seminars. They also sponsor the annual Ashtabula Christmas Bird County for the National Audubon Society. Their nature center is located on the corner of Lake Avenue and Walnut Boulevard, just south of Walnut Beach City Park. At the time of this study, Marc Hanneman served as club president.

The Ashtabula River Remedial Action Plan (RAP) and Ashtabula River Partnership played a critical role in the cleanup of polluted sediment in the Ashtabula Harbor and Fields Brook. Through their efforts, the environmental dredging of contaminated sediments in the Ashtabula River was completed in 2007. When the landfill containing the polluted sediments is capped, the partnership will cease to exist. The Ashtabula RAP will continue to work and expand its efforts by shifting to a watershed-wide focus and support the watershed action plan development.

The Ashtabula Board of County Commissioners adopted its Comprehensive Land Use Plan on December 9, 2003. This plan guides development decisions to help the county protect its rural areas,

which is typical for much of the Ashtabula River watershed. The plan addresses green space, farmland preservation, transportation, economic development, history and heritage, and recreation.

The mission of the Ashtabula County Metro Parks (ACMP) is to conserve and manage a system of parks and reserves representative of the county's unique natural heritage and scenic beauty, and provide opportunities for the public to enjoy and learn about the out-of-doors in a safe and wholesome environment. Although it only has small landholdings in the watershed, it has been a tremendous supporter of the Ashtabula River Watershed Steering Committee.

Conclusion

The exceptional water quality and superior wooded riparian buffers of the Ashtabula River is credited to the landowners who have generally limited intrusions into the floodplain. With the combined efforts of the aforementioned groups and local landowners along the Ashtabula, the quality of the river should remain intact for years to come. Key to the success of protecting this high-quality resource is for landowners, conservation and recreation agencies and local governments to work on completing a watershed action plan and then move toward implementing those prescribed conservation practices.

Type of Protected Land	Agency	# of acres
Parks		
Indian Trails & Cedarquist Park	Ashtabula Twp. Park Commission	405.00
Battles Road	Ashtabula Metro Parks	5.18
Graham Road Covered Bridge Park	Ashtabula Metro Parks	.29
Total Park Acres		**515.47**
Wildlife Areas		
Dorset State Wildlife Area (portion)	ODNR Division of Wildlife	105.00
Total Wildlife Areas Acres		105.00
Preserves		
Hadlock Preserve	Cleveland Museum of Natural History	54.00
Total Preserve Acres		**54.00**
Easements		
Kovacic Wetlands	U.S. Dept. of Agriculture & Ashtabula SWCD	63.00
Matthews	Ashtabula SWCD	47.08
Total Easement Acres		**110.08**
TOTAL PROTECTED ACRES		**784.55**

Ashtabula River Criteria and Findings for Designation as a Wild River

Criteria 1: The proposed wild river segment must be 100 percent free flowing (i.e. existing or flowing in a natural channel condition without impoundments, diversions, straightening or other modifications for the river channel).

Finding: All three river segments (main stem, East and West branches) are 100 percent free flowing.

Criteria 2: Roads are permissible within 300 feet of the river, but may not comprise more than 10 percent of the Wild river segment. Limited access highway crossings are permitted but not more than one crossing per 15 miles of river. Other bridge crossings are permited, but no more than an average of two bridges per 5 miles of river. No more than an average of two residential dwellings are permitted within 300 feet of the river per mile of river length.

Finding: None of the three segments meet this criteria—roads along the total proposed segment comprise 15 percent of the proposed river segment length and bridge crossings exceed two bridges per 5 miles in a 15-mile segment.

Criteria 3: For maximum benefit, the total length of the designated section of the Wild river segment may be no less than 15 continuous miles.

Finding: None of the three segments meet this criteria—there was not a 15-mile segment of the Ashtabula River which met all wild designation criteria.

Criteria 4: No commercial or industrial development is permitted within 300 feet of the stream or within the visual corridor, whichever is less. No more than 5 percent of the river's watershed may be covered with impervious surfaces upstream of the Wild river segment.

