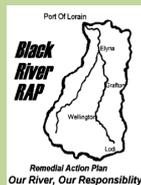




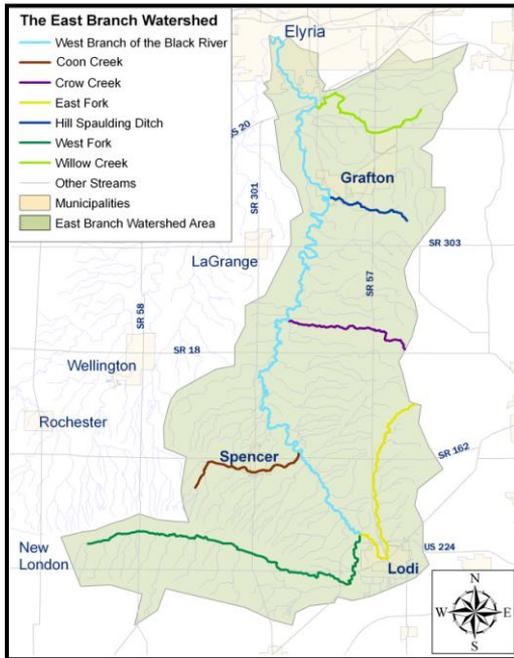
Living Along The East Branch *A User's Guide*

blackriver
WATERSHED



OhioEPA

The East Branch Watershed



At more than 215 square miles, the East Branch watershed is the larger of the two watersheds whose main streams (called **branches**) meet in Elyria's Cascade Park to form the mainstem of the Black River. The East Branch watershed, with a closer proximity to greater Cleveland, is more developed than the West Branch. Although many areas of the East Branch watershed remain rural in nature, the

pressures of rapid development are posing significant problems to the environmental health of this important natural resource.

The Black River Remedial Action Plan Coordinating Committee and the Black River Watershed Coordinator have developed this East Branch handbook in an effort to help you learn about the East Branch watershed and its geology, history, wildlife, and beauty. We hope this handbook will help you better understand the watershed, become proud of its natural beauty and become excited about protecting it. At the end of this brochure, some ideas will be presented on how you, your neighbors and your community can help protect this valuable natural resource.

The East Branch watershed is your watershed, only you can help enhance and protect it.

"Unless someone like you cares a whole awful lot, nothing is going to get better. It's not."

Theodor Geisel (Dr. Seuss)

East Branch Facts

The East Branch watershed encompasses all or part of 17 townships in 3 counties!

Watershed Size	215.9 Square Miles
Streams	461 Miles
Average Stream Gradient	9.0 feet per mile
Drainage Density	2.14 Stream Mile/per mi ²
Roads	555 Miles
Rail Roads Lines	93.0 miles
Average Imperviousness	2.63%
Precipitation	35 inches (rain) 42 inches (snow)

A stream, or river, flows from one place to another. You can see it flow from your neighbor's property to your property or from your town to the next town or village. Whatever happens to a river in one place is carried downstream to the next place.

Very little of the river water in East Branch is spring fed; most of the flow arrives by way of rain or snowmelt. The streams are fed either directly from flow over the land (called runoff) or indirectly from one or more streams that join them. These joining streams are called **tributaries**. The entire network system of smaller streams feeding larger ones is the concept of a **watershed**.

Watersheds are nature's flowing water boundaries. They collect the water in a particular area and transport it to another area. Of course watersheds include lakes, streams, rivers and wetlands, but and most importantly, watersheds include the land area. You live, work and play in one watershed or another.

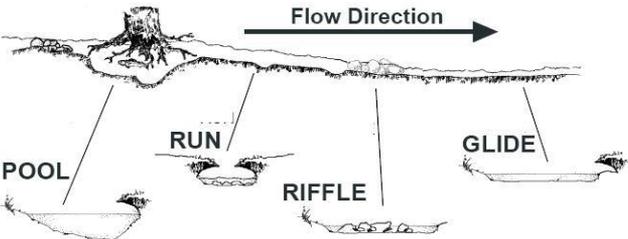
~ We all live in a watershed; we are always within a watershed. ~

Sometimes extreme rainfall amounts overwhelm a stream's capacity to carry water, but healthy streams have a naturally built-in release mechanism. The low flat areas adjacent to the streams that can handle the larger flows are called **floodplains**. In the floodplains, the force of the water slows, allowing sediments to settle out. The slower flows also create less erosion. Often, the floodplains have **wetland** areas associated with them. Wetlands are important floodplain features because they can store excess water and filter

debris, sediment and other pollutants from the runoff. In addition, wetlands create exceptional habitat refuges for birds, small mammals, amphibians, young fish and insects.

The naturally vegetated areas next to streams and rivers also serve important functions. These areas are called the **riparian** corridors. The roots of the trees and bushes along the stream are very effective at holding the stream banks in place. This woody vegetation also works to slow the flow of water over the land, further reducing erosion of the stream banks. Riparian areas filter out most of the sediments and excessive nutrients from the runoff before these pollutants can get into the streams. The branches and leaves form a cover, or canopy, over the stream. This shades the stream, keeping the water cooler. Finally, the riparian areas also serve as important habitat sites and migration corridors for wildlife.

