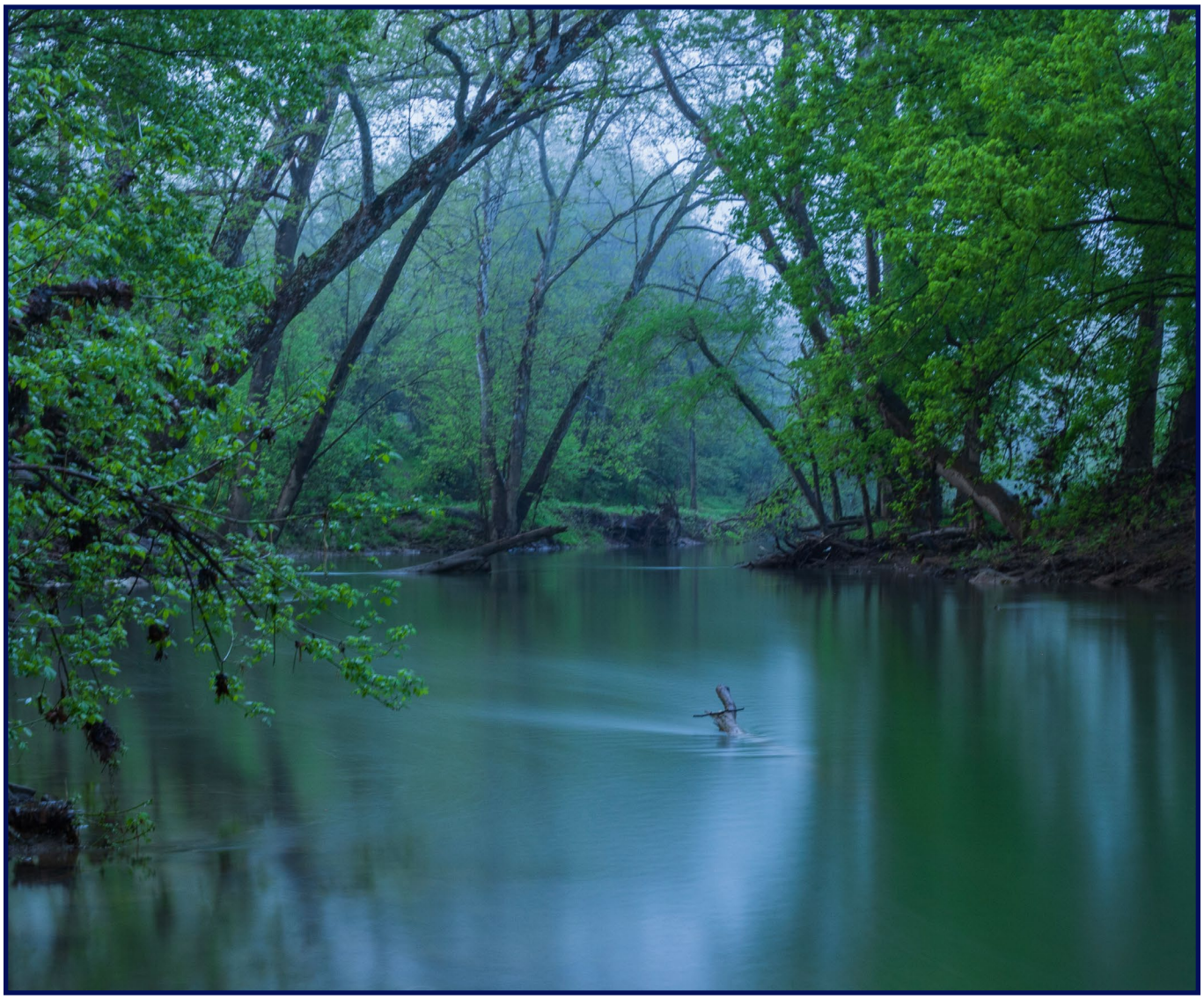

Scioto Brush Creek
State Scenic River Designation Study

August 2025

Department of Natural Resources

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

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Appendix

Acknowledgements

Many people contributed their expertise, talent, and time to the development of this report. Each shared their passion for protecting Scioto Brush Creek for future generations.

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

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Contributors

A special note of appreciation for Dr. Lorrayne Miralha, Alessandra Bertucci, Layla Ramsey, and Jalen Smith from The Ohio State University for completing the Geographic Information System (GIS) analysis of Scioto Brush Creek. Without their assistance this study would not have been possible.

Many scenic photos for this report were generously provided by members of the Friends for Scioto Brush Creek.

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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 waterways 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, Scenic, and Recreational. Each designation is based on the natural characteristics of the stream. Regardless of a river's category of designation all receive the same level of protection under the Ohio Scenic River Law.

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 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.

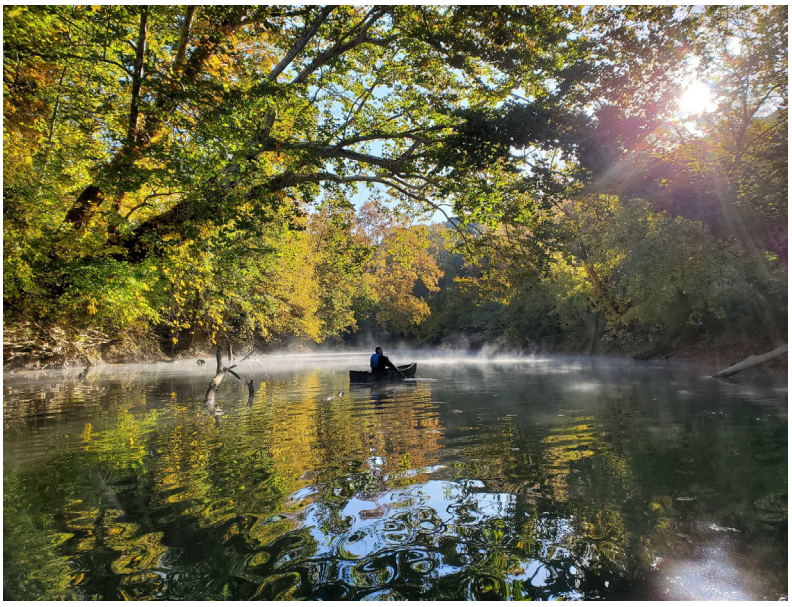
Ohio currently has 16 designated Wild, Scenic, and/or Recreational rivers comprising 28 stream segments. More than 945 river miles are protected in the state scenic river system. Three waterways—the Big and Little Darby Creeks, Little Beaver Creek, and Little Miami River—are also designated as national 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 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, the director of ODNR appoints a 10-member Scenic River Advisory Council to represent 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.

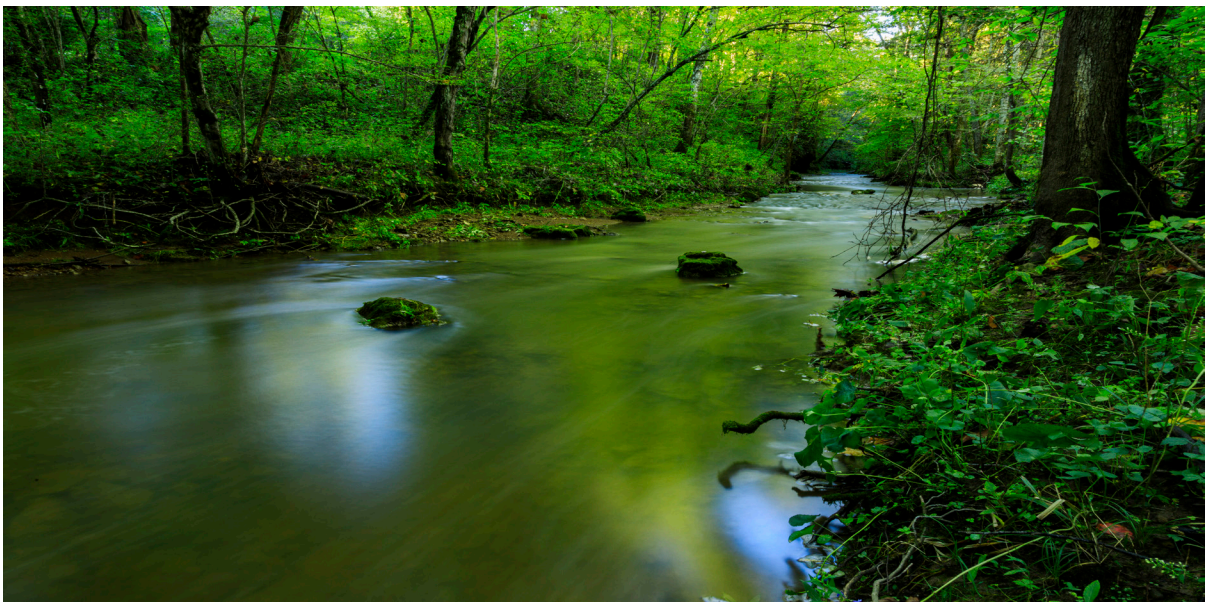
To best understand the context of the information provided in this report, it is important to know that the role of Ohio's Wild, Scenic, and Recreational River Law is to identify and protect those rivers and streams possessing natural characteristics of state significance. The Ohio Scenic Rivers Program seeks to identify and designate the few remaining waterways which have retained most of their natural characteristics and therefore possess uniquely important natural history values.



