

Section 8.2

Focus Watershed Descriptions

FOCUS WATERSHEDS

Eleven watersheds have been chosen as Focus Watersheds. These have selected as Ohio's highest quality watersheds based on physical characteristics, biological diversity and integrity, and recreational opportunities as assessed by the *ODNR Candidate Streams For Protection and Restoration* (Appendix 1). The Division of Wildlife will emphasize its Streams & Watersheds Program activities in these watersheds.

Watershed	Prioritization Score*	Ohio Drainage (mi²)
Little Miami River	14	1755
Grand River	11	705
Scioto River	11	6510
Paint Creek**	11	
Big Darby Creek**	13	
Little Darby**	10	
Muskingum River	11	8038
Kokosing River**	9	
Walhonding River**	9	
Great Miami River	10	3948
Stillwater River**	6	
Cuyahoga River	8	425
Ohio Brush Creek	8	435
Little Beaver Creek	7	510
Maumee River	6	4862
Sandusky River	6	1420
Chagrin River	4	264
Total Area:		28872
Ohio (land area):		40953
Proportion of Ohio covered by Focus Watersheds:		0.705

* Of 17 possible from *ODNR Candidate Streams For Protection and Restoration* (see Appendix 1)

** Major sub-basins of conservation interest

Below are detailed descriptions of the physical and hydrological characteristics of the Focus Watersheds from:

Schiefer, M.C. 2002. Basin Descriptions and Flow Characteristics of Ohio Streams. Ohio Department of Natural Resources – Division of Water, Bulletin 47. Columbus, Ohio.

Data for figures showing land cover and protected lands in Focus Watersheds was provided by the ODNR – Division of Natural Areas and Preserves' Natural Heritage Database Program.

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CHAGRIN RIVER BASIN

The Chagrin River originates in Geauga County at Chardon and flows southwest to Chagrin Falls where its drainage area is 60.6 square miles. Just west of Chagrin Falls, Aurora Branch with 58.2 square miles of drainage area joins the river from the south. From the confluence with Aurora Branch, the Chagrin flows northward in a preglacial valley to Willoughby and its mouth in Lake Erie at Fairport Harbor. East Branch with drainage area of 51.1 square miles joins the river at Willoughby. The total drainage basin is 264 square miles.

Physiography

The main tributaries to Lake Erie east of the Cuyahoga River lie mostly in the Glaciated Allegheny Plateaus with only the extreme lower reaches in the Erie Lake Plain. The Erie Lake Plain is separated from the Glaciated Allegheny Plateaus by the Portage Escarpment, an irregular slope 2 to 4 miles wide descending from elevation of about 1200 feet to 700 or 800 feet above mean sea level. The main tributaries have cut deep gorges in the Portage Escarpment. The smaller tributaries to the lake typically gather in and along the south side of the escarpment.

The Chagrin River Basin is mostly in the Killbuck Glaciated Pittsburgh Plateau and is rougher than that of the other main tributaries to the east. The terrain is rolling hills with moderate relief. The river flows on bedrock in some places and on valley fill of silts and clays in other places. Rock outcrops along the upper reaches of the Chagrin and its main tributaries are mainly that of Sharon Conglomerate. The upper reach between Chardon and Chagrin Falls flows at relatively steep gradient averaging about 25 feet per mile. At Chagrin Falls the river drops through a series of rapids about 100 feet over the course of a mile. Aurora Branch flows at average gradient of about 20 feet per mile and drops about 60 feet through a series of rapids near Chagrin Falls. The lower reach of the Chagrin River flows at relatively low gradient of about 4 feet per mile in a preglacial valley filled with silts and clays. The river flows in a deep gorge cut in Devonian-age shales at the Portage Escarpment. East Branch originates on the west side of Chardon and flows at relatively steep gradient averaging about 35 feet per mile to its confluence with the Chagrin River in the Portage Escarpment at Willoughby.