Natural streams have definite features associated within them. **Riffles** are the white-water areas of the waterway, just like the rapids in larger rivers. With the water rushing over and around rocks, riffles serve to add needed oxygen to the water and also serve as habitat sites for the smaller creatures like insect larvae and crayfish, collectively known as aquatic macro invertebrates. Additionally, riffle areas are the primary habitat for many young and/or small fish. **Pools** are deeper, quieter waters and are good fishing spots. **Runs or glides** are faster moving water, without riffles or noticeable 'white-water.' A healthy stream will exhibit a regular pattern of riffle-pool-run habitats.



Pool, Run, Riffle, Glide Sequence (Courtesy of Ohio EPA)

The Natural History of the East Branch

Glaciation

During the Ice Age, advancing glaciers covered northern Ohio, including the East Branch watershed. In the graphic on the next page, you can readily see that glacial advances have covered much of Ohio.



Map of Glacier Extent in North America
(Courtesy of U.S.G.S.)

The glaciers, towering more than 200 feet high, scraped the ground as they moved southward and brought with them a lot of material from far away. As they melted, the land was blanketed with a 50-foot thick deposit of the material, which is called glacial till, a mixture of clay, sand, gravel and boulders. Many of the rocks and boulders mixed in with the soil likely came with the glaciers from Canada. At

the leading edges of the moving glaciers were moraines, or mounds of material, and where the glaciers stopped, the sand, stones, dirt and rocks were left as end moraines.

These end moraines constitute the rolling hills that make up the southern boundary of the East Branch watershed. They also make up a dividing line between the greater Lake Erie watershed and the Ohio River watershed. This dividing line is a natural boundary called the continental divide. Surface drainage of the Black River, including the East Branch and other Lake Erie river basins, generally flows to the north and into Lake Erie and then over Niagara Falls and into Lake Ontario. The waters ultimately flow into the Atlantic Ocean through the St. Lawrence River. South of these river systems, surface drainage flows south to the Ohio River, then to the Mississippi River and ultimately into the Gulf of Mexico. Watersheds are indeed nature's boundaries.

Changes in our Lake Erie

Since the retreat of the last glacier, what is now known as Lake Erie has gone through some major changes, both in size and in shape. The early versions of Lake Erie were formed when glacial ice blocked flow to Lake Ontario or the St. Lawrence River. The water

backed up, forming huge lakes with names like Lake Warren, Lake Whittlesey and Lake Maumee.

Lake Erie's present elevation is about 575 feet above sea level. Lake Warren was about 100 feet higher, Lake Whittesley was about 150 feet higher and Lake Maumee was up to 200 feet higher. Since the lakes were higher, their shorelines were many miles inland of where the Lake Erie shoreline is today. Just as with any large lake, wave action formed beaches along the shorelines. As the water levels changed, these ancient lake beaches remained on the landscape as sandy ridges. Native Americans and early settlers found these ridges to be convenient travel routes as the sandy soils and slight elevations rarely flooded. Today, parts of these beach ridges remain and are still used as important roadways. You know them. They now carry names like Butternut Ridge Road, Sugar Ridge Road, North Ridge Road and Chestnut Ridge Road.

The glacial till left by the glaciers and the silty bottoms of the ancient versions of Lake Erie are the predominant soil types for the region. These soils types are generally comprised of mostly clay and silt loams and have a slow permeability, meaning the soils have a very limited ability to absorb water, resulting in a seasonally high water table and a ponding of runoff waters in level areas.

Wetlands

Typically, wetlands were located between the ancient beach ridges and the moraines left by the glaciers. In the 1850s, settlers to Ohio began draining the wetland areas to facilitate rural, urban and industrial development as well as to make the land suitable for agriculture. Now, 90% of Ohio's wetlands have been lost, converted to other uses. While this conversion has provided many economic benefits, wetlands provide environmental benefits that include providing wildlife habitat and an enhancement of water quality by trapping and filtering nutrients and sediment.

Human History in the East Branch

The East Branch area has figured prominently in history. Prior to "European" settlement, much of the land was covered with dense forests and wooded wetlands. In fact, it has been said that at one time, a squirrel could climb up onto a tree at Lake Erie and jump from tree to tree all the way to the Ohio River without having to touch ground again.

Many Native American people frequented the area to hunt and fish along the streams and woodlands, even venturing north to Lake Erie. The “Erie” tribe of Native Americans came to this area after wars with the Iroquois tribe forced them to leave their lands along the more eastern shores of Lake Erie. The Erie’s were called “Cat People” or the “Cat Nation” by early missionaries and settlers. The terms were derived either by the skins worn by the Native Americans being mistaken for skins of wild cats or the Native American name “*Eri’e*” being translated into “at the place of the panther.”

The East Branch Watershed is located in what was called, before the American Revolution, the Ohio Country. Settlers desired the lands (for both game, mostly beaver, and agriculture) of the Ohio Country and both France and England claimed the Ohio Country lands. With both countries trading with the Native Americans of Ohio Country, violence was inevitable and was one of the main reasons for the French and Indian War. The Treaty of Paris ended the French and Indian War and gave control of the Ohio Country lands to England. In what was perceived as both a military cost-cutting measure and the desire to stem future skirmishes with the Native Americans, England proclaimed that no colonists be allowed to live west of the Appalachian Mountains.