(photo by Martin McAllister)

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

Executive Summary



(photo by Brian Prose)

Scioto Brush Creek possesses outstanding water quality, exceptional biological communities, and a high degree of natural character within its stream corridor. This southern Ohio waterway has an intact riparian corridor along most of its length, which is comprised of native forest and wetlands.

Scioto Brush Creek's riparian corridor offers lovely scenery and many recreational opportunities including fishing and paddling. Within the watershed, more than 23,000 acres are held in the public trust by federal, state, and local governments or conservation organizations. Many sites offer an array of outdoor recreational opportunities.

A wealth of biodiversity can be found within the Scioto Brush Creek watershed including 86 species of fish and 171 species of rare plants and animals. The watershed supports three federally endangered and threatened species, and 70 state endangered and threatened species.

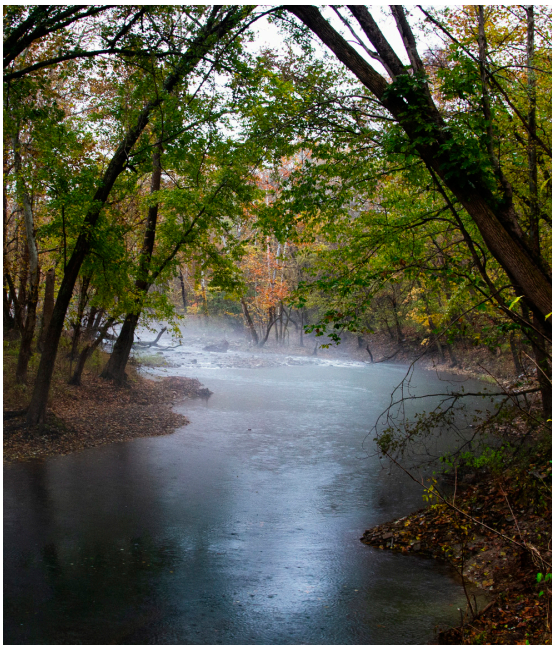
For this study, only the Scioto County portion of Scioto Brush Creek was evaluated for possible designation as a state Scenic River in accordance with the state's Wild, Scenic, and Recreational river designation criteria.

After evaluation, Ohio Scenic Rivers Program staff has determined that Scioto Brush Creek, from river mile 25.1 at the Scioto and Adams county line downstream to its confluence with the Scioto River, meets or exceeds Scenic River designation Criteria 1, 3, 4, 5, and 6 as detailed on pages 7-9. However, this section of Scioto Brush Creek does not meet Criteria 2.

Criteria 2 states “Roads are permissible within 300 feet of the river but may not comprise more than 25 % of the scenic river segment length.” Roads within 300 feet of Scioto Brush Creek comprise 27.4% of the proposed scenic river segment length (Bertucci, et al. 2025). This does not meet Criteria 2, but only by 2.4%.

The Ohio Scenic Rivers Program has determined that exceptions to Criteria 2 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. Based on this evaluation and its location, the Ohio Scenic Rivers Program recommends that an exception to Criteria 2 be made.

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



(photo by Brian Prose)

A total of 25.1 miles of Scioto Brush Creek, from the Scioto and Adams county line at river mile 25.1 downstream to the confluence with the Scioto River, is recommended for designation as an Ohio Scenic River.

Criteria and Findings for Scioto Brush 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: Meets Criteria 1. The studied portion is 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. The percentage of roads that are within 300 feet of the Wild River segment are 27.4% (Bertucci, 2025) of the studied segment.

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

Finding: Does not meet Criteria 3. A 15-mile contiguous section does not meet Wild River 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. Approximately 6.7% of Scioto Brush Creek's adjacent and upstream watershed are impervious surfaces (Bertucci, 2025).

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 61.7% of the shoreline is in a natural condition within at least 300 feet of Scioto Brush Creek and 76.8% of the remaining corridor is in native forest or wetland outward from the river to a depth of 120 feet or greater (Bertucci, 2025).

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: Does not meet Criteria 6. According to the 2006 Ohio EPA report, *Biological and Water Quality Study of the Scioto Brush Creek Watershed*, the section of the Scioto Brush Creek proposed for designation from river mile 25.1 downstream to the confluence with the Scioto River has attained EWH aquatic life use designation. Ohio EPA reported that survey sites located at river miles 24.3, 17.1, and 0.3 are in partial attainment of the EWH designation. The source of impairment at river mile 24.3, according to the report, is a lower habitat quality score. At river miles 17.1 and 0.3 the causes of the impairments and partial attainment of the EWH designation are unknown.

Survey sites at river miles 24.3 and 17.1 both are recorded as exhibiting excellent Index of Biotic Integrity (IBI), fish community, and Invertebrate Community Index (ICI), and aquatic macroinvertebrate community scores meeting the criteria for EWH. However, the Modified Index of Well Being (MIwb), another fish community index score, did not meet the criteria for EWH at both sites, but did meet the criteria for warmwater habitat (WWH) aquatic life use designation. The survey site located at river mile 0.3 did not yield an IBI score meeting EWH but did meet WWH criteria.

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. Scioto Brush Creek is 100% free flowing in the section proposed for designation in Scioto County.

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 percentage of roads that are within 300 feet of the Scenic River segment are 27.4% (Bertucci, 2025) of the proposed scenic river segment length. However, the Ohio Scenic Rivers Program is recommending that an exception be granted due to Scioto Brush Creek's location in the Appalachian Plateau and because it meets all other criteria.

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 the Scioto Brush Creek segment proposed for scenic river designation is 25.1 miles, beginning at the Scioto and Adams county line and ending with the creek's confluence with the Scioto River.

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. Approximately 6.7% of the Scioto Bruch Creek's adjacent and upstream watershed is impervious surfaces (Bertucci, 2025).

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

(photo by Brian Prose)

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 61.7% of the shoreline is in a natural condition within at least 300 feet of Scioto Brush Creek and 76.8% of the remaining corridor is in native forest or wetland outward from the river to a depth of 120 feet or greater (Bertucci, 2025).

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.

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General Description of Scioto Brush Creek Watershed

Scioto Brush Creek is a tributary of the lower Scioto River, and its watershed is approximately 273 square miles in area. It drains portions of western Scioto County and eastern Adams County.

(photo by Brian Prose)

The Scioto Brush Creek watershed lies in a region too far west for oil and gas exploration and too far east (in the "hill country") for large-scale agriculture. The steep terrain and lack of fossil fuel potential has resulted in only modest development pressure on the land. Small-scale agriculture, timbering, and quarrying of sandstone and limestone are the primary extractive industries.

The watershed straddles the physiographic boundary between the Unglaciated Appalachian Plateau to the east and the Interior Low Plateau to the west. Along its journey the stream cuts through three major geologic periods: Mississippian, Devonian, and Silurian.

River miles are used to measure distance travelling upstream from the mouth of a river or stream following the turns in the channel. For Scioto Brush Creek, river mile (RM) 0.0 is the point where the creek flows into the Scioto River. On one travels upstreadm, distance is typically measured in 0.10 mile increments.

Scioto Brush Creek generally flows south and southwest for a few miles before turning east and southeast to pass through or by the following communities: Rarden (RM 24), Youngs (RM 20), Otway (RM 17), Henley (RM 14), Arion (RM 10), and McDermot (RM 4).

The headwaters of the mainstem arise near the Adams and Pike county line just south of Poplar Grove at an elevation about 1,100 feet above sea level. From there, Scioto Brush Creek flows 41 river miles to its confluence with the Scioto River at Rushtown, its elevation dropping a total of 580 feet to an elevation of 520 feet at its mouth.