Geology

The surface rocks along the Erie Lake Plain are shales of Devonian age. These rocks continue at the surface south of the Portage Escarpment toward the midpoint of the basins. South and east, sandstone and shales of Mississippian age are at the surface. The Pennsylvanian-age Pottsville Group including the Sharon Conglomerate interfaces with the Mississippian-age rocks in upper parts of the Chagrin River Basin. The Berea sandstone of Mississippian age forms the falls at Chagrin Falls. A buried valley exists along the general course of Aurora Branch and the lower Chagrin River. Although the Berea sandstone yields some ground water to streams, it is the Sharon Conglomerate that yields large quantities. The shales yield little ground water to streams. The overburden of glacial drift covering the basin as a whole is relatively impermeable. Two recessional moraines cross the area, and there are some local deposits of outwash material.

Soils

Basins of the main tributaries to Lake Erie east of the Cuyahoga River are largely in Soil Region 6. Parts of the basin in the Erie Lake Plain and Portage Escarpment are in Soil Region 2.

Mahoning soil is dominant in the northern and eastern parts of the Grand River Low Plateau where the main tributaries east of the Cuyahoga River are located. Mahoning soil developed from clay loam and clayey till and has slow permeability. Plateau soil is also common. It has a fragipan that is very slowly permeable. Soils in the Grand River Finger Lake Plain developed from medium- to fine-textured till and lacustrine deposits. They have slow permeability. Soils developed in loamy outwash at various places have rapid permeability. For the most part, however, soils in Grand River Low Plateau of the tributary basins have slow permeability that impeded ground water recharge.

Conneaut soil is dominant in the Erie Lake Plain eastward from Cleveland. This slowly permeable soil developed from lacustrine deposits of lacustrine silt loam and silty glacial till. Rapidly permeable soils are on beach ridges. Conotton soil formed on beach ridges along the Portage Escarpment. Conotton is rapidly permeable.

Land Use

Lake Erie tributaries east of the Cuyahoga River are in two major land resource areas, the Erie Fruit and Truck Area and the Eastern Ohio Till Plain. The Erie Lake Plain and Lake Escarpment from Cleveland to Conneaut are moderately to highly developed. Land southward of the Portage Escarpment in the Grand River Low Plateau is mainly rural.

The Erie Lake Plain from Euclid to Mentor is highly developed with open space confined mainly to metro parks along tributaries to the lake. From Painesville to Ashtabula and Conneaut the lake plain and escarpment are less intensely developed. Commercial horticulture and nurseries are common in the area.

The Chagrin Basin is the most developed of the main tributary basins. Much of the development in the basin south of Willoughby and Kirkland is in the form of rural residential. Considerable amounts of former dairy and general farmland have been developed or are idle land held for development. Dairy, pasture and cropland are common in the till areas of the main tributary basins east of the Chagrin. The Grand River Basin has extensive wetlands as does the upper Conneaut Creek Basin.

Water Development

Communities along Lake Erie from Cleveland to Conneaut are supplied with water from the lake. Source of supply for the communities distant from the lake includes both surface water and ground water. The Grand River is source of supply for Rock Creek. Roaming Rock Lake on Rock Creek serves as source of supply for Roaming Shores. Sand and gravel lens in glacial drift supply Orwell. Chardon has wells near Bass Lake at the head of the Chagrin River. Chagrin Falls obtains supply from Cleveland.

Flow Characteristics

The Chagrin River at Willoughby and Aurora Branch near Chagrin Falls have relatively high base flow largely due to discharges from the Sharon Conglomerate and some outwash deposits. Big Creek and Painsville Creek gather in outwash near Chardon like the Chagrin and have relatively high base flows. East Branch of the Chagrin River is characterized as cold-water habitat and likely has high base flow similar to the Chagrin River.