But, the early colonists still desired the bountiful lands of Ohio Country. The new proclamation barring settlement in the Ohio Country led the colonists to conclude that England did not understand life in the new world and were not responding to the best interests of the colonists. Their outrage over denied access to the Ohio County was just one of the many reasons for a revolt against English rule. That revolt was called the American Revolution. After the American Revolution, the developing nation and the Ohio Country region needed towns, cities, houses, roads and farm lands. This growth caused many changes to the landscape of the Northern East Branch.

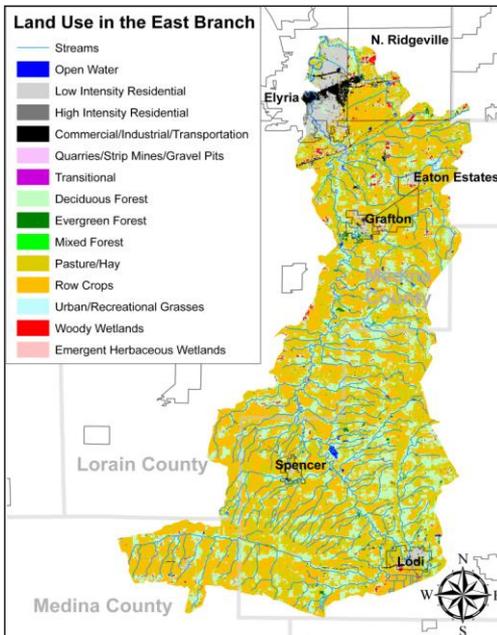
Sawmills, agriculture and grist mills were the first main enterprises of the region. The sandstone that was partly uncovered by the glaciers was shaped into grindstones by the early settlers. The superior quality of the sandstone led to the birth of another industry, quarrying. As some communities grew, the sandstone was used for sidewalks. The sandstone was also used in the construction of many of the buildings in northern Ohio. The old Grafton Stone Quarry, reported to be one of the best equipped quarries in the world, now lies silent but remnants of the operation still remain as part of the Lorain Metro Parks Indian Hollow Reservation. Over

time, sandstone quarries, sawmills and gristmills became willing partners with the railroads in the economic expansion of the East Branch.

Grafton was one of those growing communities. The town was originally called Rawsonville. It was named after the first settlers, the Rawson brothers, who operated both a saw and a grist mill. Jonathan Rawson entered into an agreement to develop a town if the *Cleveland, Columbus and Cincinnati* railroad would lay tracks and construct a rail station. The site was picked and developed because of its close proximity to the East Branch, which would be utilized as a source of water for the steam locomotives. The community grew to become a hub of activity with shops and some hotels. There has even been tales of outlaws staying at the hotels, probably as they were passing through the area on the rail system.

So you can see the East Branch had an affect on the early development and history of the region. The East Branch provided an exploitable natural resource for the needs of early development. Early rail lines were laid out along flat areas with easy access to fresh water, which was a critical necessity for steam locomotives. The abundance of water from the East Branch filled that need.

Land Uses



Overall, the East Branch watershed displays a myriad of land uses. About 57% of the land in the watershed is used for pasture and row crops. Although no-till farming has been on the increase, typical farmland is left un-vegetated for much of the year which leaves the land vulnerable to erosion and runoff. Woodland areas cover another 31% of the watershed, but just over 1% of the land remains as wetlands. About 12% of the land is being

used for development (residential, commercial, industrial and transportation).

But, land uses in the East Branch watershed can be described as a tale of two watersheds. The northern East Branch area, once almost as rural and agriculturally-based as the southern area has recently undergone considerable development as greater Cleveland expands westward.

"Uncontrolled growth and degradation of our natural resources will provide a few with immediate gain, but will ultimately cost the entire populace."

Lorain County Comprehensive Plan 2000

You can easily see the differences in the land usage of the two sections of the East Branch watershed below:

	Northern	Southern
Forest	23.5%	40.9%
Pasture/Crops	53.0%	62.1%
Wetlands	1.96%	0.43%
Development	19.8%	2.94%

Typically, urban, suburban and commercial development has a severely degrading impact on a water system when the amount land cover that is impervious to water approaches 10% of the total land area. The impervious array of rooftops, driveways, parking lots and roads cause runoff waters that used to be absorbed by the land, to enter the stream systems much more quickly and with greater force. The runoff waters carry more contaminants to the streams and the increase in the force causes more erosion.

Overall, the East Branch watershed's imperviousness is 2.63%. Understandably, with more development, more impervious surfaces are seen in the northern areas (between Grafton and Elyria 8.01% and the Willow Creek sub-watershed 3.71%). In the southern part of the watershed, the average imperviousness is 1.48%. As development continues in the East Branch watershed, the land uses will change and the amount of imperviousness may increase. "Green" planning and development can be used to lessen the degradation of the watershed from increasing imperviousness. Townships and municipalities should look to remove ordinances that preclude the use of these green measures. Builders, developers and local stakeholders should look to utilize these methods.

The tributary stream system of the East Branch suffers from a lack of riparian corridors. This has allowed extreme loads of nutrients and sediment to quickly run off the land into the streams where they have impacted water and habitat quality.