At the elevation of 1,100 feet at its source, Scioto Brush Creek originates on Mississippian Age sandstones and shales which are approximately 320-360 million years old and generally neutral to weakly acidic. The depth to bedrock is often less than 40 inches and the terrain is steep, rocky, and usually wooded. Oaks dominate the forest, with chestnut oak common on the dry ridges and white oak on the more mesic slopes.

As the stream flows south and southwest, it descends through Devonian Age shales (360-420 million years old) which are softer and much more acidic. This produces gentler topographic relief but small tributaries entering from this region are occasionally highly acidic and, in a few cases, can have reduced biodiversity as a result. Here one finds Virginia pine and mixed oak forest.

Interestingly, as the stream turns west near RM36 at the confluence of Betty's Creek, it begins cutting into Silurian Age dolostones. At 420-450 million years old, these rocks are the oldest to be found in the watershed. This bedrock is more resistant to erosion but over time weakens due to rainwater, which forms caves, sinkholes, and other karst features.

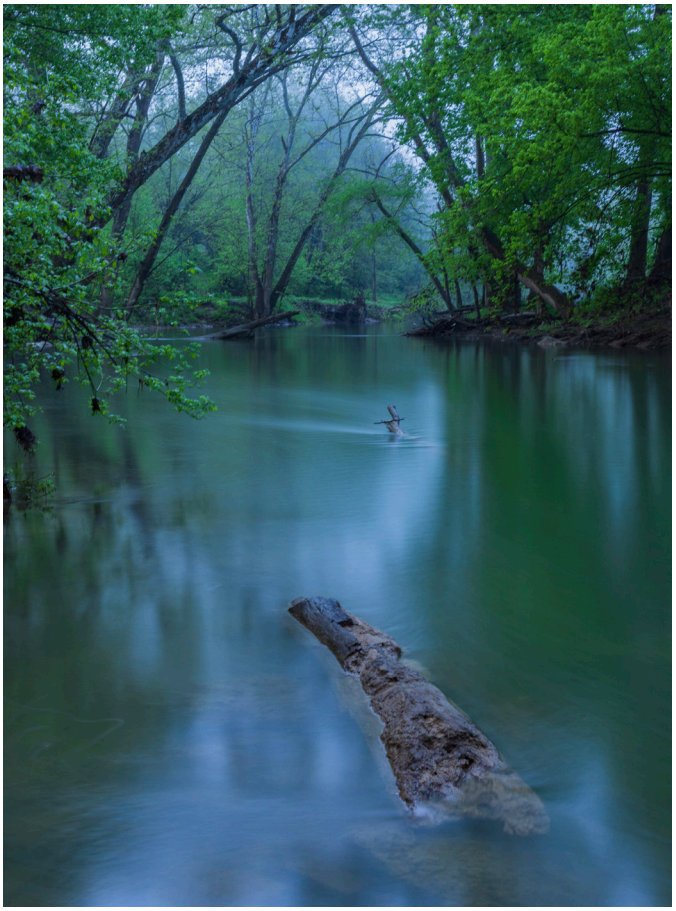
The chemical and physical properties of dolostone or "limestone" has produced the most scenic and interesting terrain in the watershed. Small rock ledges begin to appear and within a few miles begin to tower 30-40 feet above the water, reaching their most dramatic heights at (RM 35) in the vicinity of State Route 32 (James A. Rhodes Appalachian Highway). Calcareous rather than acidic, these rocks support an entirely different flora. The Virginia pines present on Ohio Black Shale are now replaced with arbor vitae and Eastern red cedar. Ferns and spring ephemerals commonly cover the cliffs and colluvial deposits above the stream. Large chunks of bedrock, called slump blocks, lie scattered in the streambed and floodplain after falling from the cliffs above. Small grottos and rock arches can be found in some areas, adding to the varying landscape. Numerous rare and endangered Ohio native plants are found in this area where the stream is shallow, rocky, and shaded.

Scioto Brush Creek turns eastward at RM 32, and cliffs drop away as the stream once again approaches the Appalachian Escarpment. At Coffee Hollow (RM 29), the stream begins cutting back into Ohio Black Shale as it approaches the hamlet of Jaybird. Here, the riparian corridor features an interesting mix of hardwoods and native conifers shading the stream banks. The variety of bedrock supports eastern hemlock, arbor vitae, Virginia pine, nearly a dozen oak species, sugar maple, and other tree species. The stream valley is wide enough to support limited agriculture, primarily small crops of hay, corn, and soybeans.

Near the Adams and Scioto county line, the gradient drops and the stream settles into a quiet series of long pools interspersed with short riffles that characterize its nature for the next 20 miles. Near Rarden at RM25, Scioto Brush Creek cuts through lacustrine clays deposited during the Ice Age (Pleistocene Age) when glaciers to the north altered the flow of rivers in southern Ohio and enabled lakes to form. Steep, muddy banks are characteristic here.

At RM 17, near Otway, the mainstem of Scioto Brush Creek joins its largest tributary, the South Fork Scioto Brush Creek, which enters from river right. The South Fork mirrors much of the same geology and terrain of the mainstem. Its headwaters arise near Lynx in Adams County where Mill Creek and Blue Creek join to form the South Fork and then flow eastward 13 miles to its confluence with the mainstem at Otway.

The South Fork's landforms mirror those of the mainstem in nearly every respect regarding geology and flora. Two public parks are located near the confluence of the mainstem and South Fork. Both parks are connected by a half-mile paved walkway along the stream ideally suited for visitors of all abilities. Located on the mainstem, the Otway Covered Bridge Park features the only remaining covered bridge in Scioto County. In addition to offering easy access for wading or launching paddle craft, the park also features a picnic shelter, playground equipment, and parking. Nearby, on the South Fork, Brush Creek Township Community Park offers a shelter, playground, and a seasonal restroom.



(photo by Brian Prose)

South of Otway, Scioto Brush Creek widens and deepens dramatically, flowing with twice the volume. Long pools, measuring 8-16 feet deep, provide habitat for a variety of aquatic wildlife such as fish and turtles.

Larger tributaries, such as Little Bear Creek, enter and transport significant volumes of alluvial materials, which form gravel bars. These areas are often populated by willows, and a few scattered locations support Virginia spiraea, a federally threatened shrub.

At Arion, near RM10, the stream's course forms a 3.5-mile horseshoe-shaped bend, called Arion Bend, as it turns sharply north, then east, then west again before turning sharply eastward again. Below Arion Bend on the north bank, Scioto Brush Creek State Nature Preserve protects nearly a mile of the stream.

The creek's deepest pool is found near here; during low water it measures 26 feet deep. Beyond the preserve, Scioto Brush Creek passes through a small community, McDermott, where the greatest concentration of houses close to the stream can be found.

Below McDermott, near RM 2.0, the stream cuts through a particularly resistant layer of sandstone, forming large cobble and small boulders. This section of the creek can pose difficulties for paddlers. During periods of high water, the combination of significant rapids and the presence of a large island forms a large and very dangerous strainer. During low water, paddlers find that dragging their boats can be as hazardous due to the slippery cobbles which can increase the risk of falls and serious injuries. In the final mile before the stream enters the Scioto River, Scioto Brush Creek exhibits a wide, nearly solid sandstone bottom in many areas, which can create difficult paddling conditions when the creek is low.

Because of the relatively undisturbed character of the river corridor and the stream's exceptional warmwater habitat, Scioto Brush Creek is a biologically diverse and high-quality riverine system.

Fish

The following 86 fish species have been documented in the Scioto Brush Creek watershed by the following sources:

- The Ohio State University Museum of Biological Diversity Fish Database
- *Fishes of Ohio* by Milton Trautman
- *A Naturalist's Guide to the Fishes of Ohio* by Dan Rice and Brian Zimmerman.