Finding:

- The main stem only partially meets this criteria—some commercial development occurs within 300 feet of the river. Approximately 4.4 percent of the main stem's adjacent and upstream watershed is impervious surfaces (Ohio/Pennsylvania national land cover data, Landsat TM data 1986-1994 and U.S.G.S. Rivers, streams, boundaries, digital line graph data, 1986.)

- The East Branch meets this criteria. No commercial development occurs and less than 1 percent of the East Branch's adjacent and upstream watershed is impervious surfaces (Ohio/Pennsylvania national land cover data, Landsat TM data 1986-1994 and U.S.G.S. Rivers, streams, boundaries, digital line graph data, 1986.)

- The West Branch meets this criteria. No commercial development occurs and less than 1 percent of the West Branch's adjacent and upstream watershed is impervious surfaces (Ohio/Pennsylvania national land cover data, Landsat TM data 1986-1994 and U.S.G.S. Rivers, streams, boundaries, digital line graph data, 1986.)

Criteria 5: The area adjacent to at least 75 percent of the stream length, considering both banks, shall be in native forest or wetland outward from the river to a depth of 300 feet or greater. In addition, 50 percent of the remaining corridor shall be in native forest or wetland outward from the river to a depth of 120 feet or greater.

Finding:

- The main stem meets this criteria. Approximately 83 percent of the shoreline is in a natual condition to a depth of 300 feet or greater and 69 percent is wooded to a depth of 120 feet.

- The East Branch did not meet this criteria. Approximately 64 percent of the shoreline is in a natural condition to a depth of 300 feet or greater and 68 percent is wooded to a depth of 120 feet.

- The West Branch did not meet this criteria. Approximately 67 percent of the shoreline is in a natural condition to a depth 300 feet or greater and 72 percent is wooded to a depth of 120 feet.

Criteria 6: All of the Wild river segment must equal or exceed the Ohio EPA's exceptional warmwater or coldwater habitat unless natural conditions (i.e. gradient or flow) within the river segment limit the stream's ability to attain these standards. The stream segment, however, must be performing to its highest potential with regard to biological diversity and water quality given the naturally occurring limitations. *If the quality of the waters at any time falls below these criteria, a means to meet the criteria must be readily available and a pollution control and abatement plan must be developed to meet the criteria and be approved by the Ohio EPA.*

Finding: All three segments meet this criteria. Although the three segments do not meet EWH, this criteria is met due to the natural limitations of low flow. All three segments are in full attainment of WWH.

Conclusion

This designation study determined that the three stream segments studied, the main stem, East and West branches of the Ashtabula River, do not fully meet the Wild river designation criteria.Therefore, the Ashtabula River is not recommended for Wild river designation.

Ashtabula River Bridge Crossings			
Main Stem River Mile	Road	**Surface type**	**Canoe Access/Information**
0.75	5th Street (Ohio Rte. 531) lift bridge	Paved	No
1.60	railroad tracks lift bridge	n/a	No
2.30	East 24th Street	Paved	Yes- parking for 10 vehicles
2.80	Penn Central railroad tracks	n/a	No
3.42	Tannery Hill	Paved	Yes - parking for 5 vehicles
3.65	U.S. Rte. 20	Paved	No
4.29	East 46th Street	Paved	No
4.45	Norfolk and Western railroad tracks	n/a	No
5.77	Ohio Route 11	Paved	No
6.23	State Street (Ohio Rte. 46) covered bridge	Paved	Yes - parking for 20 vehicles & restroom
10.03	Hadlock Ford (Twp. Rd. 335)	Paved	Yes - parking for 5 vehicles
12.01	Dewey Rd. Olin covered bridge (Twp. Rd. 334)	Gravel	Yes - parking for 2 vehicles
13.10	Plymouth Ridge Rd. (Co. Rd. 20)	Paved	No
13.91	Green Hill Rd. (Twp. Rd. 20)	Gravel	Yes - parking for 3 vehicles
15.90	U.S. Expressway 90	Paved	No - two 2-lane bridges
19.02	Benetka Road covered bridge (Twp. Rd. 350)	Gravel	Yes - parking for 3 vehicles
20.40	Ohio Route 193	Paved	No
23.80	Stanhope-Kelloggsville Road (Co. Rd. 33)	Paved	No
25.77	Root Road covered bridge (Twp. Rd. 414)	Gravel	Yes - parking for 5 vehicles
27.05	Hilldom Road (Co. Rd. 415)	Paved	No
West Branch			
1.85	Beckwith Road (Twp. Rd. 345)	Gravel	No
2.60	Graham Road covered bridge (Co. Rd. 343)	Paved	Yes - parking for about 3 vehicles
4.05	Caine Road covered bridge (Twp. Rd. 579)	Gravel	No
5.15	Ohio Route 167	Paved	No
6.30	Schrambling Road (Twp. Rd. 337)	Gravel	No
7.31	Anderson Road (Twp. Rd. 301)	Gravel	No
9.05	North Richmond Road (Co. Rd. 302)	Paved	No
11.26	Hall Road (Twp. Rd. 280)	Paved	No
12.47	Ohio Route 7	Paved	No
13.00	Richmond Footville Road (Co. Rd. 12)	Paved	No