Wildlife

Within the waters and along the banks of the East Branch watershed, a variety of plant and animal life can be discovered. Of course, ducks, teals, herons and geese are abundant. But lucky individuals can also spot pheasants, wild turkeys and a variety of hawks and owls. Deer, foxes and beavers can be found along the waterways, but one important individual might be missing.

The River Otter was once common in Ohio until the pressures of habitat loss from the late 1800s to the early 1900s drove their numbers down. In 2007, a River Otter was spotted in French Creek, a nearby watershed, northeast of the East Branch. Otters have not been seen in the East Branch watershed for some time.



North American River Otter
(Courtesy of www.otternet.com)

From 1986 to 1993, the Ohio Department of Natural Resources reintroduced the species into the Grand River, Killbuck Creek, Little Muskingum River and Stillwater Creek. The bordering states of Indiana, Kentucky, Pennsylvania and West Virginia had River Otter reintroduction programs as well. The restocking has been so successful, River Otters have been spotted in 51 Ohio counties. To date, none have been seen in the East Branch watershed. The sighting of a River Otter in the East Branch would show a general improvement to habitat of the watershed and would be a celebrated event. If you spot a River Otter, you are asked to report it to ODNR, Division of Wildlife at 330-644-2293.

Occasionally, even the national symbol, the bald eagle, can be seen. Bald eagles were once prevalent around Ohio, especially around the Lake Erie basin. By 1979, only four pairs could be found within the entire state of Ohio. The state had set a goal of 100 bald

eagles. That number was exceeded in 2004 with some setting up nests in the Black River watershed.

Only a few years ago, the East Branch suffered from degradation to the many small creatures that inhabit the stream bottoms. These creatures are called aquatic macro invertebrates, or **benthos**, and they are small animals that live on the rocks, logs and aquatic plants in a stream. Benthos includes crayfish, clams and snails, worms and immature insects. Benthos is an important link in the food chain, especially for the resident fish populations. In 2005, because of improvements to municipal wastewater collection and treatment systems, the community of benthos in the East Branch had recovered to what is considered a near exceptional level. This is good news for the East Branch watershed.

Recreational Opportunities

There is an ample supply of things to do in the Northern East Branch. Stretch your legs on one of the many nature paths in the local parks. Come to Elyria and see the beautiful waterfall from the city's new River Walk. Maybe you can find one of the animals noted above. Golfers have a variety of spots to hone their games and sightseers can soak in some exceptional architecture styles in Grafton.

Recreational Opportunities:

- Lorain and Medina Metro Parks
- Elyria's Cascade Park
- Golf Courses (Pine Brook, Brentwood, Carlisle, Indian Hollow, Creekwood, Mallard Creek, Royal Oaks, Knollbrook)
- Sightseeing and biking
- Authentic Railroad Switching Tower (Grafton)
- Examples of Greek Revival Architecture (Grafton)

Living Along the East Branch

As you can see, the East Branch watershed is full of ecological, historical and recreational importance. So, who wouldn't want to live here? The area has a small town feel with quiet communities but is close to both the Lake Erie north coast and the metropolitan areas of Elyria, Lorain and Cleveland. The East Branch watershed area has a strong historic background with beautiful vistas and peaceful green areas.

But the face of the East Branch watershed is changing. In some areas, the rural landscape is changing to a more suburban or **exurban** one. Exurban areas are those developed areas lying outside areas that are normally called suburban areas or the suburbs. Exurban areas characteristically retain some of their rural or agricultural nature but these areas are increasingly dotted with pods of small residential developments. As open rural and agricultural lands are developed, the landscape can be covered with rooftops, roads, driveways and parking lots. The changing landscape becomes less able to absorb rainfall and snowmelt and more of the water runs off to the ditches, streams and rivers. This can cause erosion of stream banks and flooding. The excess runoff also carries silt, sediment, bacteria and a variety of other pollutants.



Eroding Streambank in the East Branch Watershed

During these times, it is extremely important to get involved in enhancing and protecting your watershed.

"Living along the East Branch" can remain a positive venture. By helping to protect the East Branch watershed, you, as a homeowner, may be helping yourself in the process. In studies that compared the value of residential properties, the appraised value of homes along *natural* streams is three times higher than a comparable home along a channelized stream. Most people enjoy natural settings and wildlife viewing and are willing to pay a higher price to enjoy these benefits. The closer the property is to a natural area, the higher the price prospective buyers are willing to pay.

The TMDL

In 2008, the Ohio EPA will publish an important study of the Black River watershed, including the East Branch and its tributary system. The study is called the TMDL, which stands for **Total Maximum Daily Load**. The TMDL is a program that focuses on identifying and restoring impaired or polluted rivers, streams, lakes and other

surface waterbodies. In 2004, 2006 and again in 2008, both the northern and southern sections of the greater East Branch watershed were identified by Ohio EPA as impaired river systems and a TMDL study is required by federal Clean Water Act regulations for any impaired water system. The West Branch and the Black River mainstem were also identified as impaired river systems. The Black River TMDL report is available at: www.epa.state.oh.us/dsw/tmdl/BlackRiverTMDL.html.