The popeye shiner *(Notropis ariommus)* is only known to occur in Scioto Brush Creek. (*photo by Brian Zimmerman*)

Lampreys: Family Petromyzontidae

Lampetra aepyptera (least brook lamprey)**

Gars: Family Lepisosteidae

Lepisosteus osseus (longnose gar)

Herrings: Family Alosidae

Alosa chrysochloris (skipjack herring)

Shads: Family Dorosomatidae

Dorosoma cepedianum (gizzard shad)

Suckers: Family Catostomidae

Catostomus commersoni (white sucker)
Carpiodes carpio (river carpsucker)
Carpiodes cyprinus (quillback carpsucker)
Carpiodes velifer (highfin carpsucker)
Erimyzon claviformis (western creek chubsucker)
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)

Southern redbelly dace male (*Chrosomus erythrogaster*). (*photo by Brian Zimmerman*)

Family Cyprinidae

Cyprinus carpio (common carp)

Minnows: Family Leuciscidae

Campostoma anomalum (central stoneroller)
Chrosomus erythrogaster (southern redbelly dace)**
Clinostomus funduloides (rosyside dace)
Cyprinella spiloptera (spotfin shiner)
Cyprinella whipplei (steelcolor shiner)
Ericymba buccata (silverjaw minnow)
Erimystax dissimilis (streamline chub)**
Hybopsis amblops (bigeye chub)
Luxilus chrysocephalus (striped shiner)
Lythrurus fasciolaris (scarlet shiner)
Miniellus stramineus (sand shiner)
Nocomis micropogon (river chub)**
Notemigonus crysoleucas (golden shiner)
Notropis ariommus (popeye shiner)**
Notropis atherinoides (emerald shiner)
Notropis photogensis (silver shiner)
Notropis rubellus (rosyface shiner)**
Paranotropis volucellus (mimic shiner)**
Paranotropis wickliffi (channel 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)

Catfish: Family Ictaluridae
Ameiurus natalis (yellow bullhead)
Ictalurus punctatus (channel catfish)
Noturus flavus (stonecat madtom)
Noturus miurus (brindled madtom)**
Pylodictis olivaris (flathead catfish)

Pikes: Family Esocidae
Esox americanus vermiculatus (grass pickerel)
Esox masquinongy (muskellunge)**

Trout-Perch: Family Percopsidae
Percopsis omiscomaycus (trout-perch)*

Silversides: Family Atherinidae
Labidesthes sicculus (brook silverside)

Killifish: Family Fundulidae
Fundulus notatus (blackstripe topminnow)

Livebearers: Family Poeciliidae
Gambusia affinis (western mosquitofish)

Sunfishes: Family Centrarchidae
Ambloplites rupestris (rock bass)
Lepomis cyanellus (green sunfish)
Lepomis gulosus (warmouth sunfish)
Lepomis humilis (orangespotted sunfish)
Lepomis macrochirus (bluegill sunfish)
Lepomis megalotis megalotis (central longear sunfish)
Lepomis microlophus (redear sunfish)
Micropterus dolomieu (smallmouth bass)
Micropterus punctulatus (spotted bass)
Micropterus nigricans (largemouth bass)
Pomoxis annularis (white crappie)
Pomoxis nigromaculatus (black crappie)

Sculpins: Family Cottidae
Cottus bairdii bairdii (northern mottled sculpin)

True Bass: Family Moronidae
Morone chrysops (white bass)

Variegate darter *(Etheostoma variatum).*

Perch: Family Percidae
Etheostoma blenniodes (greenside darter)
Etheostoma caeruleum (rainbow darter)
Etheostoma flabellare (fantail darter)
Etheostoma nigrum (Johnny darter)
Etheostoma spectabile (orangethroat darter)
Etheostoma variatum (variegate darter)**
Etheostoma zonale (banded darter)
Nothonotus camurus (bluebreast darter)**
Nothonotus tippecanoe (Tippecanoe darter)
Percina caprodes (logperch darter)
Percina maculata (blackside darter)
Percina phoxocephala (slenderhead darter)
Percina sciera (dusky darter)
Sander canadensis (sauger)
Sander vitreus (walleye)

Drums: Family Sciaenidae
Aplodinotus grunniens (freshwater drum)

*Historical data, no recent observation

**Listed by the Ohio EPA as declining species. (OAC 3745-105)

Rare and Endangered Species

Within the Scioto Brush Creek watershed, ODNR has classified the following 123 species as endangered, threatened, potentially threatened, species of concern, special interest, status under review, or presumed extirpated as of 2025.

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 ODNR's Division of Wildlife pursuant to ORC, Section 1531.25.

Midland mud salamander (*Pseudotriton montanus diastictus*).

The state-endangered rare golden-star (*Erythronium rostratum*).

Timber rattlesnake (*Crotalus orridus*). (*photo by John Howard*)

The Division of Natural Areas and Preserves also lists 48 plant species on its "watch list" of potentially declining species. Additionally, the division's Ohio Natural Heritage Database has records for 11 significant ecological or natural features located in the Scioto Brush Creek.

STATUS: STATE ENDANGERED

Amphibian

Cryptobranchus alleganiensis (eastern hellbender)
Eurycea lucifuga (cave salamander)

Fish

Lepisosteus platostomus (shortnose gar)
Notropis ariommus (popeye shiner)
Notropis boops (bigeye shiner)

Freshwater Mussel

Epioblasma triquetra (snuffbox) ***
Villosa fabalis (rayed bean) ***
Villosa lienosa (little spectaclecase)

Lepidopteran

Erynnis icelus (dreamy duskywing)

Lichen

Enchylium coccophorum (tar jelly lichen)
Enchylium conglomeratum (dotted jelly lichen)
Ricasolia quercizans (smooth lungwort)

Moss

Weissia sharpii (Sharp's green-cushioned moss)

Odonate

Helocordulia uhleri (Uhler's sundragon)

Other Insect

Pseudanophthalmus ohioensis (Ohio cave beetle)

Reptile

Crotalus horridus (timber rattlesnake)

State Endangered, continued

Vascular Plants

Aconitum uncinatum (southern monkshood)
Agalinis auriculata (ear-leaved-foxglove)
Carex viridistellata (green star sedge)
Corallorhiza maculata (spotted coral-root)
Cuscuta indecora (pretty dodder)
Eleocharis verrucosa (warty spike-rush)
Erythronium rostratum (golden-star)
Gentiana villosa (Sampson's snakeroot)
Gratiola virginiana (round-fruited hedge-hyssop)
Lilium philadelphicum (wood lily)
Melica nitens (three-flowered melic)
Mononeuria patula (spreading sandwort)
Plantago cordata (heart-leaved plantain)
Pluchea camphorata (camphor-weed)
Poa wolfii (Wolf's blue grass)
Sceptridium biternatum (sparse-lobed grape fern)
Spiraea virginiana (Virginia spiraea) ****
Trichostema setaceum (narrow-leaved bluecurls)

STATUS: STATE THREATENED

Amphibian

Pseudotriton montanus diastictus (midland mud salamander)

Crustacean

Caecidotea rotunda (frost cave isopod)

Vascular Plants

Agastache scrophulariifolia (purple giant hyssop)
Asplenium ruta-muraria (wall-rue)
Astragalus canadensis (Canada milk-vetch)
Buchnera americana (bluehearts)
Carex crinita var. *brevicrinis* (short-fringed sedge)
Carex purpurifera (purple wood sedge)
Cirsium carolinianum (Carolina thistle)
Draba cuneifolia (wedge-leaved whitlow-grass)
Draba reptans (Carolina whitlow-grass)
Eupatorium album (white thoroughwort)
Eupatorium godfreyanum (Godfrey's thoroughwort)
Heuchera longiflora (long-flowered alum-root)
Iris verna (dwarf iris)
Isoetes engelmannii (Engelmann's quillwort)
Lactuca hirsuta (hairy tall lettuce)
Leavenworthia uniflora (Michaux's glade-cress)
Liatris cylindracea (slender blazing-star)

The status for scarlet paintbrush (*Castilleja coccinea*) is under review.