Figure 44: Chagrin River Watershed

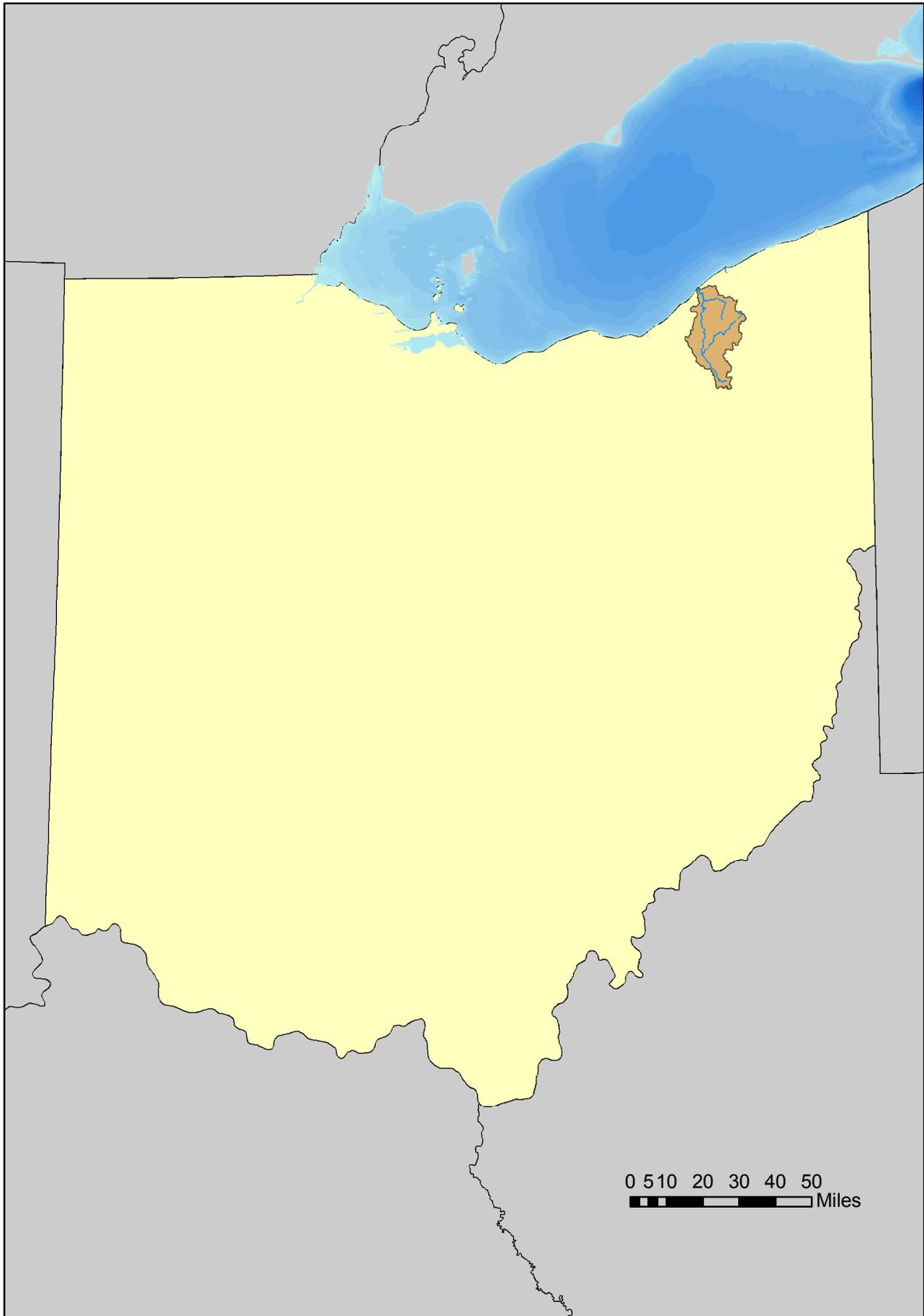


Figure 45: Chagrin River Watershed Land Cover