continued on next page

Ashtabula River Bridge Crossings			
East Branch River Mile	Road	**Surface type**	**Canoe Access/Information**
1.36	Scribner Road (Twp. Rd. 420)	Gravel	No
2.40	Adams Road (Twp. Rd. 409)	Gravel	No
3.00	Beckwith Road (Twp. Rd. 345)	Gravel	No
3.73	Graham Road (Co. Rd. 343)	Paved	No
5.48	Caine Road (Twp. Rd. 579)	Gravel	No
6.10	Ohio Route 7	Paved	No
6.85	Marcy Road (Co. Rd. 456)	Paved	No
7.95	Turner Road (Twp. Rd. 337)	Gravel	No
8.85	Hall Road (Twp. Rd. 280)	Gravel	No
10.37	U.S. Route 6	Paved	No

Ashtabula River Criteria & Findings for Designation as a Scenic River

Criteria 1: The proposed Scenic river segment must be 75 percent free flowing (i.e existing or flowing in a natural channel condition without low head dams, diversions, straightening or other modifications of the river channel). The river must have connectivity to its natural floodplain along a majority of its length. Where such impacts have occurred, the river channel shall have been restored or recovered to a point of being capable of supporting a warmwater or coldwater habitat community.

Finding: All three stream segments (main stem, East and West branches) meet this criteria. One hundred percent of the proposed Scenic river segment is free flowing.

Criteria 2: Roads are permissible within 300 feet of the river, but may not comprise more than 25 percent of the Scenic river segment length.

Finding: All three stream segments meet this criteria—15 percent for the main stem; 22 percent for the East Branch; and 23 percent for the West Branch.

Criteria 3: For maximum benefit, the total length of the designated section of the Scenic river segment may be no less than 20 continuous miles unless connected with segments bearing other designations.

Finding: This criteria is met; the total length of the three segments proposed for scenic river designation is 46.29 miles.

Criteria 4: Some commercial, industrial and other types of development may occur within 300 feet of the river. However, this development shall not negatively impact the habitat and quality of the stream and its floodplain. No more than 10 percent of the river's watershed upstream and adjacent to the Scenic river segment may be covered with impervious surfaces at the time of designation. If the upstream and adjacent watershed is at 10 percent impervious cover and is contained within an urbanizing area, then the river segment may not be considered for designation.

Finding: All three stream segments meet this criteria. Although some commercial development does occur on the main stem (from river mile 3.67 to river mile 2.3), only 4.4 percent of the adjacent and upstream watershed is impervious surfaces. Both the East and West branches exhibit less than one percent of impervious surfaces.

Criteria 5: The area adjacent to at least 25 percent of the stream length, considering both banks, shall be in native forest or wetland, outward from the river to a depth of 300 feet or greater. In addition, 50 percent of the remaining corridor shall be in native forest or wetland outward from the river to a depth of 120 feet or greater.

Finding: All three stream segments meet this criteria.

- Approximately 85 percent of the main stem's shoreline is in a natural condition to a depth of 300 feet or greater and 69 percent of the remaining corridor is wooded to a depth of 120 feet or greater.
- Approximately 64 percent of the East Branch's shoreline is in a natural condition to a depth of 300 feet or greater and 68 percent of the remaining corridor is wooded to a depth of 120 feet or greater.
- Approximately 67 percent of the West Branch's shoreline is in a natural condition to a depth of 300 feet or greater and 72 percent of the remaining corridor is wooded to a depth of 120 feet or greater.