While previous studies by Ohio EPA focused more on industrial and municipal discharges to the streams and rivers, the TMDL study looks at all contributing sources of pollution, including overland runoff or what is called **nonpoint source pollution**. The TMDL specifies the amount by which each pollutant needs to be reduced to meet water quality standards (WQS), allocates pollutant load reductions, and provides the basis for taking actions needed to restore a waterbody.

The TMDL and the East Branch

Although all of the East Branch was found to be in non-attainment, Ohio EPA recognized a difference in the northern and southern portions of the East Branch and divided the East Branch into two smaller study areas at Coon Creek which is near the boundary between Medina County and Lorain County. Beside the chemical data, the study of the East Branch included the following assessments:

The **Aquatic Life Use (ALU) Assessment** addresses the general health of the stream system, the stream and near stream terrestrial habitat and the communities of fish and other stream animals.

ALU Assessment in the Northern East Branch:

In the northern parts of the East Branch watershed, Ohio EPA found the East Branch mainstem to be in attainment of ALU criteria, but the tributaries routinely failed to attain. For the tributary system, 16.7% of the streams studied were found to be in partial attainment and 83.3% failed to meet attainment criteria. The noted cause of non-attainment was excessive loads of silt and nutrients, primarily coming from crop land runoff; low dissolved oxygen in the waters, resulting from impacts of combined sewer overflows and small municipal treatment plants; and habitat alterations, from the channelization of stream channels.

ALU Assessment in the Southern East Branch:

In the southern part of the East Branch, south of Coon Creek, the primary tributaries fared better with 90% of the sites fully attaining and 10% in partial attainment. In the southern part, the mainstem areas also fared better with 46% of the sites achieving full attainment and 54% achieving partial attainment. The noted cause of non-attainment is excessive loads of silt coming from crop land.

It should be noted that while fish habitat and fish community health remain impaired, conditions are improving in both areas of the East Branch. Upgrades to the Elyria's wastewater collection system and Grafton's treatment facility have allowed the small invertebrate creatures of the East Branch to recover and are approaching exceptional levels. In addition, an upgrade to the City of Lodi's treatment facility coupled with stream restoration work by the Medina Parks District and Ohio EPA has been very successful in the East and West Forks of the East Branch and most sites in this area are achieving ALU criteria.

The ***Fish Tissue Assessment*** addresses the suitability of eating fish caught in the waters of the East Branch. There are fish consumption advisories posted through much of the northern and southern sections of the East Branch for rock bass, smallmouth bass, yellow bullhead and common carp. These advisories recommend that the public restrict their consumption of these fish species to only one meal per month. The advisories have been posted because tissue studies have shown levels of mercury above a level recommended for unrestricted consumption.

The ***Recreational Use Assessment*** determines the suitability of the waters for swimming and wading. All areas, but especially upstream of Coon Creek, suffer from elevated counts of bacteria in the streams. These high levels are considered a risk for the recreational use of the streams.

Recent data shows there are recognized improvements to the recreational use in the northern section of the East Branch watershed (north of Coon Creek). Bacteria monitoring now shows this area is nearing attainment of the recreational use assessment, but additional monitoring is needed in the coming years.

The TMDL provides certain recommendations and actions necessary to alleviate these problems and return the East Branch, as well as the rest of the Black River, to attainment. Most of the recommendations and actions require active participation by local stakeholders. Many of the recommendation and actions are

presented in this *Living Along the East Branch* brochure and the *Lorain County Water Quality Guide*. For more information, contact the Watershed Coordinator, your local Soil and Water Conservation District office or the county health department.

Restoration Recommendations

Several measures can be taken to encourage improvements in the habitat and water quality of the East Branch and its tributaries:

- Improved enforcement of existing State and local storm water regulations. All too often, construction sites do not appear to be in compliance. Silt fences and other measures effective against erosion and sedimentation often are not used regularly or where required along stream channels, etc. Local municipalities need to be educated on the regulations and held responsible for compliance.
- Improved enforcement of existing Federal and State Section 404 and 401 regulations concerning modifying stream channels and wetland disturbances. Suggest that municipalities be educated and held responsible for ensuring that compliance with these laws is obtained prior to, during, and after the construction of new residential subdivisions, commercial and industrial developments.
- Encourage (both voluntarily and with the use of incentives) the development of wooded buffers adjacent to the East Branch and its tributaries. The development of buffers improves both habitat and water quality.
- Create filtration wetlands in areas where severe erosion is adding to the sediment loads of the creek and its tributaries. Work to restore and/or enhance existing wetland areas. These wetlands serve the dual purpose of improving water quality by absorbing nutrients and filtering out sediment and limiting flood damage to adjacent structures.
- Enforce local health department regulations in relation to residential septic systems. Coordination with the Health Department and OEPA is encouraged to rectify the discharge of raw sewage into the creeks.
- Construct bioengineering erosion control projects where severe erosion is occurring along stream banks.

- Curtail discharge of stormwater runoff from urban areas directly into the East Branch and its tributaries. Encourage the development and use of storm water detention basins (not retention basins).
- Encourage (voluntarily or by use of incentives) the use of Best Management Practices (BMPs) in agricultural, livestock and limber operations.

But What Can I Do In My Little Backyard?

Lawns and Landscaping

Sometimes, the things we do to improve our vistas or our lawns or increase the amount of land available for farming can disrupt the natural systems that are necessary for the health of the streams in our backyards or farm fields.

