

# Raccoon Creek State Scenic River Designation Study

September 2024



Department of  
Natural Resources



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A study of Raccoon Creek for  
inclusion into the Ohio Scenic Rivers System

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# Table of Contents

Acknowledgements.....	1
Introduction.....	2
Executive Summary.....	4
Raccoon Creek’s Road to Recovery.....	6
Criteria and Findings for Raccoon Creek.....	8
General Description of Raccoon Creek Watershed.....	12
• Fish.....	15
• Rare and Endangered Species.....	17
• Public Lands.....	21
Stream Water Quality of Raccoon Creek.....	24
Conclusion.....	34

## Appendix

Citations and References.....	i
List of tables.....	ii
Ohio Wild, Scenic, and Recreational River Act - Ohio Revised Code 1517 ..	iii
Raccoon Creek Watershed maps.....	vi



# Acknowledgements

Many people have contributed their expertise, talents, and time to the development of this report. Because of their collective commitment to the restoration and continued protection of Raccoon Creek, this exemplary river system was worthy of studying for potential designation as an Ohio Scenic River.

The Ohio Department of Natural Resources (ODNR), Division of Natural Areas and Preserves would like to thank the following individuals and organizations for their support of this study.



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# Introduction

Ohio pioneered the river preservation movement with the passage 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 in the nation and predated the National Wild and Scenic River Act. The purpose of designating scenic rivers is to help protect and preserve the few remaining high quality, natural rivers in the state.



The Ohio Department of Natural Resources (ODNR), Division of Natural Areas and Preserves administers the Ohio Scenic Rivers Program. The program’s mission 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. Ohio’s Scenic River Act (see page iii) provides for three categories of designation.

Wild rivers are those waterways which are generally inaccessible, the flood plain is undeveloped, the waterway is free flowing, and 75% 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 most 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% of the stream’s length.

Recreational rivers are those waterways which do not possess the same degree of the 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 waterways with this classification.

Ohio currently has 15 designated Wild, Scenic, and/or Recreational rivers comprising 26 stream segments. More than 830 river miles are protected in the state scenic river system. Three waterways—the Big and Little Darby Creeks, Little Beaver Creek, and Little Miami River—are also designated as national scenic rivers.

ODNR recognizes that partnerships and local cooperation are key to effective river preservation efforts. River designation studies are typically initiated after local requests for the possible designation of a waterway are expressed to the Ohio Scenic Rivers Program. Designation studies



*Raccoon Creek in August 2024*

incorporate extensive field investigations and data review with the assistance and input of numerous local organizations and individuals. The studies evaluate the natural attributes of a waterway, including water quality, depth of the riparian forest buffer, extent of human impact, biological diversity, presence of rare or endangered species, and other unique natural features that may be present within the river's corridor.

Upon designation of a waterway as Wild, Scenic, or Recreational river, 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, businesses, and property owners. Scenic river advisory councils advise ODNR on local issues, interests, and areas of concern related to the preservation of a designated river.

The designation of a waterway as Wild, Scenic, or Recreational is not a river restoration tool. It is a means for recognizing the unique characteristics of a stream and coordinating river preservation activities among state and local governments, organizations, and individuals. When combined with a limited statutory authority to review and approve publicly funded projects within 1,000 feet of designated rivers outside of municipal corporation limits, designation helps ensure that decisions and activities which may impact the waterway 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 know that the role of Ohio's Wild, Scenic, and Recreational River Law is to identify and protect those rivers and streams possessing natural characteristics of state significance. The Ohio Scenic Rivers Program seeks to identify and designate the few remaining river systems which have retained most of their natural characteristics and therefore possess uniquely important natural history values.

The purpose of this study of the Raccoon Creek watershed is to determine whether Raccoon Creek meets state Wild, Scenic, or Recreational river designation criteria. Additionally, this report represents a recommendation as to whether any of the Raccoon Creek watershed should be recognized as a component of the Ohio Scenic Rivers Program.

# Executive Summary

Raccoon Creek is an exceptionally beautiful riverine system flowing through Gallia, Meigs, and Vinton counties in southeast Ohio with an extensively forested watershed harboring diverse populations of flora and fauna. By the late 20th century, the creek and its watershed had suffered greatly from unregulated coal mining across the region.

Significant coal mining from the late 1800s through the 1970s was largely unregulated, resulting in acid mine drainage and sedimentation throughout the watershed. These environmental stressors degraded the chemical and physical water quality and severely impacted the stream's ability to sustain aquatic life. For many years, Raccoon Creek was considered by many to be "unrecoverable" from the negative impacts of unregulated, pre-law coal mining.

In the 1980s, a group of concerned citizens joined with national, state, and local agencies to seek funding and solutions to reclaim and restore the once nearly lifeless stream system. Because of their passion and commitment to restoring the creek, today the Raccoon Creek watershed supports the Ohio Environmental Protection Agency's (Ohio EPA) warmwater and exceptional warmwater aquatic life use designations. This enormous success story could not have been accomplished without decades of attention.

As described in this study, the Raccoon Creek watershed contains exceptional biological communities. A total of 109 rare species, including 45 endangered and threatened species, have been documented. The watershed supports 92 species of fish.

Raccoon Creek features excellent wooded stream corridors with a minimum depth of 300 feet for 45.2% of its reach and 61% is forested to a depth of 120 feet. The natural characteristics of the river can be enjoyed by outdoor recreational users across 57,000 acres of national, state, and public lands in the watershed.

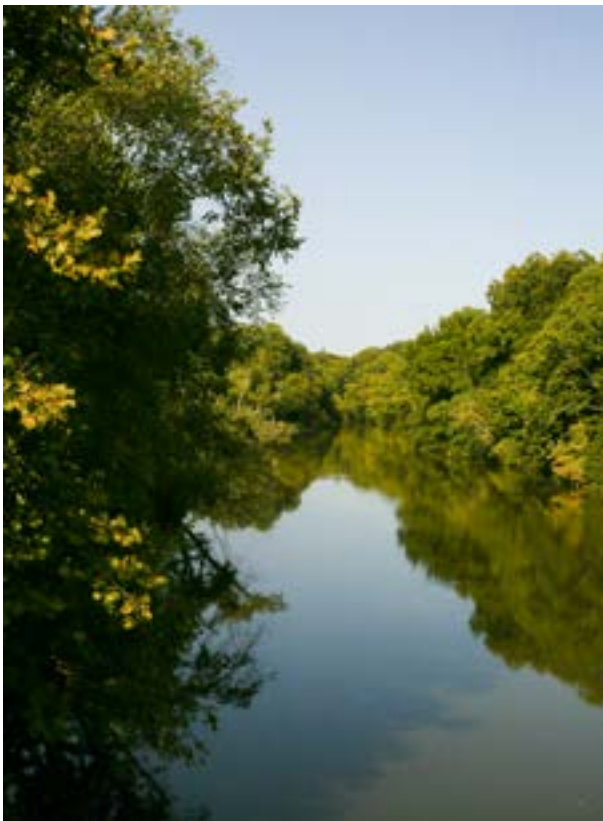
Ohio Scenic Rivers Program staff and local professional partners evaluated Raccoon Creek using Ohio's Wild, Scenic, and Recreational river designation criteria. It was found to meet or exceed the qualifications for scenic river designation under criteria 1, 2, 4, and 5. The details can be found on page 8.

Raccoon Creek does not initially meet Criteria 2 which requires that "roads are permissible within 300 feet of the river but may not comprise more than 25% of the Scenic River segment length." The Ohio Scenic Rivers Program is recommending an exception be made in this case because the waterway is located in the rugged terrain of Ohio's Appalachian Plateau region, which limits the siting and construction of roadways.

Criteria 6 requires 100% of the proposed Scenic River segment to equal or exceed Ohio EPA's warmwater or coldwater habitat aquatic life use designations. All but one small section of the upper 71.6 miles of the creek equals or meets warmwater designations.

According to the 2016 Ohio EPA Biological and Water Quality Study of the Raccoon Creek Watershed report, Raccoon Creek from river mile 111.9 downstream to the Vinton Dam at river mile 40.3 is in full attainment of Ohio EPA’s warmwater habitat water aquatic life use designation. The only exception is located at river mile 104.63 which is listed as “partial attainment” due to the sand bedload resulting from legacy surface disturbances from mining and logging.

The Ohio Scenic Rivers Program has determined that this location should not be a detriment to scenic river designation because the sections of Raccoon Creek immediately up and downstream of river mile 104.63 are meeting warmwater habitat and the length of the non-attaining section is very short. Further, from river mile 40.3 downstream to river mile 8.15, the river meets Ohio EPA’s exceptional warmwater habitat standards. Further downstream, river mile 8.15 to the mouth the creek meets the Ohio EPA’s warmwater habitat standards.



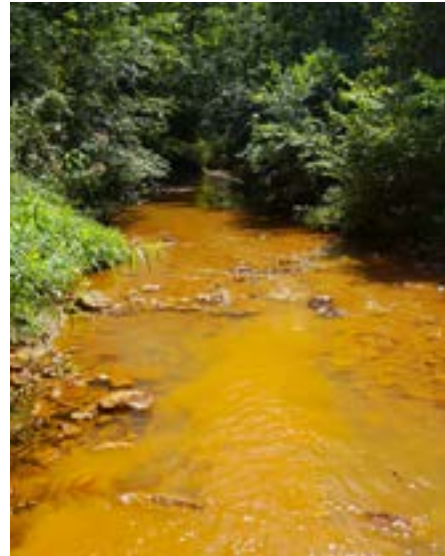
*Given that Raccoon Creek meets criteria 1, 3, 4, 5, and 6 and the recommended exception for criteria 2 given the waterway’s geographical location, Raccoon Creek is recommended for designation as follows:*

**A total of 111.9 miles of Raccoon Creek, from the confluence of the East Branch Raccoon Creek and the West Branch Raccoon Creek downstream to the Ohio River, is recommended for designation as an Ohio Scenic River.**

# Raccoon Creek's Road to Recovery

Historically, the Raccoon Creek watershed has suffered from long-term resource extraction. For many years, Raccoon Creek was considered “unrecoverable” due to unregulated, pre-law coal mining.

From the late 1800s through the 1970s, coal mining across the region was largely unregulated, resulting in acid mine drainage and sedimentation throughout the watershed. Not only did these environmental stressors degrade the chemical and physical water quality of Raccoon Creek, but they also severely impacted the stream's ability to sustain aquatic life.



*A stream showing the impacts of acid mine drainage in southeastern Ohio.*

In the 1980s a group of concerned citizens, who cared deeply about the watershed, worked together to obtain support from public agencies and local partners. A true grassroots movement, the Raccoon Creek Improvement Committee was born; it later became the Raccoon Creek Partnership in 2007.

Based in Athens, this non-profit watershed group has been integral to the recovery of Raccoon Creek. Its seven-member volunteer board of directors, along with two Appalachian Ohio Restore Corps (AmeriCorps) members conduct watershed outreach and education events in and around the watershed. Together, they continue to educate the public about the importance of healthy watersheds and promote important ecological concepts for water quality and stream restoration.