Criteria 6: All of the Scenic river segment must equal or exceed the Ohio EPA's warmwater or coldwater habitat aquatic life use designations unless natural conditions (i.e. gradient or flow) within the river segment limit the stream's ability to attain standards. However, the stream segment must be performing to its highest potential with regard to biological diversity and water quality given the naturally occurring limitations. I*f the quality of the waters at any time falls below these criteria, a means to meet the criteria must be readily available and a pollution control and abatement plan must be developed to meet the criteria and must be approved by the Ohio EPA.*

Finding: All three segments meet this criteria; 100 percent of the three proposed river segments meet the Ohio EPA's warmwater designation.

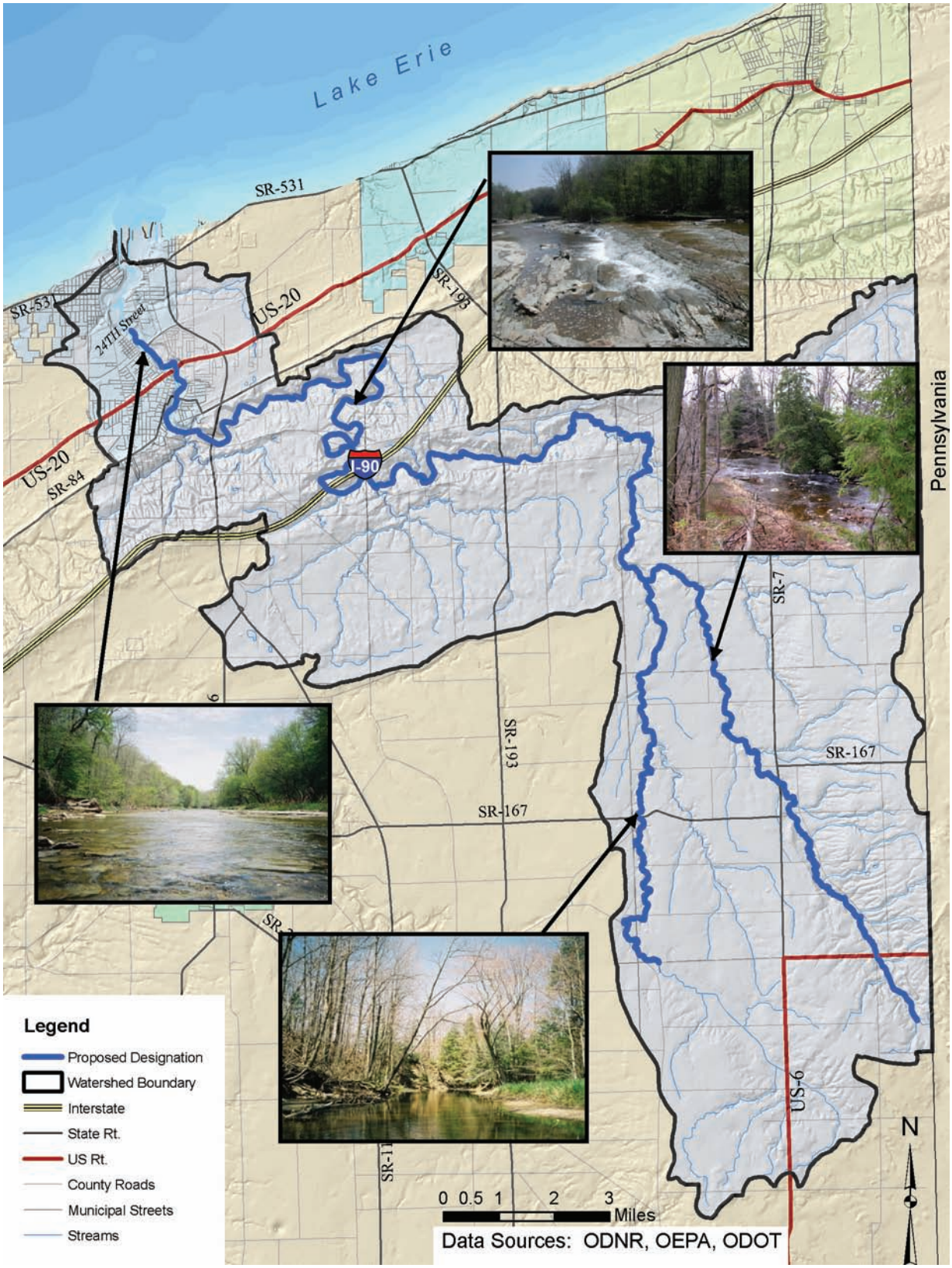
Conclusion: The designation study determined that the three segments of the Ashtabula River met all Scenic river criteria, therefore the Ashtabula River is being recommended for Scenic river designation.