Ophioglossum engelmannii (limestone adder's-tongue)
Passiflora incarnata (maypop)
Phyllanthus caroliniensis (Carolina leaf-flower)
Platanthera ciliaris (yellow fringed orchid)
Polygala incarnata (pink milkwort)
Prosartes maculata (nodding mandarin)
Prunus rivularis (wild-goose plum)
Ranunculus fascicularis (early buttercup)
Rhododendron maximum (great rhododendron)
Schizachne purpurascens (false melic)
Sericocarpus linifolius (narrow-leaved aster)
Silene caroliniana ssp. *wherryi* (Wherry's catchfly)
Solidago odora (sweet goldenrod)
Symphyotrichum oblongifolium (shale barren aster)
Triadenum tubulosum (large marsh St. John's-wort)
Viola glaberrima (wedge-leaved violet)
Viola walteri (Walter's violet)

STATUS: STATE POTENTIALLY THREATENED

Vascular Plant

Anagallis minima (chaffweed)
Arabis pycnocarpa var. *adpressipilis* (southern hairy rock cress)
Asclepias amplexicaulis (blunt-leaved milkweed)
Asclepias variegata (white milkweed)
Baptisia lactea (prairie false indigo)
Bromus kalmii (prairie brome)
Cardamine dissecta (narrow-leaved toothwort)
Carex flava (yellow sedge)
Chionanthus virginicus (fringe-tree)
Crataegus uniflora (dwarf hawthorn)
Cystopteris tennesseensis (Tennessee bladder fern)
Delphinium exaltatum (tall larkspur)
Descurainia pinnata (tansy mustard)

Dichanthelium villosissimum (villous panic grass)
Dichanthelium yadkinense (spotted panic grass)
Eleocharis compressa (flat-stemmed spike-rush)
Eryngium yuccifolium (rattlesnake-master)
Hexalectris spicata (crested coral-root)
Lechea tenuifolia (narrow-leaved pinweed)
Liatris scariosa (large blazing-star)
Liatris squarrosa (scaly blazing-star)
Minuartia michauxii (rock sandwort)
Patis racemosa (black-fruit mountain-rice)
Phaseolus polystachios (wild kidney bean)
Pleopeltis michauxiana (little gray polypody)
Potamogeton tennesseensis (Tennessee pondweed)
Pycnanthemum pilosum (hairy mountain-mint)
Quercus marilandica (blackjack oak)
Rhexia virginica (Virginia meadow-beauty)
Salix caroliniana (Carolina willow)
Selaginella eclipes (midwest spike-moss)
Spiranthes lucida (shining ladies'-tresses)
Thuja occidentalis (arbor vitae)

STATUS: PRESUMED EXTIRPATED

Moss

Sphagnum bartlettianum (Bartlett's peat moss)

STATUS: STATE SPECIES OF CONCERN

Amphibian

Hemidactylium scutatum (four-toed salamander)

Bird

Accipiter striatus (sharp-shinned hawk)
Ammodramus henslowii (Henslow's sparrow)

Fish

Erimyzon claviformis (Western Creek chubsucker)
Esox masquinongy (muskellunge)
Etheostoma tippecanoe (Tippecanoe darter)

Freshwater Mussel

Ptychobranchus fasciolaris (kidneyshell)
Villosa iris (rainbow)

Odonate

Cordulegaster erronea (tiger spiketail)
Ischnura kellicotti (lilypad forktail)
Ladona deplanata (blue corporal)

Reptile

Heterodon platirhinos (eastern hognose snake)
Lampropeltis nigra (eastern black kingsnake)
Opheodrys aestivus (northern rough greensnake)
Terrapene carolina carolina (woodland box turtle)
Virginia valeriae (eastern smooth earthsnake)

STATUS: STATE SPECIAL INTEREST

Bird

Vireo solitarius (blue-headed vireo)

STATUS: UNDER REVIEW

Vascular Plant

Castilleja coccinea (scarlet paintbrush)
Packera paupercula var. *pseudotomentosa* (Ozark ragwort)

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 Scioto Brush Creek watershed, as being listed on its watch list for possible inclusion on Ohio's rare plant list.

Lichen

Canoparmelia caroliniana (Carolina shield lichen)
Enchylium bachmanianum (Bachman's jelly lichen)

State-endangered southern monkshood *(Aconitum uncinatum).*

Vascular Plant

Aristida purpurascens (purple triple-awned grass)
Asclepias viridiflora (green milkweed)
Asclepias viridis (spider milkweed)
Bromus nottowayanus (satin brome)
Carex albolutescens (pale straw sedge)
Carex crawei (Crawe's sedge)
Carex juniperorum (juniper sedge)
Carex planispicata (flat-spiked sedge)
Carex retroflexa (reflexed sedge)
Carex sterilis (fen sedge)
Celtis tenuifolia (dwarf hackberry)
Cuscuta pentagona (five-angled dodder)
Cypripedium parviflorum var. *pubescens* (large yellow lady's-slipper)
Desmodium pauciflorum (few-flowered tick-trefoil)
Galactia regularis (milk-pea)
Glyceria grandis (tall manna-grass)
Hasteola suaveolens (sweet Indian-plantain)
Hedyotis nigricans (narrow-leaved summer bluets)
Helianthus occidentalis (western sunflower)
Juglans cinerea (butternut)
Lilium superbum (turk's-cap lily)
Linum sulcatum (grooved flax)
Lonicera reticulata (grape honeysuckle)
Lorinseria areolata (netted chain fern)
Malaxis unifolia (green adder's-mouth)
Manfreda virginica (American aloe)
Onosmodium hispidissimum (false gromwell)
Orbexilum pedunculatum (false scurf-pea)
Physalis virginiana (Virginia ground-cherry)
Physostegia virginiana ssp. *praemorsa* (prairie obediant-plant)
Platanthera clavellata (green woodland orchid)
Platanthera flava var. *herbiola* (tubercled rein orchid)
Poa saltuensis ssp. *languida* (weak spear grass)
Prunus mexicana (bigtree plum)
Rhododendron prinophyllum (northern rose azalea)
Schoenoplectus purshianus (Pursh's bulrush)
Scleria oligantha (tubercled nut-rush)
Scleria pauciflora (few-flowered nut-rush)
Scleria triglomerata (tall nut-rush)
Scleria verticillata (low nut-rush)
Spiranthes magnicamporum (Great Plains ladies'-tresses)
Sullivantia sullivantii (Sullivantia)
Trillium nivale (snow trillium)
Verbesina helianthoides (hairy wingstem)
Viburnum rufidulum (southern black-haw)
Vitis cinerea (pigeon grape)

Other Outstanding Natural Features

Ohio's Natural Heritage Database includes records of unique and outstanding natural characteristics found in Scioto Brush Creek's watershed. Specific records include animal breeding assemblages, outstanding geologic features, and sites with high-quality plant communities in its inventory.

Animal assemblage

- mussel bed
- snake hibernaculum.

Geological features

- cave or cavern
- natural bridge or arch.

High-quality plant communities

- Appalachian oak forest
- arbor vitae-mixed wood forest floodplain forest
- little bluestem prairie
- mixed mesophytic forest
- oak-hickory forest
- oak-pine forest.

****federally endangered species*
*****federally threatened species*

Conservation Lands of Scioto Brush Creek

View of Scioto Brush Creek Watershed and forest habitat. *(photo by Brian Prose)*

Within Scioto Brush Creek watershed, more than 23,000 acres are held in the public trust by federal, state, and local governments or conservation organizations. These lands offer public access surrounded by the beautiful scenery of the watershed. Residents and visitors alike can experience a variety of outdoor activities including fishing, paddling, hiking, biking, hunting, trapping, camping, and wildlife and nature observation.

Conservation lands, whether they are public or private, provide important ecological benefits. Forested stream buffers, wetlands, wooded hillsides, and ravines along Scioto Brush Creek and its tributaries limit the impact of development and impervious surfaces within the watershed. These lands contribute to the long-term protection of the creek's water quality.

ODNR Division of Forestry

Brush Creek State Forest comprises more than 13,000 acres of land throughout the unglaciated hill country of south-central Ohio. Originally part of Shawnee State Forest, Brush Creek State Forest was created in the 1950s and named for the creek. This forest is heavily populated with productive hardwood species, steep hillsides, deep hollows, and narrow ridge tops.

Shawnee State Forest, sometimes called "the Little Smokies of Ohio," is the largest state forest; it protects more than 60,000 acres. This working forest is managed for a variety of multiple uses on a sustainable yield basis. Conservation activities include timber harvesting, tree planting, forestry research, wildlife habitat improvement, watershed and soil protection, and seed production. During spring and autumn wildfire seasons, state forest crews detect and suppress wildfires within the protection area surrounding the forest. Nearly 8,000 acres of the forest are designated as wilderness; in this area, timber is not managed and motorized travel is prohibited.

ODNR Division of Natural Areas and Preserves

Scioto Brush Creek State Nature Preserve near McDermott in Scioto County, protects over a mile of Scioto Brush Creek. The 30-acre site features mature trees, spectacular wildflowers in spring, and rare plant species. The preserve protects one of only six populations of the federally threatened Virginia spiraea (*Spiraea virginiana*). All six Ohio populations are found along Scioto Brush Creek.

Scioto Brush Creek State Nature Preserve harbors the federally threatened Virginia spiraea *(Spiraea virginiana)*.

Davis Memorial State Nature Preserve, located in Peebles in Adams County, protects interesting geologic features such as Silurian dolomite cliffs consisting of both exposed Greenfield and Peebles dolomite with Ohio Black Shale occurring on top of the knobs. An impressive fault, causing vertical displacement of 30 feet, exposes adjacent cliffs of Greenfield and Peebles dolomite.