Over the years the Raccoon Creek Partnership has worked with countless partners, ranging from private landowners and concerned citizens to county, state, and federal agency partners. The following public organizations have led the way by providing funding, project coordination, and monitoring efforts:

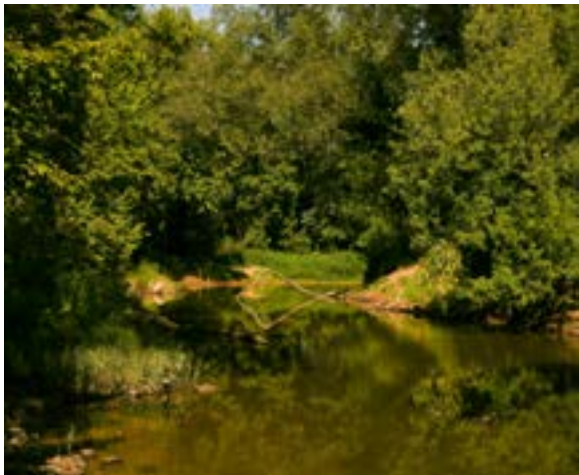
- ODNR, Division of Mineral Resources Management
- Ohio EPA, Office of Surface Mining
- Ohio University, Voinovich School of Leadership and Public Service

Public partners have secured approximately \$17 million in grant funding resulting in the successful completion of 22 restoration projects in the Raccoon Creek watershed. Projects included active treatment (calcium oxide doser), passive treatment (wetlands, limestone channels, steel slag and limestone leach beds, and successive alkaline producing systems), standard reclamation/source control, and the removal of a lowhead dam. Combined, these projects greatly improved Raccoon Creek's water quality and habitat. The 21st century Raccoon Creek is a thriving, healthy biological community.

Project success and water quality improvements are determined by conducting chemical and biological monitoring throughout the basin. Regular and consistent monitoring is necessary to determine project effectiveness, maintenance needs, and long-term water quality trends over time.

Chemical and biological monitoring conducted by a variety of partners has shown consistent improvement since watershed remediation efforts began in the 1980s. The 22 completed restoration projects in the watershed have drastically reduced the acid and metal loads entering Raccoon Creek and its tributaries from abandoned underground and surface mines. The 158 sampled stream miles within the watershed now meet healthy pH targets of 6.5.

As chemical water quality parameters improved, biological communities in Raccoon Creek have rebounded. When restoration efforts began, there were only 24 species of fish documented in the entire watershed. Currently, Raccoon Creek is home to more than 90 species of fish, including the state-threatened paddlefish. For more details, see page 15.



On August 18, 2022, the Ohio EPA officially approved upgraded aquatic life uses for much of Raccoon Creek. The headwaters of Raccoon Creek (from river mile 95.52-111.0), previously designated Limited Resource Water, the lowest degree of biological integrity, is now recommended and meeting Warmwater habitat (WWH) standards.

Raccoon Creek from the lowhead dam in Vinton (river mile 40.3) to the backwaters of the Ohio River (river mile 8.15) is now recommended and meets Exceptional Warmwater Habitat (EWH) standards. Ohio EPA's EWH designation is

reserved for waters with rare and unusual species, high biodiversity, and exceptional chemical and physical water quality. The remaining portions of Raccoon Creek from river mile 95.52 downstream to river mile 40.3 and from river mile 8.15 to the confluence with the Ohio River are also designated and attaining WWH standards.

After many decades of being one of the most impaired watersheds in Ohio from acid mine drainage, it is exciting to share Raccoon Creek's recovery story. There are many individuals and agencies that provided grant funding, technical expertise, and project management to ensure that this river system recovered. It is a testament to those efforts that the Division of Natural Areas and Preserves' Ohio Scenic Rivers Program can recommend the designation of the mainstem of Raccoon Creek as Ohio's first state scenic river in southeast Ohio. The Raccoon Creek watershed will remain a model for restoring other similarly impacted waterways.

An interactive map of Raccoon Creek can be found at <https://storymaps.arcgis.com/stories/laeac27887547c8ab256bd68362649c>. The story map highlights projects, wildlife, monitoring, public land, and historical sites in the Raccoon Creek watershed.

*Pictured above: A section of Raccoon Creek in Gallia County.*

# Criteria and Findings for Raccoon Creek

## Wild River Designation Criteria

**Criteria 1:** The proposed Wild River segment must be 100% free flowing, existing, or flowing in a natural channel condition without impoundments, diversions, straightening, or other modifications of the river channel.

*Finding:* Does not meet Criteria 1. The Vinton Dam, located at river mile 40.3, impounds approximately 4.89 river miles or 4.36% of the entire creek's 111.9 river miles proposed for designation. Raccoon Creek is only 95.72% free flowing.

**Criteria 2:** Roads are permissible within 300 feet of the river but may not comprise more than 10% of the length 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.

*Finding:* Does not meet Criteria 2. Roads along the total segment evaluated for possible Wild River designation comprise 37.5% of its total length. There are four limited access highway crossings and the average bridge crossings are greater than two bridges per 5 miles. Additionally, from river mile 0.0 to 31.5, there is an average of three homes per mile and from river mile 31.5 to 111.9, an average of one home per mile (Omane 2022).

**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:* Does not meet Criteria 3. The evaluation of Raccoon Creek for possible Wild River designation did not identify a continuous 15-mile segment which meets Wild River 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% of the river's watershed may be covered with impervious surfaces upstream of the Wild River segment.

*Finding:* Does not meet Criteria 4. There are only a few segments of the stream corridor with commercial buildings located within 300 feet of the creek. More than 5% of Raccoon Creek's adjacent and upstream watershed is impervious surfaces, according to the Ohio EPA in 2016. This study shows that 6.8% of Raccoon Creek's watershed is developed.

**Criteria 5:** The area adjacent to at least 75% 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% of the remaining corridor shall be in native forest or wetland outward from the river to a depth of 120 feet or greater.

*Finding:* Does not meet Criteria 5. Approximately 45.2% of the shoreline is in native forest and/or wetland condition within at least 300 feet of the proposed Wild River segment.

**Criteria 6:** The entire Wild River segment must equal or exceed the Ohio EPA’s Exceptional Warmwater Habitat (EWH) or Coldwater Habitat (CWH) standards unless natural conditions (i.e. gradient or flow) within the river segment limit the stream’s ability to attain such use designation. However, the stream segment must be performing to its highest potential related 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 approved by the Ohio EPA.

*Finding:* Partially meets Criteria 6. According to the Ohio EPA in 2016, Raccoon Creek from river mile 40.3 to 8.15 meets EWH. From river mile 111.9 to 40.3, the creek meets WWH. It is believed that the lack of attainment of EWH from river mile 40.3 at the Vinton Dam upstream may be due, in part, to the dam impeding upstream migration of fish species.

The findings in this designation study show that the proposed State Wild Designation does not meet all the criteria for State Wild River Designation.

### **Scenic River Designation Criteria**

**Criteria 1:** The proposed Scenic River segment must be 75% free flowing, 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 the majority of its length. Where impacts have occurred, the river channel shall have been restored to a point of being capable of supporting a WWH or CWH community.

*Finding:* Meets Criteria 1. Raccoon Creek is 95.72% free flowing. The only fully functioning dam on Raccoon Creek is the Vinton Dam located at river mile 40.3. It impounds approximately 4.89 river miles or 4.36% of the 111.9 river miles considered for designation. However, the dam appears to prevent upstream sections of Raccoon Creek from attaining EWH designation. There are remnants of another lowhead dam, the Northup Dam, at river mile 10.3, but this lowhead dam does not appear to be functional, nor does it appear to impede flow or fish passage.

The Ohio EPA lists Raccoon Creek as attaining EWH from the Vinton Dam downstream through the section containing remnants of the Northup Dam to river mile 8.15. In the Cora Mill section of the river, there may have once been a lowhead dam, but a natural rock shelf appears to be the only impediment to flow at this location. There is also a low water crossing at river mile 98.0 on Township Highway F3 (Will Tract Road). This crossing is a series of culverts and does not appear to impound water. The culverts may impede flow, however, to determine if they are impacting the stream, a hydrologic study would need to be completed, which was not in the scope of this study. It appears that none of the other lowhead dams mentioned in historic documents still exist.

**Criteria 2:** Roads are permissible within 300 feet of the river but may not comprise more than 25% of the Scenic River segment length. Exceptions may be necessary in Ohio’s Appalachian Plateau region due to the rugged terrain. In this region, highways are often located within river

corridors to access flat terrain conducive to highway construction. The segment proposed for designation must still meet criteria, 1,3,4, and 6 to qualify for designation.

*Finding:* Does not meet Criteria 2. The roads within 300 feet of the Scenic River segment are 37.5% (Omame 2022) of the proposed Scenic River segment length. However, due to Raccoon Creek being located within the Appalachian Plateau region, the Division of Natural Areas and Preserves recommends that an exception to Criteria 2 be made in this case.

**Criteria 3:** For maximum benefit, the total length of the designated section of the Scenic River segment may not be less than 20 continuous miles unless connected with segments bearing other designations.

*Finding:* Meets Criteria 3. The total length of Raccoon Creek proposed for Scenic River designation is 111.9 river miles.

**Criteria 4:** Some commercial, industrial, and other types of development may occur within 300 feet of the river. However, this development may not be so dense that it negatively impacts the habitat and quality of the stream and its floodplain. No more than 10% 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% impervious cover and is contained within an urbanizing area, then that river segment may not be considered for designation.

*Finding:* Meets Criteria 4. Some commercial buildings occur within 300 feet of the proposed Scenic River segment, but most of the development is residential. According to Omame in 2022, there are 179 homes within 300 feet of the creek. The first 31.5 river miles have the most with an average of three homes per mile, but the average is only one home per mile from river mile 31.5 to 111.9. Less than 10% of Raccoon Creek's adjacent and upstream watershed has impervious surfaces, according to Ohio EPA's 2016 study which cited that 6.8% of the watershed is developed.