Removing natural vegetation along the stream banks or replacing it with lawns might look nice in the short run, but it will lead to an erosion of the stream bank. The roots of the trees and shrubs hold the stream banks in place; without them, there is nothing to slow the force of the moving waters. Pretty soon your pretty stream scenes will be replaced with an eroding riverbank and a loss of what could be sizeable portions of your land. Allow a little shrub/tree corridor between your lawn or field and the stream, don't plant lawn or mow to the river's edge; you are just inviting the problems of erosion onto your property. Farmers may be eligible for some financial assistance for establishing riparian corridors, grassed waterways and other conservation efforts. Contact your local Soil and Water Conservation District for more information.

Don't over-fertilize. The fertilizers you use on your lawn or field can be too powerful for the stream. Always follow the manufacturer's recommended application rates. In addition to carefully following application directions, chose a lawn care fertilizer with no phosphorus added. Typically, lawn soils have enough phosphorus. Adding unneeded phosphorus will increase the potential to wash phosphorus into the stream, especially if there is no natural shrub/tree corridor to absorb them, where it can cause environmental degradation. In a stream, the fertilizers can lead to unsightly blooms of algae, a decrease of available dissolved oxygen, and fish kills.

Don't dump lawn clippings into the stream. In addition to degrading the beauty of a stream, it can lead to a decrease in

dissolved oxygen and fish kills. These clippings would never 'naturally' find their way into local streams. The better solution is to compost these clippings, away from the streams and floodplains, of course!

Use pesticides and herbicides according to the manufacturer's instructions. Excessively applied amounts of these chemicals can make their way to the streams and wreak havoc with the natural system. Proper disposal of these materials is critical. Contact the Lorain County Solid Waste Management District at 440-329-5440 or the Medina County Solid Waste Central Processing Facility at 330-769-1273 or 1-800-968-7273 for more information on the collection days for these chemicals.

You should plant only native species near the water's edge. Native plants are accustomed to the climate of your area and won't be affected by the extremes in Ohio's weather like some non-native species would be. Additionally, native plants do not require fertilization, so they are more stream-friendly and help decrease your work. Your local greenhouse, Watershed Coordinator or county Soil and Water Conservation District may be able to help you in selecting appropriate native plant species.

Consider installing a rain garden or a rain barrel or both! Rain gardens require little maintenance and their benefits are many:

- Help keep water clean by filtering storm water before it enters the West Branch
- Help alleviate problems associated with flooding and drainage.
- Enhance the beauty of your yard and community.
- Provide habitat and food for wildlife, including butterflies and birds.
- Help recharge the groundwater supply.

Do all these things with a rain garden! You can get started by downloading a copy of the "Raingarden Manual for Homeowners" a wonderful how-to guide, from the Black River Watershed Project website:

www.blackriverwatershed.org/pub2.asp?Dept_ID=5&News_ID=78.

By following these simple suggestions, you will be rewarded with a more natural stream, increasing numbers of wildlife species, and possibly an increase in property values as well.

Decrease the Amount of Runoff

Slowing the surface runoff from places like roof, patios and driveways will minimize the amount of soil that can get to the streams. Excessive amounts of soil reaching the streams are a major problem throughout the entire Black River basin, including the East Branch and its tributary streams.

Look for and repair areas on your property that show the signs of erosion. You should look for bare spots on your property and exposed tree roots. Small stones appearing on soil surface and the appearance of rills and gullies are other indications of erosion. The *Lorain County Water Quality Guide* brochure will help you understand the problems of erosion and what to do about it on your property. Contact the Lorain County Soil and Water Conservation District for a copy.

Maintain Your Septic Tank System

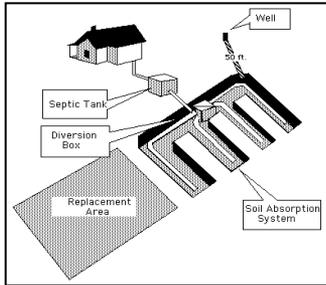
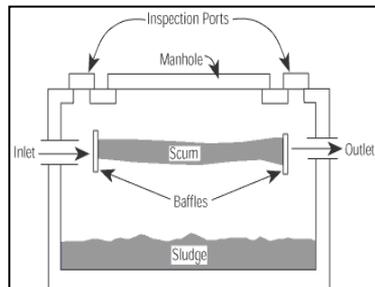


Diagram of a Septic System
(Courtesy of OSU Extension)

Properly locate and maintain your septic tank and leach bed system for effective treatment of household wastes. For this type of system (called a Home Sewage Treatment System or HSTS) to work effectively, it must be located in proper soil types and not within an area of extremely sloping ground. It is the soil and bacteria in the soil that actually treat the wastes.

A system located on a severely sloping ground can cause a rapid runoff of the liquid wastes thereby not allowing for the time necessary for bacteria to treat the wastes. Improperly located, installed or maintained systems can severely degrade the streams and can allow bacteria and viruses to potentially cause serious health problems.