Scenic River Designation Criteria 1 - Channel Condition of the Ashtabula River				**Mileage**	**Percentage**
Main stem					
Natural channel length				**24.34**	**96.43%**
Modified Segments	Begin River Mile	End River Mile	Recovering		
	27.05	26.85	Yes	.20	
	23.9	23.7	Yes	.20	
	5.9	5.4	Yes	.50	
Total modified river miles				**.90**	**3.57%**
Total Proposed Scenic River Length (River mile 27.54 to 2.3)				**25.24**	**100%**
West Branch					
Natural channel length				8.85	97.79%
Modified Segments	Begin River Mile	End River Mile	Recovering		
	4.2	4.0	Yes	.20	
Total modified river miles				**.20**	2.21%
Total Proposed Scenic River Length (River mile 9.05 to 0.0)				9.05	**100%**
East Branch					
Natural channel length				11.35	94.58%
Modified Segments	Begin River Mile	End River Mile	Recovering		
	9.5	8.85	Yes	.65	
Total modified river miles				**.65**	**5.42%**
Total Proposed Scenic River Length (River mile 12.0 to 0)				**12.00**	**100%**
Proposed Scenic River Segment					
Total Natural Channel Length				44.54	96.22%
Total Modified River Miles				1.75	3.78%
Total Proposed Scenic River Length				**46.29**	**100%**

Scenic River Criteria 2 - Roads within 300 feet of the Ashtabula River		
Description	**Miles of road**	**% of road**
Main stem		
National Hydrography dataset segment miles	26.09	
Miles of Road within 300 feet of the river	**3.88**	**15%**
West Branch		
National Hydrography dataset segment miles	9.70	
Miles of Road within 300 feet of the river	**2.20**	**23%**
East Branch		
National Hydrography dataset segment miles	13.34	
Miles of Road within 300 feet of the river	**2.88**	**22%**
Proposed Scenic River Segment		
National Hydrography dataset segment miles	49.13	
Miles of Road within 300 feet of the river	**8.97**	**18%**

Note – The road length was calculated using the National Hydrography Dataset which has a scale of 1:24:000. This data set has a difference in total river mile from the Ohio EPA river mile maps (which have been used for other data collection). This data difference could be due to errors in each data set, precision in calculating river miles, differences in stream data sets or imprecise digitization. These differences are within an acceptable margin of error.

Scenic River Criteria 5: Percent of Forested Riparian Corridor Widths		
Main Stem - River mile 27.54 - 2.3	**Width (feet)**	**Percentage %**
Total length of riparian corridor (river right and left)	266,534.40	100
Total length of riparian corridor NOT wooded 300' deep or greater	39,417.00	15
Total Length of 300' deep or greater corridor	**227,117.40**	**85%**
Total length of riparian corridor NOT wooded 120' deep	12,359.00	5
Total length of riparian corridor wooded 120' deep or greater	**254,175.40**	**95%**
West Branch - River mile 9.05 - 0.0		
Total length of riparian corridor (river right and left)	95,568.00	100
Total length of riparian corridor NOT wooded 300' deep or greater	31,602.90	33
Total Length of 300' deep or greater corridor	**63,965.10**	**67%**
Total length of riparian corridor NOT wooded 120' deep	8,714.00	9
Total length of riparian corridor wooded 120' deep or greater	**86,854.00**	**91%**
East Branch - River mile 12.0 - 0.0		
Total length of riparian corridor (river right and left)	126,720.00	100
Total length of riparian corridor NOT wooded 300' deep or greater	45,381.00	36
Total Length of 300' deep or greater corridor	81,339.00	64%
Total length of riparian corridor NOT wooded 120' deep	14,503.00	11
Total length of riparian corridor wooded 120' deep or greater	112,217.00	89%
Proposed Scenic River Designation - 46.29 River miles		
Total length of riparian corridor (river right and left)	**488,822.40**	
Total Length of 300' deep or greater corridor	**372,421.50**	**76%**
Total length of riparian corridor wooded 120' deep or greater	**453,246.40**	**93%**