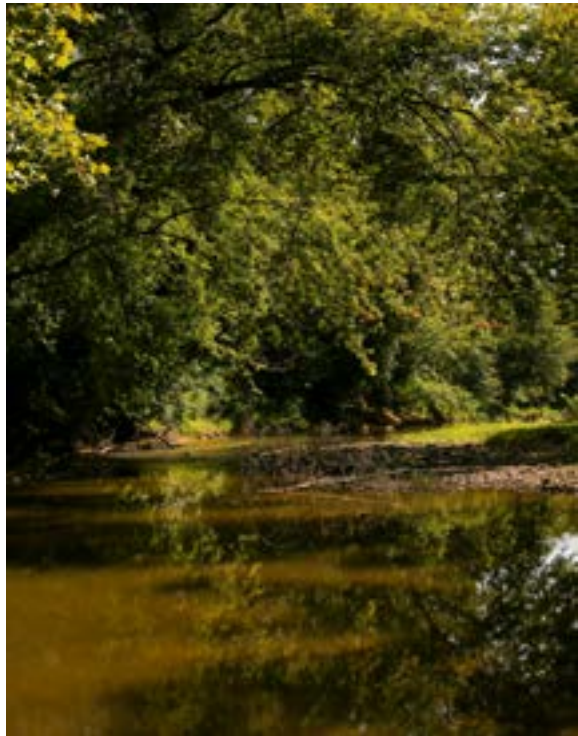
**Criteria 5:** The area adjacent to at least 25% of the stream length, considering both banks, shall be in native forest or wetland outward from the river to a depth of 300 feet or greater. In addition, 50% of the remaining corridor shall be in native forest or wetland outward from the river to a depth of 120 feet or greater. Some exceptions may be necessary in Ohio's Appalachian Plateau region due to the need to locate highways, infrastructure, and farming activities closer to the river to make use of available flat terrain. Riparian corridor habitat will still be evaluated as part of the designation study. The segment proposed for designation must still meet criteria 1,3,4, and 6 to qualify for designation.

*Finding:* Meets Criteria 5. Approximately 45.2% of the shoreline is in a natural condition within at least 300 feet of Raccoon Creek and 61% of the corridor is in native forest or wetland outward from the river to a depth of 120 feet or greater (Omame 2022).

**Criteria 6:** The entire Scenic River segment must equal or exceed the Ohio EPA’s warmwater or coldwater habitat aquatic life use designations unless natural conditions, such as gradient or flow, within the river segment limit the stream’s ability to attain such use designation. However, the stream segment must be performing to its highest potential related 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 plant must be developed to meet the criteria, which must be approved by the Ohio EPA.

*Finding:* Partially meets Criteria 6. According to the Ohio EPA’s 2016 study, the proposed 111.9-mile Scenic River segment is in attainment of both the WWH and EWH aquatic life use designations. The agency reported that river mile 111.9 downstream to the Vinton Dam at river mile 40.3 meets WWH. From river mile 40.3 downstream to river mile 8.15 meets EWH. From river mile 8.15 to the mouth of Raccoon Creek at the Ohio River, the river meets WWH. Ohio EPA reported that one location at river mile 104.63 (Mitchell Hollow Road and State Route 328) is in partial attainment of WWH due to sand bedload resulting from legacy surface disturbances of mining and logging.

# General Description of Raccoon Creek Watershed



*The Raccoon Creek watershed features deeply wooded stream corridors.*

The following chapter is a result of field observations taken by Ohio Scenic Rivers Program staff and cooperating partners while on foot, from vehicles, or by paddling Raccoon Creek. Additional information was gathered by reviewing the U.S. Geological Survey's 7.5-minute series of topographical maps and 2017 aerial photography surveys. River miles are derived from Ohio EPA river mile maps beginning at the mouth of Raccoon Creek (river mile 0.0) and measuring upstream.

Raccoon Creek is geographically located, starting at the headwaters moving downstream, in Vinton, Meigs, and Gallia counties flowing in a southerly direction into the Ohio River. The Raccoon Creek watershed extends through six counties and covers 683.5 square miles. It has an average gradient of 5.08 feet per mile, dropping in elevation from 1,100 to 520 feet above sea level (Ohio EPA, 2016). The creek's principal tributaries running from north to south are West Branch Raccoon Creek, East Branch Raccoon

Creek, Brushy Creek, Hewett Fork, Grass Run, Elk Fork, Wolf Run, Pierce Run, Strongs Run, Little Raccoon Creek, Meadow Run, Dickason Run, Indian Creek, and Bullskin Creek.

The high sinuosity and low gradient of Raccoon Creek makes it conducive to holding woody debris which can create debris snags or log jams. These natural characteristics also provide excellent habitat for beavers and contribute to their ability to construct dams. The creek is difficult to paddle due to the substantial woody debris, beaver dams, and steep stream banks.

Active coal mining still occurs in the Raccoon Creek watershed. Currently there are 10 permitted coal mines encompassing 4,732.3 acres in Raccoon Creek. All mining activities are regulated by the ODNR, Division of Mineral Resources Management.

## **New Plymouth downstream to Bolins Mills (U.S. Route 50 and State Route 356)**

The Raccoon Creek mainstem begins at the confluence of the East Branch and West Branch of Raccoon Creek at river mile 111.9, located near New Plymouth in northern Vinton County. A significant portion of pre-law mining in the Raccoon Creek watershed occurred in this headwater section (East Branch, West Branch, and Hewett Fork); many of the completed reclamation and treatment projects are installed here.

The Carbondale doser, the only active treatment project in Raccoon Creek, is in the Hewett Fork sub-watershed and has successfully eliminated the acidity entering Raccoon Creek from Hewett Fork. Several steel slag leach beds and surface mine reclamation projects have been completed in Raccoon Creek's East and West branches, greatly reducing acidity and metal loads in the creek.

This section of the watershed is primarily forested with a very small portion impacted by agricultural activities and livestock. The headwaters of Raccoon Creek meanders through sections of Wayne National Forest, Waterloo Wildlife Area, Zaleski State Forest, Turkey Ridge Wildlife Area, and Lake Hope State Park. The Moonville and King tunnels are popular stops for tourists recreating on these public lands. Raccoon Creek Outfitters Canoe Livery operates near Bolins Mills and has become a destination for paddlers and anglers now that Raccoon Creek's water quality and biological community has been restored.



*The Carbondale doser.*

The Raccoon Creek mainstem from its origin at river mile 111.9 downstream to U.S. Route 50 at Bolins Mills (river mile 80.6) is considered free flowing. There is a low-water crossing in Zaleski State Forest, but fish can pass through via culverts. This section of Raccoon Creek meets WWH designation.

### **Bolins Mills (U.S. Route 50 and State Route 356)**

The section of Raccoon Creek from Bolins Mills (river mile 80.6) downstream to the lowhead dam in the village of Vinton (river mile 40.3) flows through forested sections of southern Vinton County, northwestern Meigs County, and northern Gallia County. It fully meets WWH designation. Major tributaries in this reach of the creek include Pierce Run and Elk Fork. Much of Elk Fork flows through Vinton Furnace Wildlife Area. There are also several historic covered bridges located on this section of Raccoon Creek.

### **Vinton Dam downstream to the Ohio River**

Raccoon Creek is a direct tributary to the Ohio River and enters it at river mile 705.3, just south and downstream of Gallipolis. This section of Raccoon Creek, from the lowhead dam in Vinton (river mile 40.3) to the confluence with the Ohio River, flows through forested and agricultural land in Gallia County. The lowhead dam in Vinton is a fish passage barrier that negatively impacts upstream habitat and reduces fish species diversity.

Raccoon Creek, from the dam at Vinton downstream to the Ohio River backwaters at river mile 8.15, fully meets EWH designation. This designation is reserved for water bodies with the presence of threatened or endangered species and high levels of biological integrity.



*Vinton Dam located at river mile 40.3.*

Little Raccoon Creek, the largest sub-watershed, enters Raccoon Creek at river mile 37.5. A significant portion of the pre-law coal mining in the Raccoon Creek watershed occurred in the Little Raccoon Creek drainage. Many of the completed reclamation and treatment projects installed here include a variety of passive treatment projects and surface mine reclamation sites that significantly reduced metals and acidity in Raccoon Creek.

Downstream of Little Raccoon Creek, the stream's gradient is low and flows through more agricultural lands than further upstream. Tycoon Lake and Raccoon Creek county parks are favorite recreation sites in this area of the watershed. Bob Evans Farms, the original home of Bob Evans, is located on Raccoon Creek near Rio Grande and is home to an especially popular fall festival.

Raccoon Creek from river mile 8.15 to the confluence with the Ohio River backwaters fully meets WWH designation.

Overall, Raccoon Creek possesses a high degree of natural character throughout the length of its corridor. Much of the watershed is forested with very limited development and impervious surfaces. Agriculture is also limited due to the extreme topography of the Appalachian Plateau region. This provides an excellent opportunity to work with the Raccoon Creek Partnership and other local partners to further expand on their restoration efforts and enhance the long-term protection of Raccoon Creek.



*The native Ohio wildflower, cardinal flower, grows in abundance along the banks of Raccoon Creek in Gallia County.*

# Fish

The following 92 fish species have been documented in the Raccoon Creek watershed by the Ohio University, Voinovich School, ODNR Division of Mineral Resources Management, ODNR Division of Wildlife, Ohio EPA, U.S. Fish and Wildlife Service, and Brian Zimmerman from The Ohio State University, Voinovich School of Leadership and Public Service. [Boucher (2024), Capuzzi (2024), ODNR (2024), Ohio EPA (2016), Ohio EPA (2024), The Ohio State University (2024), Ohio University (2024), Peters (2024), and Zimmerman (2024)]

## Lamprey: Family Petromyzontidae

*Ichthyomyzon bdellium* (Ohio lamprey)  
*Ichthyomyzon unicuspis* (silver lamprey)  
*Lampetra aepyptera* (least brook lamprey)

## Paddlefish: Family Polyodontidae

*Polyodon spathula* (paddlefish)

## Gar: Family Lepisosteidae

*Lepisosteus osseus* (longnose gar)

## Bowfin: Family Amiidae

*Amia calva* (bowfin)

## Shad: Family Clupeidae

*Alosa chrysochloris* (skipjack herring)  
*Dorosoma cepedianum* (gizzard shad)

## Pike: Family Esocidae

*Esox americanus vermiculatus* (grass pickerel)

## Mooneye: Family Hiodontidae

*Hiodon tergisus* (mooneye)

## Minnow: Family Leuciscidae

*Campostoma anomalum* (central stoneroller)  
*Chrosomus erythrogaster* (southern redbelly dace)  
*Clinostomus elongatus* (redside dace)  
*Cyprinella spiloptera* (spotfin shiner)  
*Hybopsis amblops* (bigeye chub)  
*Luxilus chrysocephalus* (striped shiner)



Fish sampling conducted by Ohio University.