Cross section of a septic tank (Courtesy of OSU Extension)

An HSTS system is not a "set and forget" system and must be periodically inspected by qualified personnel to ensure that it is operating properly. In addition, the

septic tank must be routinely pumped of accumulated solids and scum. Information on HSTS systems can be obtained through the Ohio State University Extension Office or your county health department. Some fact sheets and additional information can be found on the web at:

Lorain County General Health District:

www.loraincountyhealth.com/programs/environmental.shtml

Medina County Health Department

www.medinahhealth.org/environmental/sewage_systems.htm

Ohio State University Extension:

<http://ohioline.osu.edu/aex-fact/0740.html>

<http://ohioline.osu.edu/aex-fact/0741.html>

<http://ohioline.osu.edu/aex-fact/0742.html>



Through funding made available by the Ohio EPA, an informational DVD-formatted video about home sewage treatment has been produced by the Lorain County General Health District and the Black River RAP. This educational video will be presented to every HSTS owner in Lorain County at the time of health department inspection of the HSTS

system. Contact the Lorain County General Health District to obtain a copy.

Other Useful Suggestions to Preserve the East Branch Watershed

Don't dump anything into streams or storm sewers. Storm sewers will deliver the wastes to the streams without treatment. Follow the mantra of today's more ecologically sound lifestyles, "Reduce - Reuse - Recycle."

Use alternative products instead of hazardous household materials. A list of alternative products can be found in the "*Lorain County Water Quality Guide*." When you must use a potentially hazardous material, read the label and follow the directions carefully. Do not flush these chemicals down the drain into either a public sewer system or a home sewage treatment system. The Lorain County Solid Waste District and the Medina County Solid

Waste Central Processing Facility have set up collection dates and times for household hazardous wastes.

Properly dispose of old fluorescent light tubes, thermostats and mercury thermometers. They can contain considerable amounts of mercury. In a river system, that mercury can be transformed into a more toxic type of mercury, called methyl mercury. These items can be turned in at approved collection facilities. Local solid waste districts have set up collection dates and times for fluorescent tubes, ballasts and mercury thermometers.

To contact the Lorain County Solid Waste District for additional information or for a schedule of upcoming collection days call: 440-329-5440. Or you may access them on the web at: www.loraincounty.us/solidwaste.

To contact the Medina County Solid Waste Central Processing Facility for additional information or for a schedule of upcoming collection days call: 330-769-1273 or 1-800-968-7273. Or you may access them on the web at: www.sanitaryengineer.co.medina.oh.us/cpf/downloads/plan.html.

Learn about and be able to recognize potentially troublesome invasive species, like Purple Loosestrife, Phragmites and Japanese Knotweed. The proliferation of these invaders is a severe problem throughout the Great Lakes by replacing native species and clogging waterways. Learn the best method of controlling the spread of these plants.

Keep your car in good working order. Most of your travels throughout the West Branch watershed will start and end by automobile. Oil and gasoline dripping onto driveways, parking lots and streets find their way to the water system by way of ditches and storm sewers.

Don't dump used or unwanted oil into a storm sewer. Take it to a recycling center. Many auto parts stores now accept used motor oil for recycling.

What can my community and I do together?

Ensure that Best Management Practices are used during and after construction of new developments. These practices have been designed to keep exposed soils from getting into the streams.

Encourage and support a wetland design of new storm water retention basins in new subdivisions. These designs will create new habitat for wildlife and will reduce the amount of soil getting into the East Branch river system.

Develop and support an initiative to control the spread of invasive species, like Purple Loosestrife, Phragmites and Japanese Knotweed. Incorporate the best methods of controlling the spread of these plants in small and large-scale infestations.

Develop local setback ordinances. Many communities now understand the importance of native streamside vegetation and its ability to reinforce the stream banks and to decrease the amount of sediment, nutrients, pesticides and herbicides that can enter the stream. These communities are developing setback ordinances to help protect these riparian areas.

Adopt, support and enforce stream protection ordinances, especially those designed to protect riparian areas and wetlands. These ordinances not only protect your property from flooding and erosion, they help your downstream neighbors as well.

Identify areas of the watershed that could be protected, improved or rehabilitated, like eroded stream banks and wetland areas. Support efforts to repair, enhance and preserve these areas. The county's Watershed Coordinator, the local Soil and Water Conservation District or the Black River RAP Coordinating Committee may be able to assist you in seeking funds for these projects.

Encourage programs that deal with the handling, storage, and proper use and disposal of hazardous wastes. Develop cleanup days that provide for drop-off locations of these products.

"Achieving a balance between the needs of the environment and the desire for growth and economic gain is key to the well being of the County."

Lorain County Comprehensive Plan 2000

And finally...

Talk to your neighbors, friends, community officials and organizations about the importance of everyone pitching in to protect their valuable water resource. A good idea might be forming

an East Branch watershed group or a watershed stewardship program. Groups such as these have been formed already in the French Creek and West Branch watersheds. The Watershed Coordinator or the Black River RAP would be happy to help you form such a group. Suggested members of the group would be interested homeowners & businesses and local government officials.