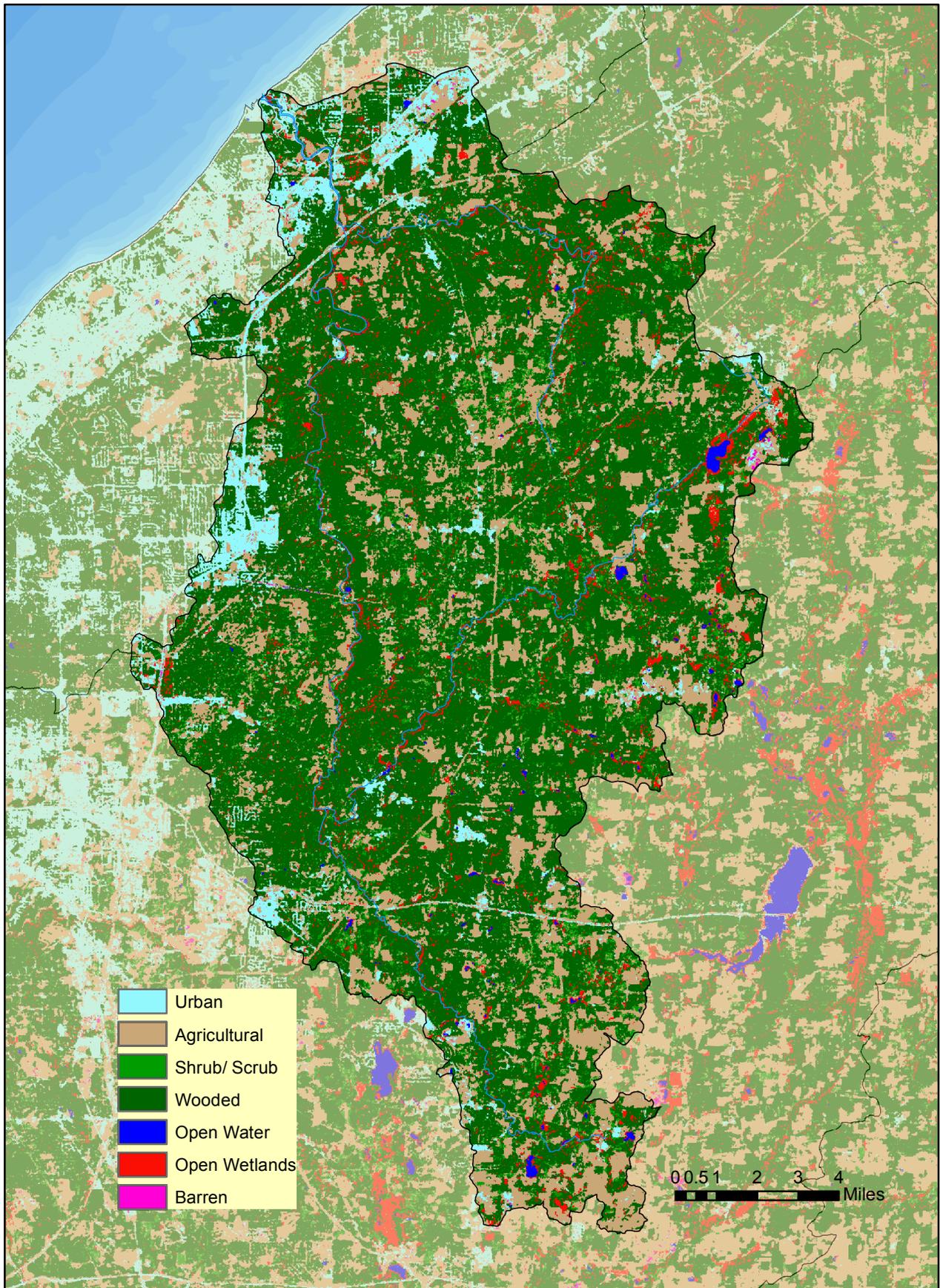


Figure 46: Chagrin River Watershed Protected Lands