## Minnow: Family Leuciscidae continued

*Lythrurus umbratilis* (redfin shiner)  
*Macrhybopsis storeriana* (silver chub)  
*Notemigonus crysoleucas* (golden shiner)  
*Notropis atherinoides* (emerald shiner)  
*Notropis buccatus* (Silverjaw minnow)  
*Notropis stramineus* (sand shiner)  
*Notropis photogenis* (silver shiner)  
*Notropis rubellus* (rosyface shiner)  
*Notropis blennius* (river shiner)  
*Notropis wickliffi* (channel shiner)  
*Paranotropis buchani* formerly *Notropis buchani* (ghost shiner)  
*Phenacobius mirabilis* (suckermouth minnow)  
*Pimephales notatus* (bluntnose minnow)  
*Pimephales promelas* (fathead minnow)  
*Pimephales vigilax* (bullhead minnow)  
*Rhinichthys obtusus* (western blacknose dace)  
*Semotilus atromaculatus* (creek chub)

## Family Cyprinidae

*Carassius auratus* (goldfish)  
*Cyprinus carpio* (common carp)

## Family Xenocyprinidae

*Ctenopharyngodon idella* (grass carp)  
*Hypophthalmichthys molitrix* (silver carp)  
*Hypophthalmichthys nobilis* (bighead carp)

### True Bass: Family Moronidae

*Morone chrysops* (white bass)

*Morone saxatilis* (striped bass)

### Sucker: Family Catostomidae

*Catostomus commersoni* (white sucker)

*Carpionodes carpio* (river carpsucker)

*Carpionodes cyprinus* (quillback carpsucker)

*Ictiobus bubalus* (smallmouth buffalo)

*Ictiobus niger* (black buffalo)

*Ictiobus cyprinellus* (bigmouth buffalo)

*Hypentelium nigricans* (northern hog sucker)

*Minytrema melanops* (spotted sucker)

*Moxostoma anisurum* (silver redhorse)

*Moxostoma carinatum* (river redhorse)

*Moxostoma breviceps* (smallmouth redhorse)

*Moxostoma duquesnei* (black redhorse)

*Moxostoma erythrurum* (golden redhorse)

### Catfish: Family Ictaluridae

*Ameiurus melas* (black bullhead)

*Ameiurus natalis* (yellow bullhead)

*Ameiurus nebulosus* (brown bullhead)

*Ictalurus furcatus* (blue catfish)

*Ictalurus punctatus* (channel catfish)

*Pylodictis olivaris* (flathead catfish)

*Noturus gyrinus* (tadpole madtop)\*



Amy Mackey from the Ohio University with paddlefish specimen taken from Raccoon Creek in 2023.

### Sunfish: Family Centrarchidae

*Ambloplites rupestris* (rockbass)

*Lepomis cyanellus* (green sunfish)

*Lepomis gibbosus* (pumpkinseed sunfish)

*Lepomis gulosus* (warmouth sunfish)

*Lepomis humilis* (orangespotted sunfish)

*Lepomis macrochirus* (bluegill sunfish)

*Lepomis megalotis megalotis* (central longear sunfish)

*Lepomis microlophus* (redeer sunfish)

### Sunfish: Family Centrarchidae continued

*Micropterus dolomieu* (smallmouth bass)

*Micropterus punctulatus* (spotted bass)

*Micropterus salmoides* (largemouth bass)

*Pomoxis annularis* (white crappie)

*Pomoxis nigromaculatus* (black crappie)

### Perch: Family Percidae

*Ammocrypta pellucida* (eastern sand darter)

*Etheostoma blenniodes* (greenside darter)

*Etheostoma caeruleum* (rainbow darter)

*Etheostoma flabellare* (fantail darter)

*Etheostoma nigrum* (johnny darter)

*Etheostoma variatum* (variegated darter)\*

*Etheostoma zonale* (banded darter)

*Percina caprodes* (logperch garter)

*Percina maculata* (blackside darter)

*Percina sciera* (dusky darter)

*Percina phoxocephala* (slenderhead darter)

*Perca flavescens* (yellow perch)

*Sander canadensis* (sauger)

*Sander vitreus* (walleye)

### Drum: Family Sciaenidae

*Aplodinotus grunniens* (freshwater drum)

### Livebearer: Family Poeciliidae

*Gambusia affinis* (western mosquito fish)

### Killifish: Family Fundulidae

*Fundulus diaphanous diaphanous* (eastern banded killifish)

### Silverside: Family Atherinidae

*Labidesthes sicculus* (brook silverside)

### Trout-Perch: Family Percopsidae

*Percopsis omiscomaycus* (trout-perch)\*

\*Historical data, no recent observation

# Rare and Endangered Species

Within the Raccoon Creek watershed, ODNR has classified the following 101 species as endangered, threatened, potentially threatened, species of concern, or presumed extirpated as of 2024.

Plants are listed under the authority of the Division of Natural Areas and Preserves with advice from the Ohio Rare Plants Advisory Committee pursuant to Ohio Revised Code (ORC), Section 1518. Species other than plants are listed under the authority of the ODNR, Division of Wildlife pursuant to ORC, Section 1531.25.

Additionally, Ohio EPA lists eight fish species found in the Raccoon Creek watershed as declining under Ohio EPA Antidegradation Rule Ohio Administrative Code, Section 3745-1-05.

The Division of Natural Areas and Preserves also lists 16 plant species on its "watch list" of potentially declining species. Additionally, the division's Ohio Natural Heritage Database has records for 15 significant ecological or natural features located in the Raccoon Creek watershed.



Soapwort gentian

## STATUS: ENDANGERED

### Amphibians

*Scaphiopus holbrookii* (eastern spadefoot)

### Fish

*Ichthyomyzon bdellium* (Ohio lamprey)

### Lichen

*Parmotrema xanthinum* (a ruffle lichen)

*Ramalina farinacea* (dotted ramalina)

### Mammals

*Myotis sodalists* (Indiana bat) \*

\*species listed as federally endangered

### Moss

*Amphidium mougeotii* (Mougeot's ice moss)

*Cyrtomnium hymenophylloides* (curvey-capsuled thin-leaved moss)

*Fissidens hyalinus* (filmy fissidens)

*Ptilium crista-castrensis* (Knight's plume moss)

### Odonate

*Helocordulia uhleri* (Uhler's sundragon)

### Reptiles

*Crotalus horridus* (timber rattlesnake)

### Vascular Plants

*Agastache scrophulariifolia* (purple giant hyssop)

*Asplenium bradleyi* (Bradley's spleenwort)

### Vascular Plants *continued*

*Croton michauxii* var. *elliptica* (Willdenow's croton)  
*Cyperus refractus* (reflexed umbrella-sedge)  
*Eleocharis engelmannii* (Engelmann's spike-rush)  
*Gentiana Saponaria* (soapwort gentian)  
*Gratiola virginiana* (round-fruited hedge-hyssop)  
*Helianthus mollis* (ashy sunflower)  
*Lechea minor* (thyme-leaved pinweed)  
*Potamogeton pulcher* (spotted pondweed)  
*Viola primulifolia* (primrose-leaved violet)



Barn owl

### STATUS: Threatened

#### Amphibians

*Pseudotriton montanus diastictus* (Midland mud salamander)

#### Birds

*Tyto alba* (barn owl)

#### Fish

*Polyodon spathula* (paddlefish)

#### Lichen

*Dibaeis absoluta* (pink dot lichen)  
*Ramalina pollinaria* (chalky ramalina)

#### Moss

*Campylostelium saxicola* (rock-loving swan-necked moss)  
*Dichelyma capillaceum* (awned dichelyma moss)

#### Vascular Plants

*Astragalus canadensis* (Canada Milk-vetch)  
*Calamagrostis porteri* ssp. *Insperata* (Bartley's reed grass)  
*Carex complanata* (flattened sedge)  
*Carex crinita* var. *brevicrinis* (short-fringed sedge)  
*Carex louisianica* (Louisiana sedge)  
*Cirsium carolinianum* (Carolina thistle)  
*Fleischmannia incarnata* (pink thoroughwort)  
*Krigia dandelion* (potato-dandelion)  
*Lactuca hirsute* (hairy tall lettuce)  
*Phyllanthus caroliniensis* (Carolina leaf-flower)  
*Quercus falcata* (southern red oak)  
*Scutellaria saxatilis* (rock skullcap)  
*Triadenum tubulosum* (large marsh St. John's-wort)  
*Triadenum walteri* (Walter's St. John's-wort)  
*Viola tripartita* var. *glaberrima* (wedge-leaved violet)

### STATUS: Potentially Threatened

#### Vascular Plants

*Anagallis minima* (chaffweed)  
*Asclepias amplexicaulis* (blunt-leaved milkweed)  
*Asclepias variegata* (white milkweed)  
*Baptisia lacteal* (prairie false indigo)  
*Carex bushii* (Bush's sedge)  
*Carex straminea* (straw sedge)  
*Chionanthus virginicus* (fringe-tree)  
*Clitoria mariana* (Butterfly-pea)  
*Crataegus uniflora* (dwarf hawthorn)  
*Cystopteris tennesseensis* (Tennessee bladder fern)  
*Dichanthelium yadkinense* (spotted panic grass)  
*Eryngium yuccifolium* (rattlesnake-master)

*Gratiola viscidula* (short's hedge-hyssop)  
*Juncus secundus* (one-sided rush)  
*Magnolia tripetala* (umbrella magnolia)  
*Opuntia cespitosa* (common prickly pear)  
*Penstemon pallidus* (downy white beard-tongue)  
*Phaseolus polystachios* (wild kidney bean)  
*Potamogeton tennesseensis* (Tennessee pondweed)  
*Pycnanthemum pilosum* (hairy mountain-mint)  
*Quercus marilandica* (blackjack oak)  
*Rhexia virginica* (Virginia meadow-beauty)  
*Taxus canadensis* (Canada yew)  
*Trifolium stoloniferum* (running buffalo clover)

## STATUS: Species of Concern

### Amphibian

*Acris blanchardi* (Blanchard's cricket frog)

### Bird

*Accipiter striatus* (sharp-shinned hawk)

*Hemidactylium scutatum* (four-toed salamander)

*Setophaga cerulea* (cerulean warbler)

### Mammal

*Peromyscus maniculatus* (deer mouse)

*Sorex hoyi* (pygmy shrew)

### Mollusc

*Truncilla truncata* (deertoe)

### Odonate

*Ischnura kellicotti* (lilypad forktail)

*Ladona deplanata* (blue corporal)

### Reptile

*Opheodrys aestivus* (northern rough greensnake)

*Scincella lateralis* (little brown skink)

*Terrapene carolina carolina* (woodland box turtle)

*Virginia valeriae* (eastern smooth earthsnake)

## STATUS: Declining

The Ohio Environmental Protection Agency has additionally listed the following fish species, which are currently found in the Raccoon Creek watershed, as in decline.

### Family Petromyzontidae

*Ichthyomyzon unicuspis* (silver lamprey)

*Lampetra aepyptera* (least brook lamprey)

### Family Leuciscidae

*Chrosomus erythrogaster* (southern redbelly dace)

*Clinostomus elongatus* (redside dace)

*Hybopsis amblops* (bigeye chub)

*Notropis rubellus* (rosyface shiner)

## STATUS: Presumed Extirpated in Ohio

### Lichen

*Sticta beauvoisii* (fringed moon lichen)

### Vascular Plant

*Calycanthus floridus* (sweet-shrub)

*Lyonia ligustrina* (male-berry)

## STATUS: Special Interest

There are no records for species of special interest in the Raccoon Creek watershed.



*Four-toed salamander with eggs.*

## **STATUS: Plant Species on Watch List**

The Division of Natural Areas and Preserves has also identified the following vascular plant species, which are found in the Raccoon Creek watershed, as being listed on its watch list for possible future inclusion on Ohio's rare plant list.