Resources

Publications:

Explorations of a Watershed, The Natural History of the Black River, Edited by Brad Masi, Oberlin College, Oberlin Ohio

Common Groundwork, A Practical Guide to Protecting Rural and Urban Land, Third Edition, Joseph H. and Mary M. Chadbourne, 2000, Chadbourne & Chadbourne

Black River Study, An Interpretive Study of the Black River for Inclusion into Ohio's Scenic Rivers Program, Russell W. Gibson, Ohio Department of Natural Resources, August 29, 1977, Appended March 1998

The Lorax, Dr. Seuss, Dr Seuss Enterprises. L.P., Random House, 1971

Soil Survey Map of Lorain County, Ohio, USDA, ODNR, July 1976

Ohio Environmental Protection Agency. 1999b. *Biology and Water Quality Study of the Black River Basin: Lorain and Medina Counties*. OEPA Technical Report Number MAS/1998-11-4.

Ohio Environmental Protection Agency. 2006. *Ohio 2006 Integrated Water Quality Monitoring and Assessment Report*. State of Ohio. Environmental Protection Agency. Division of Surface Water. May 1, 2006.

Black River RAP, 2003, *Living Along French Creek, A User's Guide*, US Army Corps of Engineers

Web Sites:

Black River Watershed Project

www.blackriverwatershed.org

Lorain Co. Metroparks

www.loraincountymetroparks.com

Medina Co. Park District

www.medinacountyparks.com/

River Otter Alliance

www.otternet.com/ROA/index.htm

Connecticut Rivers Joint Commission

www.crjc.org

National Academies Press Riparian Areas: Functions and Strategies for Management (2002)

www.nap.edu/books/0309082951/html

U.S. EPA

www.epa.gov/owow/home/accomplish.html

www.epa.gov/glnpo/aoc/blackriver.html

U.S. Geological Survey

www.usgs.gov

Ohio History Central

www.ohiohistorycentral.org

Ohio EPA

www.epa.state.oh.us/dsw/documents/AQECOL_FINAL1.pdf

Contacts

Dan Gouch, Black River Watershed Coordinator

Lorain County Community Development Department

226 Middle Avenue

Elyria, OH 44035

440.328.2336

dgouch@loraincounty.us

Ted Conlin, Black River RAP Coordinator

Ohio EPA-Northeast District Office

2110 East Aurora Road

Twinsburg, OH 44087

330-963-1131

ted.conlin@epa.state.oh.us

Anne Marie Vincent, Black River RAP Liaison

US EPA-Cleveland Office

25089 Center Ridge Road

Westlake, OH 44145

440-250-1720

vincent.annemarie@epamail.epa.gov

Nancy Funni, District Administrator

Lorain Soil and Water Conservation District

42110 Russia Road

Elyria, OH 44035

440-326-5805

Lorain County General Health District

9880 South Murray Ridge Road

Elyria, OH 44035

www.loraincountyhealth.com

Medina County Health Department

4800 LedgeWood Drive

Medina, OH 44256

www.medinahealth.org

Lorain County Solid Waste Management District

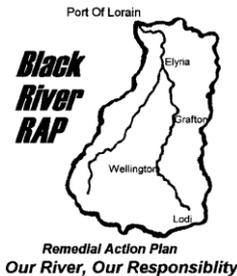
226 Middle Road
Elyria, OH 44035
440-329-5440

www.loraincounty.us/solidwaste

Medina County Solid Waste District

8700 Lake Road
Seville, OH 44273
330-769-1273 or 1-800-968-7273

www.sanitaryengineer.co.medina.oh.us/cpf/index.html



About the Black River Remedial Action Plan:

The Black River Remedial Action Plan Coordinating Committee is a group of watershed stakeholders, representing local public agencies, state and federal agencies, industries and private commercial groups and citizen representatives that have been working together to restore the Black River Watershed. The Black River watershed, which includes the East Branch, is the only Area of Concern in Ohio that encompasses an entire watershed.

About the Black River Project and the Watershed Coordinator:



In January of 2004 Lorain County implemented the Black River Watershed Project to address water quality issues. The project received a Coastal Management Grant (CMAG) in 2005 to address Non-Point Source Pollution Control measures in three sub-watersheds: The French Creek, the East Branch of the Black River, and the West Branch of the Black River. Non-Point Source Pollution is any pollution that cannot be attributed to a specific source. The purpose of the project is to organize a way to manage non-point source pollution whether from failing home septic treatment systems, agricultural runoff, or contaminated urban runoff. Program planning began in January of 2006 and brought together county,

city, and township employees, as well as county residents in order to shape the outcome of the plans which were completed that same year.

In mid-2006, the County secured a four-year Watershed Coordinator Grant funded by the Clean Water Act Section 319 program that addresses nonpoint source related pollution. This grant affords Lorain County the opportunity to complete the Watershed Action Plans necessary to improve water quality and bring needed mitigation funding into the county. The four-year Black River Watershed Grant will support a watershed coordinator position, as well as outreach programs to develop and implement watershed action plans for the West Branch and French Creek. Currently there are two committees dedicated to assisting in the development and implementation of the Watershed Action Plans. These groups meet with the Watershed Coordinator and other assistance staff to lend expertise and aid in the community involvement efforts.

In the coming years, the Black River Watershed Project aims to secure further grant funding to continue working towards water quality attainment and environmental management. The Project will continue working with County Planning on recommendations for subdivision Review, implementation of setback ordinances within County jurisdictions, and educating county residents on best management practices and the importance of environmental quality.

Funding for this brochure was made available by the Ohio EPA, through a grant from the U.S. EPA Great Lakes National Program Office, in support of the Black River Remedial Action Plan.