A variety of rare species can be found here. The preserve's dolomite cliffs provide habitat for arbor vitae and Sullivantia while American aloe, dwarf hawthorn, hairy wing-stemare can be found in the prairie openings of this 167-acre site.

Shoemaker State Nature Preserve is a botanically significant site protecting rarities such as heart-leaved plantain (Plantago cordata), a state-endangered species only known from three other sites in Ohio. This 22-acre Adams County preserve protects unique geologic features including two natural arches, dolomite cliffs, and slump blocks which harbor several species of ferns and other plants found in calcareous cliff communities.

Arc of Appalachia

Chalet Nivale Nature Preserve is a 106-acre site in Adams County offering several miles of hiking trails for exploring the cliffs, ravines, springs, and streams that feed into Scioto Brush Creek. This preserve protects several rare and endangered Ohio native plant species.

Gladys Riley Golden-Star Nature Preserve is a state-dedicated preserve in Scioto County featuring spring wildflowers, mature trees, warblers, a variety of ferns, and one of the largest populations of the state-endangered golden star (*Erythronium rostratum*).

Plum Run Prairie State Natural Area protects 140 acres of dry prairie plus woods and important stream corridor habitat in Adams County. The site harbors the state-endangered heart-leaved plantain (*Plantago cordata*).

Ka Ma Ma Prairie is a state nature preserve in Adams County. The preserve protects several xeric limestone prairies harboring numerous rare prairie species such as rattlesnake master, blazing-stars, false gromwell, American aloe, prairie gentian, and other prairie species. It also has one of the highest diversity of butterflies in the state.

The Nature Conservancy

Richard and Lucile Durrell Edge of Appalachia Preserve is the state's largest privately owned nature preserve at more than 20,000 acres. Jointly owned by The Nature Conservancy and the Cincinnati Museum Center, this biologically diverse Adams County site protects a unique collection of natural features and habitats. Its offers visitors a variety of activities including hiking, fishing, and paddling.

Friends of Scioto Brush Creek

6.4 acres of land, located directly across the stream from the Scioto Brush Creek State Nature Preserve, provides riparian corridor protection for the creek.

207 acres of land located south of Pike County along State Route 32 and Hackleshin Road. The property features farmlands and woodlands divided by Scioto Brush Creek and along the Brush Creek State Forest border.

Churn Creek has 129 acres of heavily forested land protecting wooded bluffs and ravines. It is located south of Scioto Brush Creek along Churn Creek Road.

Stream Water Quality of Scioto Brush Creek

Overview

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

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 whether a waterbody 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 and physical habitat evaluations to determine the aquatic health of Ohio's waterways.

The following indices are used to evaluate the health of Ohio's water bodies:

Qualitative Habitat Evaluation Index (QHEI)

Physical conditions of a stream and its riparian area are measured by examining and assigning numerical values 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 found, 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)

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

The following tables in this chapter are taken from the 2006 Ohio EPA report, *Biological and Water Quality of the Scioto Brush Creek Basin*. They illustrate the biological performance of the fish and macroinvertebrate communities in the watershed.

Table 1. Fish community and descriptive statistics for Scioto Brush Creek, 2006.

River Mile	Drainage Area	Total species	Mean Relative Number (No./km)[a]	Mean Relative Weight (Wt./km)[a]	Mean IBI	Mean MIwb	QHEI	Narrative[b]
Scioto Brush Creek [02-700] Warmwater Habitat (WWH)								
38.2[H]	4.1	3	595	n/a	20*	n/a	66	Poor
36[H]	7.6	17	1106	n/a	44	n/a	69.5	Good
Scioto Brush Creek [02-700] Exceptional Warmwater Habitat (EWH)								
32.2[H]	18.9	27	1069	n/a	58	n/a	60	Exceptional
27.9[W]	35.0	25	1384	21.3	56	10.1	83	Exceptional
24.3[W]	46.8	24	1358	5.9	52	8.7*	58.5	Exceptional/ Good
17.8[B]	93.0	23	400	67.4	48	9.0*	n/a	Exceptional/ Good
16.7[B]	207	30	958	82.2	54	10.1	83	Exceptional
12.2[B]	233	35	611	84.7	51	9.6	82	Exceptional
5.8[B]	262	33	839	88	50	9.9	82	Exceptional
2.6[B]	265	37	563	58.6	47[ns]	10.0	79	Very Good/ Exceptional
0.6[B]	273	33	271	102.5	42*	9.4[ns]	79.5	Good/Very Good

KEY
a – Relative abundance and relative weight estimates are normalized to 0.3km for headwaters/wading sites and to 1.0km for boat sites.
b – Biological narratives IBI/MIwb.
H – Headwater site: Wading sampling method used drainage area < 20 miles2
W – Wading site: non-boat site draining areas > 20 miles2.
B – Boat site: large or deep waters, necessitating the use of Boat sampling methods
ns – Nonsignificant departure from the biocriteria (<4 IBI units or <0.5 MIwb units).
* – Significant departure from the biocriteria (>4 IBI units or >0.5 MIwb units). Poor or very poor results are underlined.

Table 2. Ecoregional Criteria for Western Alleghany Plateau

Ecoregional Criteria (ORC 3745-1-07, Table 7-1) Western Alleghany Plateau (WAP)		
Index Site Type	**EWH**	**WWH**
IBI-Headwaters	50	44
IBI-Wading	50	44
MIwb-Wading	9.4	8.4
IBI-Boat	48	40
MIwb-Boat	9.6	8.6

Table 3. Summary of macroinvertebrate data collected from artificial substrates (quantitative data) and natural substrates (qualitative data) in the Scioto Brush Creek watershed, July-Sept. 2006. *Aquatic life attainment status based on narrative evaluation.*

Scioto Brush Creek River Mile	Data Codes[c]	Qual. Taxa	Total Taxa	Qual. EPT[a]	Sensitive Taxa Qual./ Total	Density (#/ft.²)	ICI	Narrative Evaluation
38.2		24	24	4	5/5	Low	n/a	Fair*
36.0		38	38	12	14/14	Low	n/a	Good
33.6		54	54	16	23/23	Low	n/a	Exceptional
28.1		44	61	14	19/30	258	46	Exceptional
24.3	X15	45	67	13	21/33	66	34[ns]	Very Good[b]
17.2		48	69	17	21/32	241	46	Exceptional
12.1		64	64	19	32/32	Low	n/a	Exceptional
5.7		49	71	15	24/38	599	50	Exceptional
0.3		57	67	22	26/31	1047	48	Exceptional

KEY
a – EPT = total Ephemeroptera (mayflies), Plecoptera (stoneflies), and Trichoptera (caddisflies) taxa richness.
b – Narrative evaluation used to determine attainment status, due to low water currents.
ns – Nonsignificant departure from biocriterion (<4 ICI units).
* Significant departure from biocriterion (>4 ICI units or poor/fair results). Poor and very poor results are underlined.
c – Data codes: X9= intermittent or near-intermittent conditions; X15 = current >0.0 feet per second but < 0.3 fps.

Table 4. Ecoregional Biocriteria for Western Alleghany Plateau

Ecoregional Biocriteria: Western Alleghany Plateau		
Index	**WWH**	**EWH**
ICI	36	46

After evaluating water quality, stream habitat quality, and macroinvertebrate and fish populations, these indices are used to determine the overall condition of a stream and apply the appropriate aquatic life use designation.

Aquatic Life and Recreation Use Designation

Under the Aquatic Life Habitat, the Ohio Administrative Code (OAC) 3745-1-07 (Beneficial Use designation and biological criteria) defines "warmwater" 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 (OAC 3745-1-07 (B)(1)(a))."

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 (OAC 3745-1-07 (B)(1)(c))".

For recreation use, OAC 3745-01-07 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 (OAC 3745-1-07 (B)(3)(b))".

For aquatic life use, Scioto Brush Creek is designated WWH from the headwaters to State Route 32 (RM 33.55) and EWH from State Route 32 (RM 33.55) to the mouth. For recreation use, Scioto Brush Creek is designated Primary Contact (OAC 3745-1-09). Scioto Brush Creek is located in the Western Allegheny Plateau ecoregion.