*Bromus nottowayanus* (satin brome)  
*Carex planispicata* (flat-spiked sedge)  
*Carex retroflexa* (reflexed sedge)  
*Castanea dentata* (American chestnut)  
*Cuscuta pentagona* (five-angled dodder)  
*Cypripedium parviflorum* var. *pubescens* (large yellow lady's-slipper)  
*Desmodium pauciflorum* (few-flowered tick-trefoil)  
*Juglans cinerea* (butternut)  
*Malaxis unifolia* (green adder's-mouth)  
*Platanthera clavellata* (green woodland orchid)  
*Platanthera flava* var. *herbiola* (tuberclad rein orchid)  
*Schoenoplectus purshianus* (pursh's bulrush)  
*Scutellaria integrifolia* (hyssop skullcap)  
*Vitis cinerea* (pigeon grape)  
*Vitis labrusca* (northern fox grape)  
*Woodwardia virginica* (Virginia chain-fern)

## **Other Outstanding Natural Features**

Ohio's Natural Heritage Database includes records of unique and outstanding natural characteristics found in the Raccoon Creek watershed. Specific records inventory the best remaining examples of Ohio's pre-settlement ecosystems including animal breeding assemblages, outstanding geologic features, and sites with specialized plant communities.

**Animal assemblage:** Breeding amphibian site and great blue heron rookery.

**Geological features:** Natural bridge or arch and pedestal rock.

**High-quality plant communities:** Appalachian oak forest, buttonbush shrub swamp, hemlock-hardwood forest, mixed emergent marsh, mixed mesophytic forest, mixed shrub swamp, oak-hickory forest, oak-pine forest, river birch-maple floodplain forest, submergent marsh, and submergent riverine community.

# Public Lands of Raccoon Creek



*View of Vinton County's forested lands.*

Located in the rugged and scenic Appalachian region of Ohio, Raccoon Creek offers more than 57,187 acres of public land in the watershed. Public lands provide the public with access to a wide range of outdoor pursuits such as hiking, biking, wildlife observation, hunting, fishing, trapping, camping, and boating.

Not only do these lands, managed by federal, state, and local entities, offer amazing outdoor recreation, but they also enhance the water quality of Raccoon Creek. Protected acreage

limits development but because they often remain in a natural state, they also protect habitat diversity which benefits the river corridor.

## **U.S. Forest Service**

**Wayne National Forest:** The land nestled in the foothills of the Appalachian Mountains spanning 12 counties was purchased by the federal agency in 1934. It covers 180,000 acres of southeast Ohio. About 7,270 acres of the forest falls within the Raccoon Creek watershed. Prior to federal ownership, the land was primarily used for coal and iron mining. This national forest attracts a wide range of in-state and out-of-state visitors to pursue various outdoor activities including hunting, fishing, camping, canoeing, hiking, biking, horseback riding, and off-road vehicle riding.

## **ODNR Division of Forestry**

**Zaleski State Forest:** At 27,822 acres, Zaleski State Forest is the second largest state forest in Ohio. Additionally, Zaleski State Forest staff operate the only state-owned sawmill in the Buckeye state. The mill produces rough sawn lumber for use by ODNR and other government agencies. The historic Moonville Tunnel is located within Zaleski State Forest on the Moonville Rail Trail right-of-way, which crosses over Raccoon Creek.

**Vinton Furnace State Forest:** The high-quality 12,089-acre Vinton Furnace State Forest is home to a range of rare and endangered species including bobcat, timber rattlesnake, cerulean warbler, and several rare plant species. It is one of the most biologically diverse ecosystems in the U.S. and has been the subject of over 50 years of ongoing forest research. The forest has been cited in numerous scholarly papers on forest ecology, forest management, and wildlife. The site is also home to research dedicated to restoring oak trees to Ohio's forests. Since 1952, Vinton Furnace State Forest land has been dedicated to forest use and sustainability research— an agreement formalized in 1965 between previous landowner Mead Corporation and the U.S. Forest Service.

## **ODNR Division of Parks and Watercraft**

**Lake Hope State Park:** Lake Hope State Park offers a truly relaxing, yet rustic getaway amidst the beauty of the Appalachian region. The entire 2,983-acre park lies within Zaleski State Forest in the valley of Big Sandy Run, a tributary of Raccoon Creek. The park's heavily forested region is marked by steep gorges and narrow ridges and features remnants of abandoned mining and iron-producing industries, such as the Hope Furnace. The park surrounds the lake and boasts a family campground, family cabins, lake access for swimming, fishing, and paddling, and a modern day-use lodge.



*Lake Hope State Park*

**Lake Alma State Park:** Surrounded by southeast Ohio's scenery, the 292-acre Lake Alma State Park boasts a quiet 60-acre lake with a gentle creek meandering through a wooded valley. Located in Jackson and Vinton counties, this family-friendly park offers a peaceful setting with a modern family campground, walking trails, paddling access, and other outdoor facilities.

## **ODNR Division of Wildlife**

**Wellston Wildlife Area:** Located north of Hamden along Lake Rupert in Vinton County, Wellston Wildlife Area totals 1,446 acres of public access. Wellston offers a plethora of outdoor opportunities from fishing and boating on the 325-acre Lake Rupert to hunting, hiking, or birdwatching in the surrounding woodlands.

**Tycoon Lake Wildlife Area:** Just northeast of Rio Grande lies Tycoon Lake Wildlife Area. The 684-acre site consists of gently rolling to hilly terrain surrounding a 204-acre lake. In 1960 the lake was built by adding two earthen dams across an old channel of Raccoon Creek. With a diverse mixture of habitat types, Tycoon Lake provides harbors a vast number of different wildlife species. This area offers popular recreational amenities including a boat ramp and an accessible fishing pier for visitors of all abilities.



**Waterloo Wildlife Area:** The 421-acre Waterloo Wildlife Area (pictured above) is located 10 miles west of Athens along Hewett Fork, a tributary of Raccoon Creek. The site is heavily forested and provides high-quality turkey habitat. Several parking areas are distributed throughout Waterloo, offering access to 3 miles of gravel roads and 35 walking trails. It also features designated access roads for electric-powered all-purpose vehicles to motor vehicle use permit holders.

**Turkey Ridge Wildlife Area:** This Vinton County wildlife area offers 377 acres of public access in Brown Township. Connecting to Zaleski State Forest, the property is managed for woodland habitat. Turkey Ridge provides excellent hunting for rabbit, deer, turkey, grouse, and squirrel, as well as fishing access on Raccoon Creek.

### **County Park Land**

**Raccoon Creek County Park:** Located in Gallipolis, Raccoon Creek County Park offers 700 acres of both recreational facilities and natural areas for visitors to enjoy. The park is bordered by Raccoon Creek to the north and is adjacent to the historical Popular Knob, a unique rock formation that creates a hilly feature on the landscape, to the south.

# Stream Water Quality of Raccoon Creek

## Overview

Some of the most important factors influencing an Ohio Scenic River designation study include the water quality, stream habitat, and biological diversity of the candidate stream.



*Raccoon Creek Partnership canoe float.*

As noted earlier, the entire Scenic River segment must equal or exceed the Ohio EPA's WWH or CWH aquatic life use designation unless natural conditions create limitations. The Ohio EPA regularly surveys Ohio's lakes, rivers, and streams to determine the appropriate aquatic life use designation and to determine if a waterway meets the goals of the federal Clean Water Act. The Ohio EPA uses fish and aquatic insects, due to their sensitivity to pollution, and water chemistry to determine the aquatic health of Ohio's rivers and streams.

The following indices are used to evaluate the health of Ohio's water bodies using various parameters.

## Qualitative Habitat Evaluation Index (QHEI)

Physical conditions of a stream and its riparian area are measured by examining and assigning a numerical value to various physical attributes such as substrate type, stream channel condition, instream cover, geomorphology, and pool and riffle development.

## Index of Biologic Integrity (IBI)

The biological community performance is based on the presence of fish species including the total number of fish species and number of individual specimens, the presence of indicator species, and the condition of each species.

## Modified Index of Well being (MIWb)

The MIWb measures the mass and density of each fish species.

## Invertebrate Community Index (ICI)

Similar to IBI, the ICI measures the quantity and quality of a stream's macroinvertebrate community.

The following tables in this chapter are from the Ohio EPA's 2016 Ohio EPA Biological and Water Quality Study of the Raccoon Creek (commonly referred to as the Raccoon Creek Technical Support Document). They illustrate the biological performance of the fish and macroinvertebrate communities in the watershed.

**Table 1 - Fish community and descriptive statistics for Raccoon Creek**

<i>River Mile</i>	<i>Drainage Area</i>	<i>Total species</i>	<i>Mean Relative Number (No./km)*</i>	<i>Mean Relative Weight (Wt./km)*</i>	<i>Mean IBI</i>	<i>Mean MIwb</i>	<i>QHEI</i>	<i>Narrative<sup>b</sup></i>
<b>Raccoon Creek (09-500) Warmwater Habitat (WWH)</b>								
111.38 <sup>W</sup>	42.80	22	318.00	2.8	41	7.9 <sup>ns</sup>	61.8	marginally good
104.63	56.40	23	302.25	3.6	40	7.3*	65.1	fair
99.60 <sup>B</sup>	98.00	22	394.29	13.4	48	9.4	58.8	very good
98.34 <sup>W</sup>	100.00	25	400.50	4.6	48	8.2 <sup>ns</sup>	68.5	marginally good
89.98 <sup>W</sup>	136.00	26	512.25	8.4	48	8.6	87.5	good
89.36 <sup>B</sup>	176.00	25	732.50	10.9	46	9.8	86.0	very good
84.08 <sup>B</sup>	183.00	29	399.05	54.3	50	9.4	62.5	very good
80.6 <sup>B</sup>	200.00	28	400.00	20.5	51	8.8	61.8	good
72.22 <sup>B</sup>	223.00	23	863.33	25.1	50	9.6	79.5	exceptional
63.80 <sup>B</sup>	296.00	27	674.00	22.2	50	9.5	80.3	very good
55.48 <sup>B</sup>	322.00	26	265.5	6.5	49	8.6	70.4	good
<b>Raccoon Creek (09-500) Exceptional Warmwater Habitat (EWH)</b>								
40.01 <sup>B</sup>	381.00	34	565.45	70.8	58	10.4	81.8	excectional
35.61 <sup>B</sup>	542.00	36	567.00	48.7	51	9.9	76.8	exceptional
29.20 <sup>B</sup>	586.00	33	480.00	54.3	49	10.2	72.5	exceptional
22.00 <sup>B</sup>	615.00	36	535.00	32.7	50	10.3	80.5	exceptional
10.20 <sup>B</sup>	648.00	33	594.00	37.2	44 <sup>ns</sup>	9.9	78.3	very good
<b>KEY</b>								
<p><b>a:</b> relative abundance and relative weight estimates are normalized to 0.3km for headwaters and wading sites and to 1.0km for boat sites.</p> <p><b>b:</b> biological narratives</p> <p><b>W:</b> wading site (non-boat site draining areas &gt;20 mi.<sup>2</sup>)</p> <p><b>B:</b> boat site (large or deep waters necessitating the use of boat sampling methods)</p> <p><b>ns:</b> nonsignificant departure from the biocriteria (&lt;4 IBI units or &lt;0.5 MIwb units)</p> <p><b>*:</b> significant departure from the biocriteria (&gt;4 IBI units or &gt;0.5 MIwb units). Poor or very poor results are underlined.</p>								

**Table 2 - Ecoregional Criteria for Western Alleghany Plateau**

Ecoregional Criteria (ORC 3745-1-07, Table 7-1) Western Alleghany Plateau		
Index Site Type	EWH	WWH
IBI - Headwaters	50.0	44.0
IBI - Wading	50.0	44.0
MIwb - Wading	9.4	8.40
IBI - Boat	48.0	40.0
MIwb - Boat	9.60	8.6

**KEY for Table 3**

**a:** ICI values in parentheses are invalidated due to insufficient current speed over the artificial substrates or by disturbance. The station evaluation at these sites is based on the qualitative sample narrative evaluation.