Lake Erie
SR-531
SR-531
US-20
24TH Street
SR-193
US-20
SR-84
I-90
Pennsylvania
SR-7
SR-193
SR-167
SR-167
US-6
SR-11
Legend
Proposed Designation
Watershed Boundary
Interstate
State Rt.
US Rt.
County Roads
Municipal Streets
Streams
0 0.5 1 2 3
Miles
Data Sources: ODNR, OEPA, ODOT
N

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The Ohio Wild, Scenic and Recreational River Act

History

Ohio pioneered the river preservation movement with the enactment of Senate Bill 345 by the 107th General Assembly on February 28, 1968. The Ohio Wild, Scenic and Recreational River Act was the first of its kind and predated the National Wild and Scenic River Act. The purpose of establishing scenic rivers is to help protect and preserve the few remaining natural rivers in the state.

Ohio's Scenic Rivers Program is administered by the Division of Natural Areas and Preserves, within the Ohio Department of Natural Resources (ODNR). The mission of Ohio's Scenic Rivers Program is to work cooperatively with local governments, businesses, landowners, non-profit organizations and other state and federal agencies to protect Ohio's high quality streams. Scenic rivers protect the aquatic resources and terrestrial communities dependent on healthy riparian habitats.

Ohio currently has 13 designated Wild, Scenic and/or Recreational rivers comprising 23 stream segments. More than 754 river miles are protected in Ohio's Scenic Rivers Program. Three state designated streams, the Little Miami, Big and Little Darby Creek and Little Beaver Creek, are also designated as National Scenic rivers.

ODNR recognizes partnerships and local cooperation as the most effective method for river preservation efforts. Rivers are studied for possible designation only after receiving resolutions of support from a majority of local governments adjacent to the river. Designation studies incorporate extensive field investigations and data review with the assistance and input of numerous local organizations and individuals.

Upon designation of a river as Wild, Scenic or Recreational, the director of ODNR appoints a 10-member Scenic River Advisory Council which represents local interests within the river watershed. Members often include private citizens, local government officials, conservation organizations and property owners. Scenic River advisory councils advise ODNR on local attitudes, interests and areas of concern related to the preservation of a designated river.

Designating a Wild, Scenic or Recreational river enables the coordination of river preservation activities among state and local governments, organizations and individuals. When combined with statutory authority to review and approve or disapprove publicly funded projects on Scenic rivers, designation helps ensure that decisions and the activities, which may impact a Scenic river, are conducted in an environmentally sensitive and responsible manner.

To best understand the context of the information provided in this report, it is important to recognize that the role of Ohio's Wild, Scenic and Recreational River Act is to identify and protect those rivers and streams possessing important natural or historical characteristics of state significance. The Division of Natural Areas and Preserves' Scenic Rivers Program seeks to identify and designate the few remaining river systems which have retained their most natural characteristics and those that, due to their intact natural characteristics, possess uniquely important historical values.

The purpose of this examination of the Ashtabula watershed is to determine whether the Ashtabula River meets state Wild, Scenic or Recreational river designation criteria. Additionally, this report represents a recommendation to the director of the Ohio Department of Natural Resources regarding whether any portions(s) of the watershed should be recognized as a component of Ohio's Scenic Rivers system.

Ohio Scenic River Law

Section 1517.14

As used in sections 1517.14 to 1517.18 of the Revised Code, "watercourse" means a substantially natural channel with recognized banks and bottom, in which a flow of water occurs, with an average of at least 10 feet mean surface water width and at least 5 miles of length. The director of natural resources or his representative may create, supervise, operate, protect and maintain wild, scenic and recreational river areas under the classifications established in section 1517.15 of the

Revised Code. The director or his representative may prepare and maintain a plan for the establishment, development, use and administration of those areas as a part of the comprehensive state plans for water management and outdoor recreation. The director or his representative may cooperate with federal agencies administering any federal program concerning wild, scenic or recreational river areas.