Water quality conditions and attainment for aquatic life use are measured by collecting biological and chemical water samples and assessing physical stream habitat. Recreation use is measured by collecting bacteria indicators, Escherichia coli (E. coli) and fecal coliform. Combined, these measurements indicate a stream's ability to support and sustain healthy fish and bug communities, while allowing humans the ability to 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. The Antidegradation rules classify certain Ohio streams as Superior High-Quality Waters (SHQW) or Outstanding State Waters (OSW) based on their exceptional ecological values. Based on a review of the tables listed in OAC 3745-1-05, Scioto Brush Creek is listed as SHQW from the headwaters to McCullough Creek (RM 10.2) and OSW from McCullough Creek (RM 10.2) to the mouth.

Stoneflies are an example of the macroinvertebrates that are regularly monitored by Ohio Scenic Rivers Program volunteers along established stream segment stations on all Ohio scenic rivers.

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; and displaying a level of biological integrity equivalent to the exceptional warmwater habitat index of biotic integrity and/or invertebrate community index criteria values listed in OAC 3745-1-07. OAC 3745-1-05 lists the species that are considered declining fish species.

Current Conditions

The *2006 Biological and Water Quality Study of the Scioto Brush Creek Watershed* (Ohio EPA Technical Report DSW/EAS 2008-4-6) was published in April 2008 and includes water quality findings for the Scioto Brush Creek from the headwaters (RM 38.2) in Adams County downstream to the confluence with the Scioto River, east of McDermott. For this designation study, current conditions will reflect information provided for Scioto Brush Creek sampling locations.

Scioto Brush Creek was sampled for several of the following:
- Bacteria
- Chemistry
- Datasonde© meter parameters (pH, dissolved oxygen (mg/L), percent saturation, specific - conductivity (µholms/cm) and temperature (˚C)
- Fish and fish tissue
- Macroinvertebrates

Table 6 illustrates the aquatic life use attainment status for Scioto Brush Creek and was taken from the 2006 Ohio EPA report.

Table 5. Biocriteria for Western Alleghany Plateau Ecoregion

Biocriteria Western Alleghany Plateau Ecoregion		
Index Site Type	**WWH**	**EWH**
IBI - Headwaters/ Wading/Boat	44/44/40	50/50/48
MIwb - Wading/Boat	8.4/8.6	9.4/9.6
ICI	36	46

Table 6. Aquatic life use attainment status for stations sampled in the Scioto Brush Creek

The Index of Biotic Integrity (IBI), Modified Index of well-being (MIwb), and Invertebrate Community Index (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. Scioto Brush Creek is in the Western Allegheny Plateau (WAP) ecoregion. If biological impairment has occurred, the cause(s) and source(s) of the impairment are noted.

Scioto Brush Creek stream section	River Mile	Aquatic Life Use Designation	IBI	MIw[b]	ICI[b]	QHEI	Aquatic Life Attainment Status	Cause/ Source of impairment
Adjacent to Hackelshin Rd.	38.2[H]	WWH	20*	n/a	F*	66	NON	Metals/ Natural geology
at Poplar Grove Rd.	36.0[H]	WWH	44	n/a	G	69.5	FULL	
at State Rte. 32	33.6[H]	EWH	58	n/a	E	60	FULL	
at State Rte. 73 downstream Coffee Hollow	27.9[W]	EWH	56	10.1	46	83	FULL	
at ford upstream Rarden	24.3[W]	EWH	52	8.7*	VG	58.5	PARTIAL	Habitat/ Channel modification
at State Rte. 348 near Otway	17.1[B]	EWH	48	9.0*	46	n/a	PARTIAL	Unknown
downstream South Fork at State Rte. 73	16.7[B]	EWH	54	10.1	-	83	FULL	
at Dielman Rd.	12.2[B]	EWH	51	9.6	E	82	FULL	
at Tatman-Coe Rd.	5.8[B]	EWH	50	9.9	50	82	FULL	
at Colley Rd.	2.4[B]	EWH	47[ns]	10.0	-	79	FULL	
at State Rte. 104 east of McDermott	0.3[B]	EWH	42*	9.4[ns]	48	79.5	PARTIAL	Unknown

Key

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 ICI 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

H – Headwater site: Wading sampling method used drainage area < 20 miles2

W – Wading site: non-boat site draining areas > 20 miles2.

B – Boat site: large or deep waters, necessitating the use of Boat sampling methods

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.

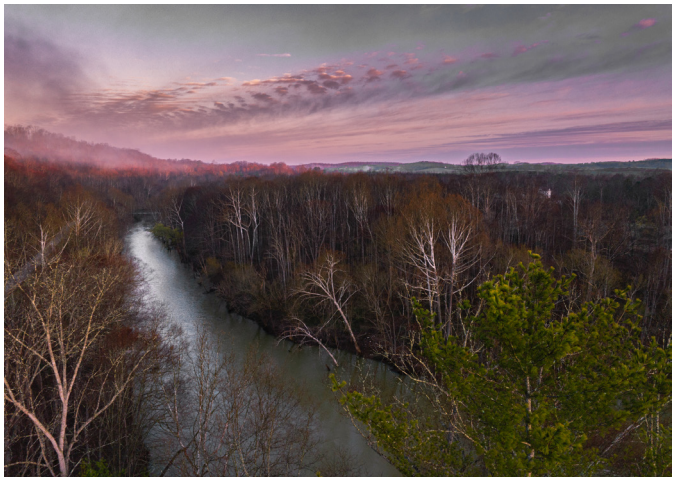
Scioto Brush Creek was evaluated in 2006 at 11 monitoring locations. Seven of 11 sites were meeting EWH or WWH aquatic life use. One location was in non-attainment of the WWH aquatic life use, and three locations were in partial attainment of the EWH aquatic life use.

The most upstream site at RM 38.2 was in non-attainment for both the fish and macroinvertebrate community. This site had natural layers of shale along the stream banks that contributed acidic discharges causing low pH and high dissolved metal concentrations. Natural geology was determined to be the source of non-attainment.

The sites at RM 24.3 and 17.1 were in partial attainment of EWH biological criteria with excellent IBI and ICI scores but the MIwb did not meet the EWH aquatic life use. Both sites met the biological criteria for WWH. Impairment at RM 24.3 was due to lower habitat (QHEI) scores. The cause of impairment at RM 17.1 was unknown but likely related to habitat impacts. Typical QHEI scores in Scioto Brush Creek are 74 which supports exceptional communities, but the QHEI score at RM 24.3 was 58.5, which is lower but still supportive of WWH communities.

In 2006 the Ohio EPA sampled certain sites for fecal coliform and E. coli, which are bacteria that are easily transported and present in all surface waters. Ohio's Recreational Use Designations (OAC 3745-1-07) are defined as applicable "only during the recreation season, which is the period from May 1 to October 31." Like most surface waters of the state, Scioto Brush Creek is primary contact waters. According to the 2006 Ohio EPA report, five out of 10 sites were in full attainment of the recreation use designation and five sites were in non-attainment. Potential sources of bacteria include failing home sewage treatment systems and agricultural activities. In 2006, there were no centralized sewers in the Scioto Brush Creek watershed; however, in 2016, the village of Otway received funding to build a wastewater treatment plant.

Scioto Brush Creek possesses good water quality, exceptional biological diversity, and outstanding stream habitat which contributes to the overall natural character of the creek's corridors. These attributes also provide excellent opportunities for recreational activities including paddling, fishing, hiking, and wildlife observation.



(photo by Brian Prose)

APPENDIX

Citations and References

Bertucci, A., Ramsey, L., Smith, J., & Miralha, L. (2025). *Scenic Designation Criteria Analysis for the Scioto Brush Creek and South Fork Watersheds.* Repository: miralha/scioto-brush (scenic-river-designation). Zenodo. https://doi.org/10.5281/zenodo.14985125