**DA:** Drainage area

**Qual:** Qualitative sample collected from the natural substrates

**Quant:** Quantitative sample collected on Hester-Dendy artificial substrates, density is expressed in organisms per square foot

**Sensitive Taxa:** Taxa listed on the Ohio EPA Macroinvertebrate Taxa List as MI (moderately intolerant) or I (intolerant).

**Qualitative sample relative density:** L: low, M: moderate, H: high, CW: cold water

**Tolerance categories:** VT: very tolerant, T: tolerant, MT: moderately tolerant,

F: facultative, MI: moderately intolerant, I: intolerant

**Table 3 - Summary of macroinvertebrate data collected from artificial substrates (quantitative data) and natural substrates (qualitative data) in the Raccoon Creek Watershed, June to September 2016.**

Station	River mile	DA (mi <sup>2</sup> )	Qual taxa	EPT Taxa Qual/Total	Sensitive Taxa Qual/Total	Density Qual/Quant	CW Taxa	Predominant Organisms on natural substrates with tolerance categories	ICI <sup>a</sup>	Narrative evaluation
301747	111.38	43.6	29	11/15	9/11	80/L	0	none	50	-
301746	104.63	56.4	39	14/16	11/13	376/L	0	caddisflies (F, MI)	46	-
W03W32	99.60	95.8	53	22/22	16/16	11.3/M	0	caddisflies (F, MI)	40	-
W03W44	98.34	100.0	34	15/19	10/12	572/M	0	hydropsychid caddisflies (F)	42	-
W03W33	92.30	134.0	35	15	8	M	0	baetid mayflies (MI, F)	-	good
302520	89.98	136.0	46	18/20	15/16	98/L	0	caddisflies (F, MI)	(28)	good
302519	89.36	176.0	33	12	9	L-M	0	baetid mayflies (MI)	-	marginally good
W03W34	84.08	194.0	43	15/20	13/18	707/M	0	hydropsychid caddisflies (F)	38	-
W03G50	80.62	200.0	50	16/20	16/18	690/L-M	0	hydropsychid caddisflies (F)	40	-
W03P07	72.22	223.0	52	20/21	17/18	739/H	0	Isonychia mayflies (MI), caddisflies (MI, F)	38	-
W03W35	63.80	291.0	41	20/21	20/20	325/M-H	0	Isonychia mayflies (MI), caddisflies (F, MI)	40	-
W03P18	55.48	322.0	42	17/20	16/18	227/M	0	baetid mayflies (F)	40	-
W03S34	50.10	336.0	42	19/21	19/19	376/H	0	caddisflies (F, MI), baetid mayflies (F)	40	-
W03P05	40.10	381.0	57	19/21	20/23	1100	0	baetid mayflies (F), caddisflies (F, MI)	42	-
W03S44	35.61	543.0	43	22/22	18/19	987/M-H	1	Mayflies (MI, F), hydrophy- chid caddisflies (F, MI)	48	-
601400	29.20	586.0	47	23	23	H	0	Isonychia mayflies (MI), caddisflies (MI, F)	-	exceptional
303503	22.00	615.0	57	24	21	H	0	hydropsychid caddisflies (MI, F), mayflies (F, MI)	-	exceptional
W03S24	10.20	656.0	76	29/31	27/28	902/M-H	0	midges (F), hydrophy- chid caddisflies (F, MI), hepta- geniid mayflies (MI)	52	-



*Big Sandy Run, a tributary of Raccoon Creek.*

After evaluating water quality, stream habitat quality, macroinvertebrate and fish populations, these indices are used to determine the overall condition of a stream and apply the appropriate aquatic life use designation. The Ohio Scenic Rivers Program relies heavily on studies conducted by the Ohio EPA when evaluating rivers and streams for possible designation as Wild, Scenic, or Recreational rivers.

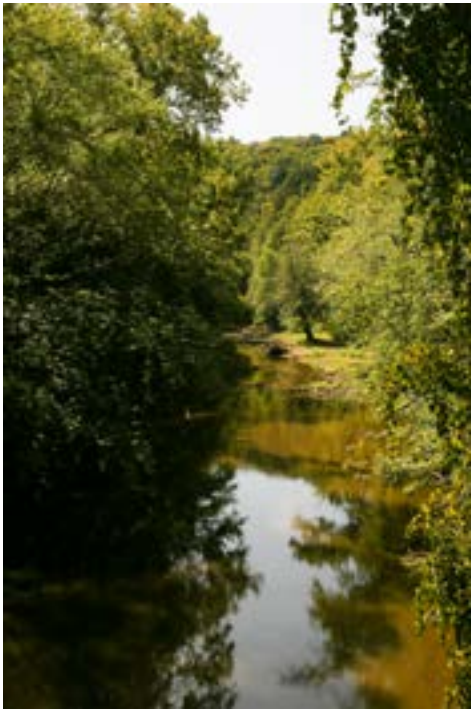
### **Aquatic Life and Recreation Use Designation**

Under Aquatic Life Habitat, the Ohio Administrative Code (OAC) 3745-1-07 (Beneficial Use designation and biological criteria) defines Limited Resource Water (LRW) as waters that have been the subject of a use attainability analysis and have been found to lack the potential for any resemblance of any aquatic life habitat as determined by the biological criteria of this rule. The use attainability analysis must demonstrate that the extant fauna is substantially degraded and that the potential for recovery of the fauna to the level characteristic of any other aquatic life habitat is realistically precluded due to natural background conditions or irretrievable human-induced conditions.

Other OAC definitions include:

**Warmwater Habitat (WWH)** is defined as waters capable of supporting and maintaining a balanced, integrated, adaptive community of warmwater aquatic organisms having a species composition, diversity, and functional organization comparable to the 25th percentile of the identified reference sites within each of the following ecoregions: the interior plateau ecoregion, the Erie/Ontario lake plains ecoregion, the western Allegheny plateau ecoregion, and the eastern corn belt plains ecoregion.

**Exceptional Warmwater Habitat (EWH)** is defined as waters capable of supporting and maintaining an exceptional or unusual community of warmwater aquatic organisms having a species composition, diversity, and functional organization comparable to the 75th percentile of the identified reference sites on a statewide basis.



View of Raccoon Creek in Gallia County.

For **Recreational Use**, the OAC defines primary contact as waters that, during the recreation season, are suitable for one or more full body contact recreation activities such as, but not limited to, wading, swimming, boating, water skiing, canoeing, kayaking, and scuba diving. All surface waters of the state are designated as primary contact recreation unless otherwise designated as bathing waters or secondary contact recreation.

For aquatic life use, Raccoon Creek is designated WWH from the headwaters (river mile 111.9) to the Vinton dam (river mile 40.3), EWH from the Vinton Dam (river mile 40.3) to the Ohio River backwaters (river mile 8.15), and WWH from river mile 8.15 downstream to the confluence with the Ohio River.

The section of Raccoon Creek, downstream from river mile 8.15 is commonly referred to as the Ohio River backwaters; in this section the flow of Raccoon Creek is impeded or backed up by the flow and ponding of the Ohio River. This impacts stream biology by creating a lake-like habitat which is not conducive to the existence of some sensitive species, such as certain fish species, which rely on stream current within their preferred habitats. Consequently, this may lower IBI and MIwb scores.

The confluence with the Ohio River, however, also provides opportunities for other big freshwater fish species, such as paddlefish, to migrate into the mouth of Raccoon Creek which may in turn increase biological diversity.

According to OAC 3745-1-16, Raccoon Creek is located in the Western Allegheny Plateau ecoregion. For recreational use, Raccoon Creek is designated as primary contact. Water quality conditions and attainment for aquatic life use is measured by collecting biological and chemical water samples as well as assessing physical stream habitat. Recreation use is measured by collecting bacteria indicators for *Escherichia coli* (E.coli). Combined, these measurements indicate a stream's ability to support and sustain healthy fish and insect communities, and ensures people can safely recreate within the waters.

### **Ohio's Stream Antidegradation Rules**

Ohio sets forth a standard ensuring waters of exceptional recreational or ecological value maintain their exceptional status through Antidegradation provisions in OAC 3745-1-05. Antidegradation rules classify certain Ohio streams as Superior High-quality Waters or Outstanding State Waters based on their exceptional ecological values. Based on a review of the tables listed in OAC 3745-1-05, no portion of Raccoon Creek is listed as a Superior High-quality Water or Outstanding State Water.

Except as provided below, exceptional ecological values shall be assessed based upon a combination of the presence of threatened or endangered species and a 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; 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

Published in June 2020, the Ohio EPA's 2016 Biological and Water Quality Study of the Raccoon Creek Watershed (AMS/2016-RACCO-2) includes water quality findings for the mainstem Raccoon Creek from its headwaters in Vinton County at the confluence of the East Branch and West Branch of Raccoon Creek, river mile 111.38, to the backwaters of the Ohio River (river mile 10.2).

For this study, current conditions will reflect the information provided for Raccoon Creek's locations. The mainstem of Raccoon Creek was sampled for several, if not all, of the following: chemistry, bacteria, macroinvertebrates, fish, Datasonde® meter parameters (pH, dissolved oxygen (mg/L), percent saturation, specific conductivity (µholms/cm) and temperature (°C), and fish.

Table 4 on page 31 illustrates the aquatic life use attainment (ALU) status for the mainstem. The ALU station status is based on data collected June - September 2016 and July 2017. The IBI, MIwb, and ICI are scores based on the performance of the biotic community. The Qualitative Habitat Evaluation Index (QHEI) is a measure of the ability of the physical habitat of the stream to support a biotic community. Raccoon Creek is in the Western Allegheny Plateau ecoregion. If biological impairment has occurred, the cause(s) and source(s) of the impairment are noted.

#### Key for Table 4

**a:** relative abundance and relative weight estimates are normalized to 0.3km for headwaters and wading sites and to 1.0km for boat sites.