The director may propose for establishment as a wild, scenic or recreational river area a part or parts of any watercourse in this state, with adjacent lands, which in his judgment possesses water conservation, scenic, fish, wildlife, historic or outdoor recreation values which should be preserved, using the classifications established in section 1517.15 of the Revised Code. The area shall include lands adjacent to the watercourse in sufficient width to preserve, protect and develop the natural character of the watercourse, but shall not include any lands more than 1,000 feet from the normal waterlines of the watercourse unless an additional width is necessary to preserve water conservation, scenic, wildlife, historic or outdoor recreation values.

The director shall publish his intention to declare an area a wild, scenic or recreational river area at least once in a newspaper of general circulation in each county, any part of which is within the area, and shall send written notice of his intention to the legislative authority of each county, township and municipal corporation and to each conservancy district established under Chapter 6101. of the Revised Code, any part of which is within the area, and to the director of transportation, the director of development, the director of administrative services, and the director of environmental protection. The notices shall include a copy of a map and description of the area.

After 30 days from the last date of publication or dispatch of written notice as required in this section, the director shall enter a declaration in his journal that the area is a wild, scenic or recreational river area. When so entered, the area is a wild, scenic or recreational area. The director, after 30 days' notice as prescribed in this section and upon the approval of the recreational and resources commission, may terminate the status of an area as a wild, scenic, or recreational river area by an entry in his journal.

Declaration by the director that an area is a wild, scenic or recreational river area does not authorize the director or any government agency or political subdivision to restrict the use of land by the owner thereof or any person acting under his authority or to enter upon the land.

The chief of the division of natural areas and preserves or his representative may participate in watershed-wide planning with federal, state and local agencies in order to protect the values of wild, scenic and recreational river areas.

Section 1517.15

As used in this section, "impoundment" means the reservoir created by a dam or other artificial barrier across a watercourse that causes water to be stored deeper than and generally beyond the banks of the natural channel of the watercourse during periods of normal flow, but does not include water stored behind rock piles, rock riffle dams and low channel dams where the depth of water is less than 10 feet above the channel bottom and is essentially confined within the banks of the natural channel during periods of normal stream flow. In creating wild, scenic or recreational river areas, the director of natural resources shall use the following classifications:

(A) "Wild river areas" to include those rivers or sections of rivers that are free of impoundments and generally inaccessible except by trail, with watersheds or shorelines essentially primitive and waters unpolluted, representing vestiges of primitive America;

(B) "Scenic river areas" to include those rivers or sections of rivers that are free of impoundments, with shorelines or watersheds still largely primitive and shorelines largely undeveloped, but accessible in places by roads;

(C) "Recreational river areas" to include those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development

along their shorelines, and that may have undergone some impoundment or diversion in the past.

Section 1517.16

No state department, state agency or political subdivision shall build or enlarge any highway, road, or structure or modify or cause the modification of the channel of any watercourse within a wild, scenic or recreational river area outside the limits of a municipal corporation without first having obtained approval of the plans for the highway, road, or structure or channel modification from the director of natural resources or his representative. The court of common pleas having jurisdiction, upon petition by the director, shall enjoin work on any highway, road, or structure or channel modification for which such approval has not been obtained.

Section 1517.17

The chief of the division of natural areas and preserves may administer federal financial assistance programs for wild, scenic and recreational river areas. The director of natural resources may make a lease or agreement with a political subdivision to administer all or part of a wild, scenic or recreational river area. The director may acquire real property or any estate, right or interest therein for protection and public recreational use as a wild, scenic or recreational river area.

The chief may expend funds for the acquisition, protection, construction, maintenance, and administration of real property and public use facilities in wild, scenic or recreational river areas when the funds are so appropriated by the general assembly. The chief may condition such expenditures, acquisition of land or easements, or construction of facilities within a wild, scenic, or recreational river area upon adoption and enforcement of adequate floodplain zoning rules.