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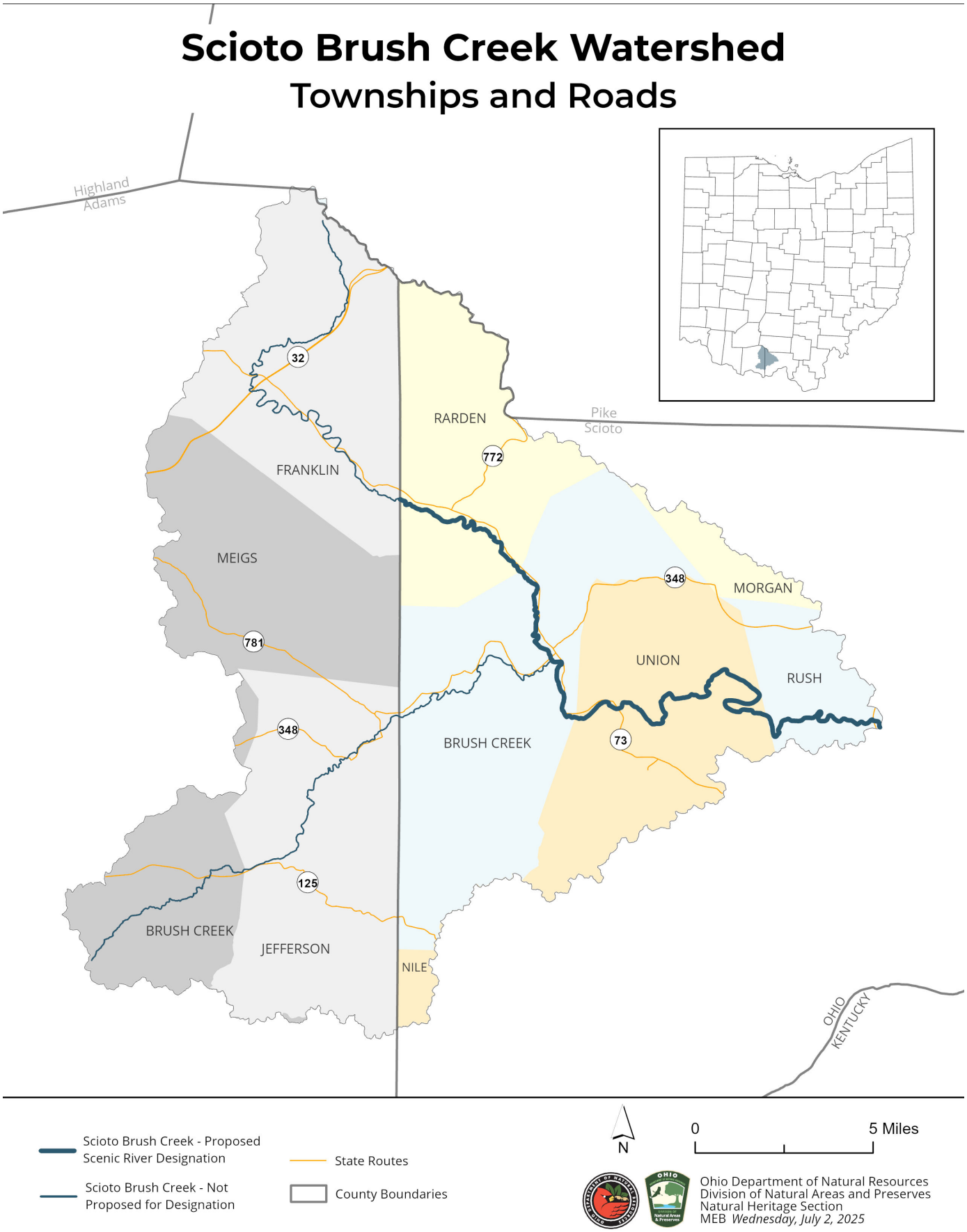
List of Tables


Scioto Brush Creek Watershed
Townships and Roads
Highland
Adams
Pike
Scioto
RARDEN
FRANKLIN
MEIGS
MORGAN
UNION
RUSH
BRUSH CREEK
BRUSH CREEK
JEFFERSON
NILE
OHIO
KENTUCKY
32
772
348
781
348
73
125
Scioto Brush Creek - Proposed Scenic River Designation
Scioto Brush Creek - Not Proposed for Designation
State Routes
County Boundaries
N
0
5 Miles
Ohio Department of Natural Resources
Division of Natural Areas and Preserves
Natural Heritage Section
MEB Wednesday, July 2, 2025

Scioto Brush Creek Watershed

Land Use

Scioto Brush Creek - Proposed Scenic River Designation

Scioto Brush Creek - Not Proposed for Designation

Forest (80.2%)

Agriculture and Pastureland (11.2%)

Shrub/Scrub (2.0%)

Wetlands (<0.0%)

Herbaceous (1.8%)

Open Water (0.2%)

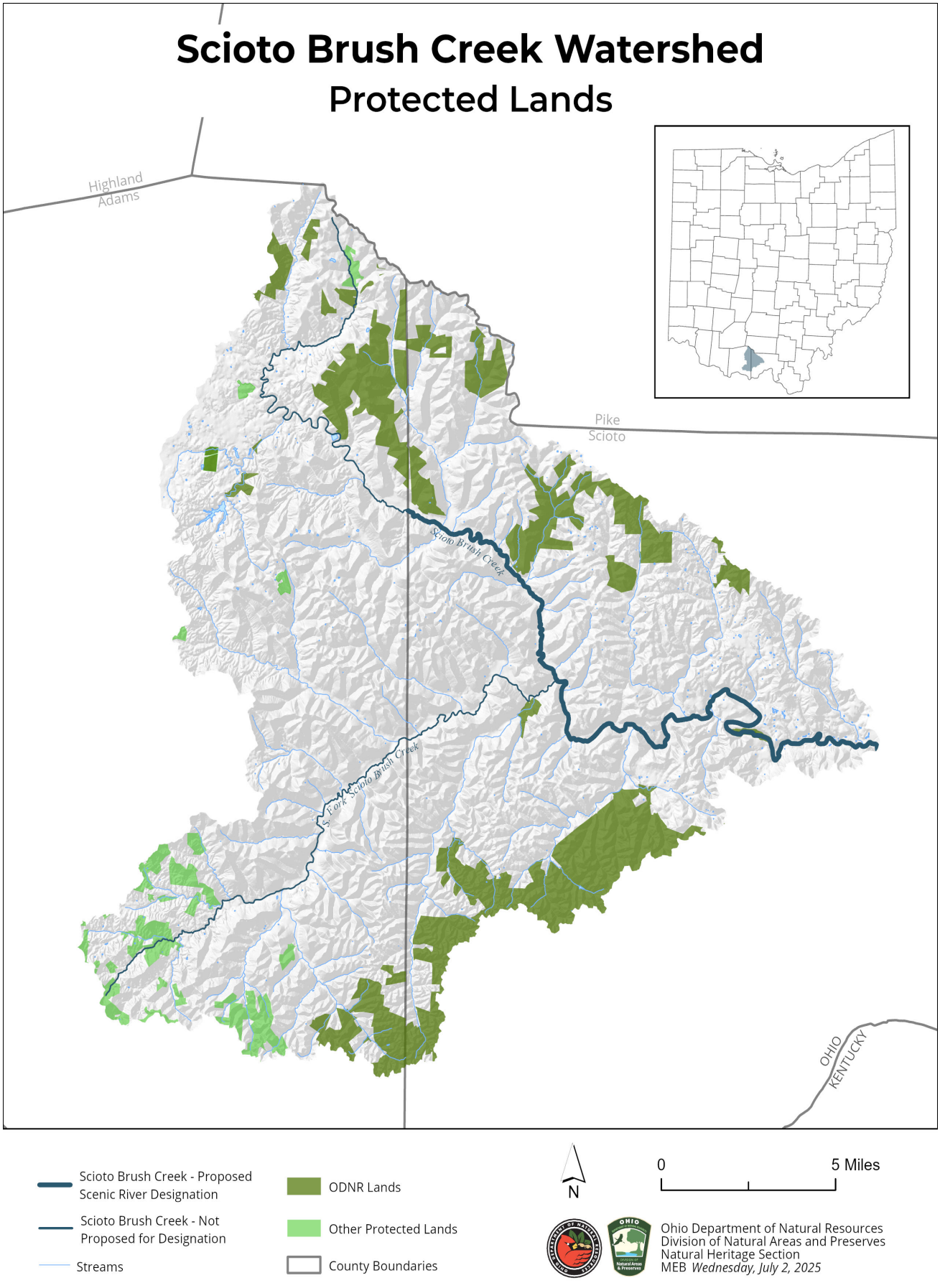
Barren Land (0.4%)

Developed (4.3%)

N

0 5 Miles

Ohio Department of Natural Resources
Division of Natural Areas and Preserves
Natural Heritage Section
MEB *Wednesday, July 2, 2025*
Data source: NLCD 2016


Scioto Brush Creek Watershed
Protected Lands
Highland
Adams
Pike
Scioto
Scioto Brush Creek
S. Fork Scioto Brush Creek
OHIO
KENTUCKY
Scioto Brush Creek - Proposed Scenic River Designation
Scioto Brush Creek - Not Proposed for Designation
Streams
ODNR Lands
Other Protected Lands
County Boundaries
N
0
5 Miles
Ohio Department of Natural Resources
Division of Natural Areas and Preserves
Natural Heritage Section
MEB Wednesday, July 2, 2025

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