**W:** wading site

**B:** boat site

**b:** A narrative evaluation of the qualitative sample based on attributes such as EPT taxa richness, number of sensitive taxa, and community composition was used when quantitative data was not available or considered unreliable.

**VP:** very poor, **P:** poor, **LF:** low fair, **F:** fair, **MG:** marginally good, **G:** good, **VG:** very good, **E:** exceptional

**c:** narrative habitat evaluations are based on QHEI scores for wading sites (excellent >75, good: 60-74, fair: 45-59, poor: 30-44, very poor <30)

**d:** attainment is given for the proposed status when a change is recommended.

**ns:** nonsignificant departure from biocriteria (<4 IBI or ICI units, or <0.5 MIwb units)

**\***: indicates significant departure from applicable biocriteria (>4 IBI or ICI units, or >0.5 MIwb units). Underlined scores are in the poor or very poor range.

**Table 4: Aquatic Use Attainment Status**

<i>Location HUC 12- ALU</i>	<i>Sample RM</i>	<i>Drain (mi<sup>2</sup>)</i>	<i>IBI</i>	<i>MIw<sup>b</sup></i>	<i>ICI<sup>b</sup></i>	<i>QHEI<sup>c</sup></i>	<i>Attainment Status<sup>d</sup></i>
<b>HUC 05090101 02 04 - Twomile Run - Raccoon Creek - WWH</b>							
Raccoon Creek at SR 328 and Sheets-McCoy Rd	111.38	43.6 <sup>w</sup>	41	7.9 <sup>ns</sup>	50	61.8	Full
Raccoon Creek at SR 328 and Mitchell Hollow	104.63	56.4 <sup>w</sup>	40	7.3 <sup>*</sup>	46	65.1	Partial**
<b>HUC 05090101 02 05 - Town of Zaleski - Raccoon Creek - WWH</b>							
Raccoon Creek at Creek Rd	99.60	98.0 <sup>b</sup>	48	9.4	40	58.8	Full
Raccoon Creek at Twp Hwy F3	98.34	100.0 <sup>w</sup>	48	8.2 <sup>ns</sup>	42	68.5	Full
Raccoon Creek at CR 3 downstream of Sandy Run	92.30	134.0	-	-	G	-	-
Raccoon Creek at Hope-Moonville Rd, upstream of Hewett Fork	89.8	136.0 <sup>w</sup>	48	8.6	G	87.5	Full
<b>HUC 05090101 03 04 - Flat Run - Raccoon Creek - WWH</b>							
Raccoon Creek at CR 18B, downstream of Hewett Fork	89.6	176.0 <sup>b</sup>	46	9.8	MG <sup>ns</sup>	86.0	Full
Raccoon Creek at SR 356 near Knox	84.08	183.0 <sup>b</sup>	50	9.4	38	62.5	Full
Raccoon Creek at SR 50 at Bolins Mills	80.62	200.0 <sup>b</sup>	51	8.8	40	61.8	Full
Raccoon Creek at US 32W, upstream	72.22	223.0 <sup>b</sup>	50	9.6	38	79.5	Full
<b>HUC 05090101 05 03 - Flatlick Run - Raccoon Creek - WWH</b>							
Raccoon Creek at US 32W, downstream crossing	63.80	296.0 <sup>b</sup>	50	9.5	40	80.3	Full
Raccoon Creek at SR 124, south of Clarion	55.48	322.0 <sup>b</sup>	49	8.6	40	70.4	Full
Raccoon Creek at Covered Bridge Rd	50.10	336.0	-	-	40	-	Full
<b>HUC 05090101 05 04 - Robinson Run - Raccoon Creek - WWH</b>							
Raccoon Creek at Vinton Park, downstream dam, SR 325	40.01	381.0 <sup>b</sup>	58	10.4	42 <sup>ns</sup>	81.8	Full
<b>HUC 05090101 90 01 - Raccoon Creek Large River Assessment Units - EWH</b>							
Raccoon Creek at Glassburn Rd	35.61	543.0 <sup>b</sup>	51	9.9	48	76.8	Full
Raccoon Creek at OH 558, Bob Evans camp	29.20	586.0 <sup>b</sup>	49	10.2	E	72.5	Full
Raccoon Creek at Dan Jones Rd, MacIntyre Park	22.00	615.0 <sup>b</sup>	50	10.3	E	80.5	Full
Raccoon Creek at Ingalls Rd.	10.20	657.0 <sup>b</sup>	44 <sup>ns</sup>	9.9	52	78.3	Full

**\*\*Due to sand bedload and legacy surface disturbances due to mining and logging**

**Table 5: Aquatic Use Attainment Status**

<b>BIOCRITERIA - Western Alleghany Plateau</b>		
<b>Index Site Type</b>	<b>EWH</b>	<b>WWH</b>
IBI - Headwaters	50.0	44.0
IBI - Wading	50.0	44.0
MIwb - Wading	9.4	8.40
IBI - Boat	48.0	40.0
MIwb - Boat	9.60	8.6

**Table 6: Average biological and habitat score from the Raccoon Creek mainstem in 1995 and 2016.**

<i>Year Sampled</i>	<i>IBI</i>	<i>MIwb</i>	<i>ICI</i>	<i>QHEI</i>
<b>Upper Raccoon Creek (river mile 95.52 to 111.9)</b>				
1995	20.6	4.0	16.6	56.7
2016	44.3	8.2	44.5	63.5
<b>Middle Raccoon Creek (river mile 95.52 to 40.3)</b>				
1995	38.8	7.6	40	60.6
2016	49.1	9.2	39	75.4
<b>Lower Raccoon Creek (river mile 40.3 to 0.0)</b>				
1995	42	8.72	42	60.6
2016	50.4	10.14	47.6	78

**Narrative evaluation:**

**Blue:** exceptional to very good, **Green:** good, **Yellow** fair, **Pink:** poor, **Red:** very poor

Eighteen monitoring locations on Raccoon Creek's mainstem were evaluated in 2016. All but one location met the aquatic life use for either WWH or EWH; one location in the headwaters at river mile 104.63 was in partial attainment.

Before the 2016 survey, the upper section of Raccoon Creek, from river mile 111.9 to river mile 95.52 was designated Limited Resource Water due to acid mine drainage. Numerous coal mining reclamation and treatment projects in the headwaters dramatically improved the biological community. In 1995, the average biological community scores ranged from very poor to fair and fell below WWH expectations.

By 2016, the average scores had improved and ranged from good to very good within WWH expectations. Similar improvements occurred in the middle section of Raccoon Creek (river mile 95.52 to 40.3) with average scores ranging from fair to good in 1995 and improving to the good to exceptional ranges. The lower section of Raccoon Creek improved as well, increasing from good in 1995 to exceptional in 2016. As a result of these improvements, the aquatic life use designation in the upper and middle sections of Raccoon Creek was changed in 2022 to WWH and the lower section below the Vinton dam was changed to EWH.

In 2016, the Ohio EPA sampled certain sites for *E. coli*, bacteria easily transported and present in all surface waters. Ohio's Recreational Use designations are in OAC 3745-1-07 and are applicable only during the recreation season, which runs from May 1 to October 31.

Like most surface waters of the state, Raccoon Creek is primary contact waters which are suitable for one or more full-body contact recreation activities such as, but not limited to, wading, swimming, boating, water skiing, canoeing, kayaking, and scuba diving. According to the Ohio EPA's 2016 survey, most of the surveyed sites within the Raccoon Creek watershed did not attain a recreational use designation. Potential sources of bacteria include failing home sewage treatment systems and agricultural activities.

The non-profit, member-based Raccoon Creek Partnership formed in 2007 to improve and protect the water quality throughout the Raccoon Creek watershed. The organization (and former iterations of this watershed group) have completed 19 projects to treat acid mine drainage in the upper and middle sections of the watershed. The partnership continues to maintain and monitor mine drainage treatment systems and cooperates with local communities and landowners to address both recreation and aquatic life use impairment.

Despite some impairment in the headwaters of Raccoon Creek, the dramatic improvements documented in this report and elsewhere is a positive success story. It is also a reflection of the local conservation commitment to continue to work toward full attainment.

Because of those significant improvements to water quality and stream biological diversity in the watershed, it is now possible to consider Raccoon Creek for state scenic river designation; an amazing achievement. The incredible recovery of a stream that was nearly devoid of life in the early 1980s to currently attaining WWH and EWH aquatic life use designations will serve as the legacy of the Raccoon Creek Partnership and its partners for future generations.

# Conclusion



*Raccoon Creek in late summer.*

Since 1968 the Ohio Scenic Rivers Program has been working with local partners to protect some of the highest quality rivers and streams remaining in the state. To date, only 15 waterways, comprised of about 830 river miles, have been designated as Wild, Scenic, and/or Recreational state rivers. This designation is the highest honor an Ohio waterway can receive and represents the commitment to natural resources protection by local communities, public officials, businesses, and residents. The state system has designated waterways in every region of Ohio except for the Appalachian Plateau of Southeastern Ohio. With this study, we hope to add Raccoon Creek to Ohio's state scenic river system, giving it the honor the creek and its restoration partners so richly deserve.

Local efforts within the Raccoon Creek watershed has led to Raccoon Creek being the first southeast river considered for inclusion in the state scenic river system. It is hoped that other southeastern rivers, which may currently reflect the negative impacts of historic coal mining, will be worthy of study in the future.

In closing, it is a testament to the Raccoon Creek Partnership, local governments, landowners, state agencies, and other partners in the Raccoon Creek watershed that this river now meets the criteria for designation as a State Scenic River. The ODNR, Division of Natural Areas and Preserves welcomes the opportunity to designate 111.9 miles of Raccoon Creek as Ohio's first Scenic River in the Appalachian Plateau region. ODNR and all its divisions look forward to working with local communities and organizations to further protect this unique southeast Ohio stream system.

# APPENDIX



# Citations and References

Boucher, C. 2024. Ohio EPA, (personal communications).

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Peters, A. 2024. U.S. Fish and Wildlife Service, (personal communications).

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# List of Tables

Table 1: Fish community and descriptive statistics for Raccoon Creek, 2016 (page 25)

Table 2: Ecoregional Criteria for Western Alleghany Plateau (page 26)

Table 3: Summary of macroinvertebrate data collected from artificial substrates (quantitative data) and natural substrates (qualitative data) in the Raccoon Creek watershed, June to September 2016 (page 27)

Table 4: Aquatic Life Use Attainment Status for stations sampled in the Raccoon Creek study area, September 2016 and July 2017 (page 31)

Table 5: Biocriteria for Western Alleghany Plateau (page 32)

Table 6: Average biological and habitat scores from the Raccoon Creek mainstem in 1995 and 2016 (page 32)

# The Ohio Wild, Scenic, and Recreational River Act- Ohio Revised Code 1517.14

(A) The director of natural resources may create wild, scenic, and recreational rivers. The chief of the Division of Natural Areas and Preserves shall supervise, operate, protect, and maintain wild, scenic, and recreational rivers so created. In creating wild, scenic, and recreational rivers, the director shall classify each such watercourse as either a wild river, a scenic river, or a recreational river. The chief may prepare and maintain a plan for the establishment, development, use, and administration of those rivers as a part of the comprehensive state plans for water management and outdoor recreation. The chief, with the approval of the director, may cooperate with federal agencies administering any federal program concerning wild, scenic, or recreational river systems.