Section 1517.18

The director of natural resources shall appoint an advisory council for each wild, scenic or recreational river area, composed of not more than 10 persons who are representative of local government and local organizations and interests in the vicinity of the wild, scenic or recreational river area, who shall serve without compensation. The chief of the division of natural areas and preserves or his representative shall serve as an ex officio member of each council.

The terms of all members serving on any advisory council under this section on the effective date of this amendment 20, 1994, shall end on January 31, 1995. The director shall appoint new members to serve on each council for terms beginning on February 1, 1995, provided that a member serving on a council on the effective date of this amendment 20, 1994 may be appointed to such a new term. The initial member appointed to each council shall serve for terms of not more than three years, with the terms of not more than four members of any council ending in the same year. Therefore, terms of office shall be for three years commencing on the first day of February and ending on the last day of January.

Each council shall advise the chief on the acquisition of land and easements and on the lands and waters that should be included in a wild, scenic or recreational river area or a proposed wild, scenic or recreational river area, facilities therein, and other aspects of establishment and administration of the area that may affect the local interest.

Section 1513.02

(B) The chief, by rule, may designate as unsuitable for coal mining natural areas maintained on the registry of natural areas of the department of natural resources pursuant to Chapter 1517 of the Revised Code, wild, scenic or recreational river areas designated pursuant to that chapter, publicly owned or dedicated parks, and other areas of unique and irreplaceable natural beauty or condition, or areas within specified distances of a public road, occupied dwelling, public building, school, church, community or institutional building, public park, or cemetery. Such a designation may include land adjacent to the perimeters of those areas that may be necessary to protect their integrity.

Endangered Species Definitions

Wildlife

Endangered - A native species or subspecies threatened with extirpation from the state. The danger may result from one or more causes, such as habitat loss, pollution, predation, interspecific competition, or disease.

Threatened - A species or subspecies whose survival in Ohio is not in immediate jeopardy, but to which a threat exists. Continued or increased stress will result in its becoming endangered.

Species of concern - A species or subspecies which might become threatened in Ohio under continued or increased stress. Also, a species or subspecies for which there is some concern but for which information is insufficient to permit an adequate status evaluation. This category may contain species designated as a furbearer or game species but whose statewide population is dependent on the quality and/or quantity of habitat and is not adversely impacted by regulated harvest.

Special interest - A species that occurs periodically and is capable of breeding in Ohio. It is at the edge of a larger, contiguous range with viable population(s) within the core of its range. These species have no federal endangered or threatened status, are at low breeding densities in the state, and have not been recently released to enhance Ohio's wildlife diversity. With the exception of efforts to conserve occupied areas, minimal management efforts will be directed for these species because it is unlikely to result in significant increases in their populations within the state.

Plants

Endangered – A native Ohio plant species may be designated endangered if, based on its known status in Ohio, one or more of the following criteria apply:

- The species is a federal endangered species extant in Ohio.
- The natural populations of the species in Ohio are limited to three or fewer occurrences.
- The distribution of the natural populations of the species in Ohio is limited to a geographic area delineated by three or fewer U.S. Geological Survey 7.5 minute quadrangle maps.
- The total number of plants in all the natural populations of the species in Ohio is limited to 100 or fewer individual, physically unconnected plants.

Threatened – A native Ohio plant species may be designated threatened if, based on its known status in Ohio, one or more of the following criteria apply:

- The species is a federal threatened species extant in Ohio but not on the state endangered species list.
- The natural populations of the species in Ohio are limited to no less than four nor more than 10 occurrences.
- The distribution of the natural populations of the species in Ohio is limited to a geographic area delineated by no less than four nor more than seven U.S. Geological Survey 7.5 minute quadrangle maps.

Potentially threatened– A native Ohio plant may be designated potentially threatened if one or more of the following criteria apply:

- The species is extant in Ohio and does not qualify as a state endangered or threatened species, but it is a proposed federal endangered or threatened species or a species listed in the Federal Register as under review for such proposal.
- The natural populations of the species are imperiled to the extent that the species could conceivably become a threatened species in Ohio within the foreseeable future.
- The natural populations of the species, even though they are not threatened in Ohio at the time of designation, are believed to be declining in abundance or vitality at a significant rate throughout all or large portions of the state.