(B) The director may propose to create a wild, scenic, or recreational river that consists of a part or parts of any watercourse in this state that in the director's judgment possesses water conservation, scenic, fish, wildlife, historic, or outdoor recreation values that should be preserved.

(C)(1) The director shall publish the intention to declare a watercourse a wild, scenic, or recreational river at least once in a newspaper of general circulation in each county, any part through which the watercourse flows. The director also shall send written notice of the 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 through which the watercourse flows, 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 watercourse to be designated.

(2) The director of natural resources shall post the intention to declare a watercourse a wild, scenic, or recreational river on the division of natural areas and preserves' web site on the date of the initial publication under division (C)(1) of this section.

(3) Any person having an interest in the proposed declaration may file written comments to the proposal within sixty days of the last date of publication or dispatch of written notice as required under division (C)(1) of this section. The director shall post on the division's web site the last date by which written comments may be filed.

(4) After sixty days from the last date of publication or dispatch of written notice as required under division (C)(1) of this section, the director may enter a declaration in the director's journal that the watercourse is a wild river, scenic river, or recreational river. When so entered, the watercourse is a wild, scenic, or recreational river, as applicable. The director, after sixty days' notice as prescribed in this section, may terminate the status of a watercourse as a wild river, scenic river, or recreational river by an entry in the director's journal.

(D) Declaration of a watercourse as a wild, scenic, or recreational river does not do either of the following:

(1) Affect private property rights or authorize the director, chief of the division of natural areas and preserves, or any governmental agency or political subdivision to restrict the use of private land adjacent to the river or to enter upon private land;

(2) Expand or abridge the regulatory authority of any governmental agency or political subdivision over the river.

(E) The director may acquire real property or any estate, right, or interest therein in order to provide for the protection and public recreational use of a wild, scenic, or recreational river. The director may enter into a lease or other agreement with a political subdivision to administer all or part of any publicly owned land that is administered by the division and that is within the watershed of a wild, scenic, or recreational river.

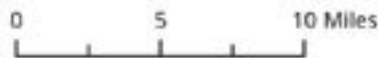
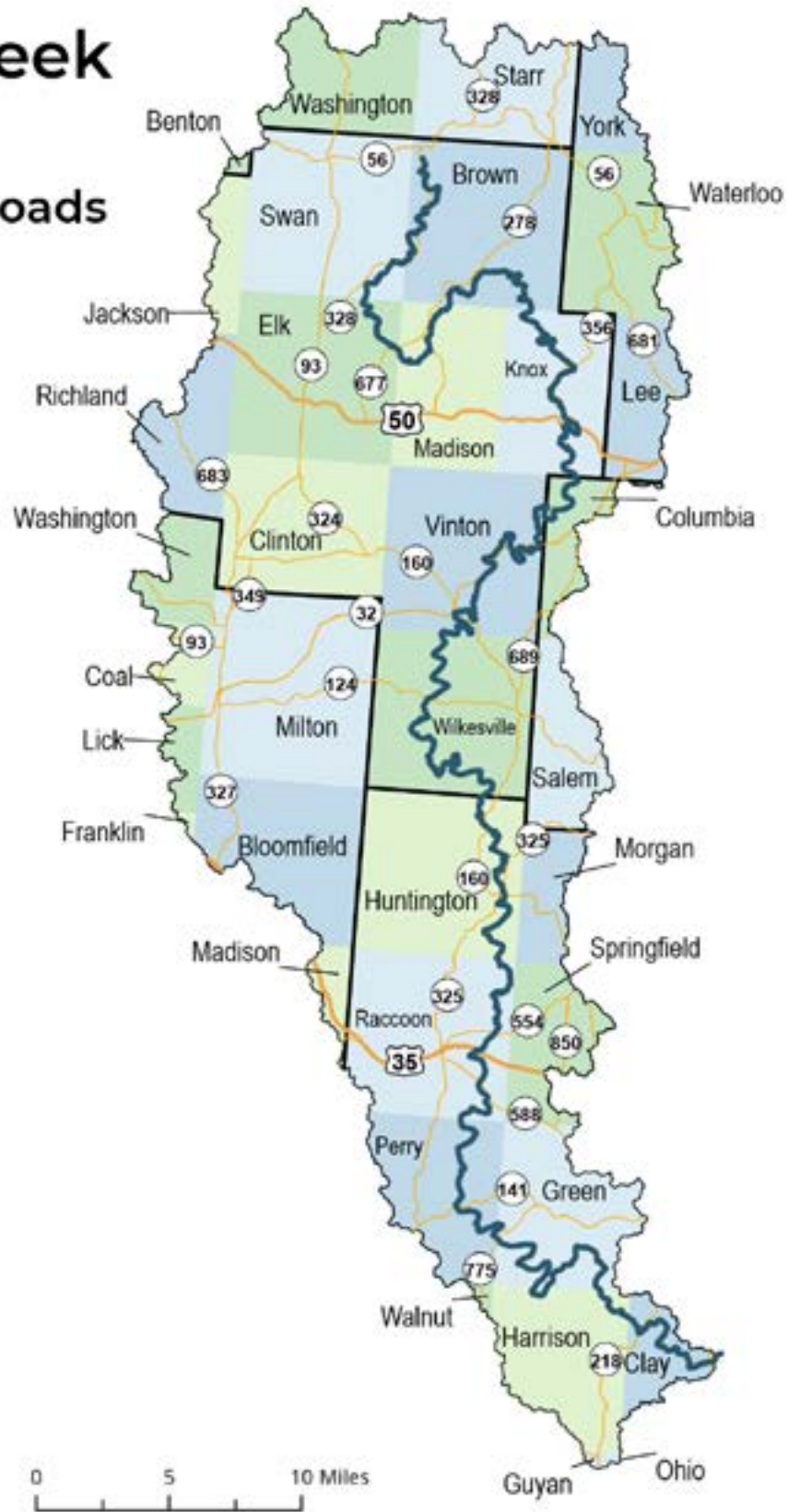
(F) A wild, scenic, or recreational river that was declared as such by the director of natural resources under Chapter 1547. of the Revised Code prior to the effective date of this amendment retains its declaration as a wild, scenic, or recreational river for purposes of sections 1517.14 to 1517.19 of the Revised Code on and after that date.

# Raccoon Creek Watershed: Townships and Roads

## Raccoon Creek Watershed Townships and Roads



-  Raccoon Creek Proposed Scenic River Designation
-  US Routes
-  State Routes
-  County Boundaries



# Raccoon Creek Watershed: Land Use

## Raccoon Creek Watershed Land Use

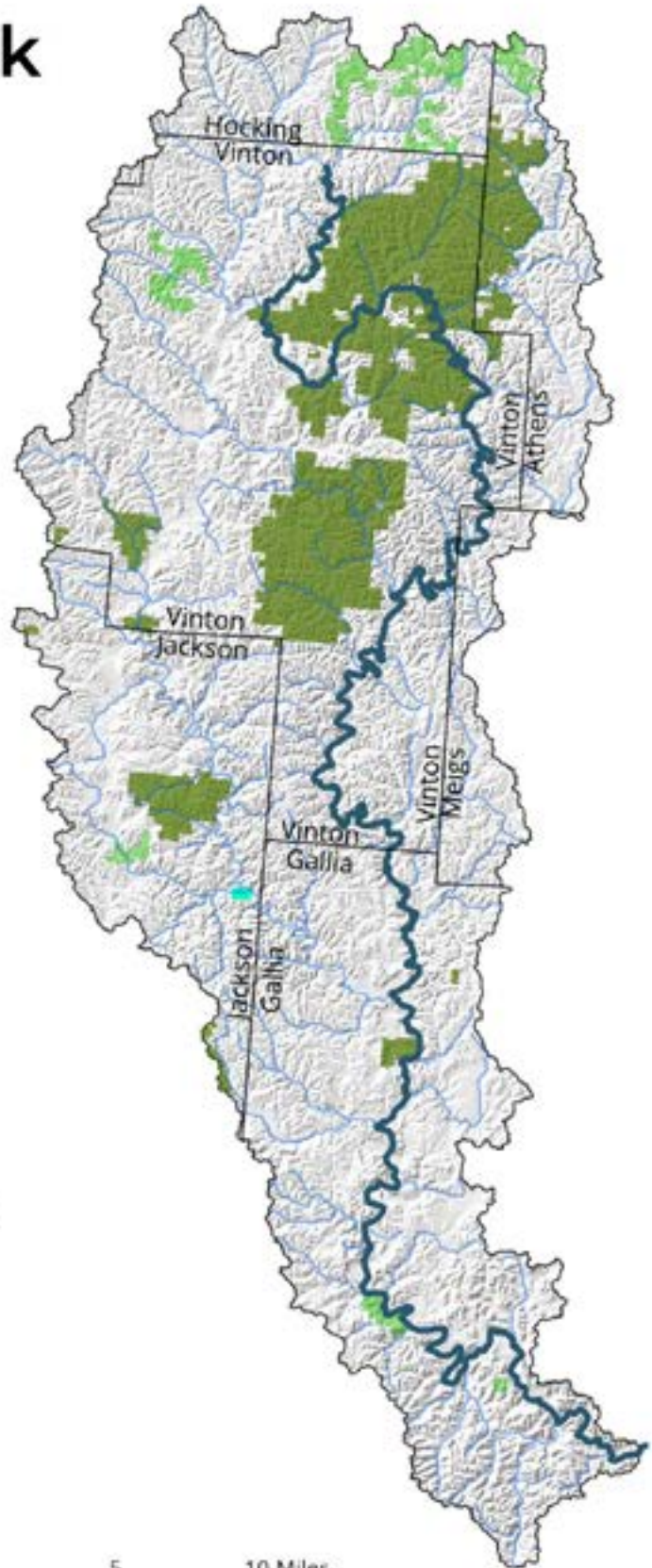


- Raccoon Creek Proposed Scenic River Designation
- Forest (71%)
- Shrub/Scrub (1.7%)
- Herbaceous (0.9%)
- Barren Land (0.4%)
- Agriculture and Pastureland (18.7%)
- Wetlands (0.6%)
- Open Water (0.4%)
- Developed (5.8)



# Raccoon Creek Watershed: Land Use

## Raccoon Creek Watershed Protected Lands



- Raccoon Creek Proposed Scenic River Designation
- Streams
- ODNR Lands (13.0%)
- Other Public Lands (2.0%)
- The Nature Conservancy (<0.1%)
- County Boundaries









**Department of  
Natural Resources**

*To learn more about the ODNR Division of Natural Areas and Preserves and Ohio Scenic Rivers Program, visit [naturalareas.ohiodnr.gov](http://naturalareas.ohiodnr.gov).*