

DUCK CREEK AND ROCKY RUN WATERSHED (LW20)

The Duck Creek and Rocky Run watershed lies in west-central Columbia County. This watershed is in the glaciated portion of the basin. Stream gradients are generally not as steep in this watershed as in those within the unglaciated region. Overall population in the watershed for 2000 was estimated to be around 6,800 people. There are no large municipalities in the watershed. Overall, population growth is slight with the exception of the village of Rio, which experienced a 22% increase in population through the 1990's.

Table 1: Growth in Municipalities in the Watershed

<i>Municipality</i>	<i>1990</i>	<i>2000</i>	<i>% Change</i>
Cambria	768	792	3.1%
Rio	768	938	22.1%
Wyocena	631	668	5.9%

Agriculture predominates, with dairying and cash cropping as the primary activities. Wetlands are the second most common land cover in the watershed and there are some large wetland complexes, particularly near Duck Creek and its tributaries. Other major land cover in the watershed includes grassland and broad-leaf deciduous forest.

Table 2: Land Cover in the Watershed

<i>Land Cover</i>	<i>Percent of Watershed</i>
Agriculture	46.1%
Wetland (Total)	17.8%
<i>Forested</i>	<i>7.3%</i>
<i>Emergent/Wet Meadow</i>	<i>5.8%</i>
<i>Lowland Shrub</i>	<i>4.7%</i>
Forest (Total)	17.4%
<i>Broad-Leaf Deciduous</i>	<i>14.6%</i>
<i>Mixed Deciduous/ Coniferous</i>	<i>1.7%</i>
<i>Coniferous</i>	<i>1.1%</i>
Grassland	15.5%
Open Water	2.0%
Development	0.6%
Barren	0.5%

There are numerous muck farms on streams in the watershed. The ditching and draining of wetlands to create muck farms significantly impacts the habitat and water quality of surface waters. These farms not only modify the hydrologic regime in a stream, but they contribute

Watershed At A Glance

Drainage Area (m²): 147.5

Total Stream Miles: 133.0

Trout Stream Miles: 20.5

Sport Fishery Miles: 37.6

Lakes: Columbia, Wyona, Crystal, Mud, George, Tarrant and Curtis Lakes

Exceptional/Outstanding Resource Waters: S. Branch Duck (Roelke), and Crystal Lake

Municipalities: Wyocena, Rio, Cambria

Major Public Lands:

- ◆ Duck Creek Public Hunting Grounds
- ◆ Mud Lake Wildlife Area
- ◆ Jennings Creek Wildlife Area
- ◆ Springvale Wildlife Area
- ◆ Rocky Run State Fishery Area

Concerns and Issues:

- ◆ Nonpoint source pollution
- ◆ Ditching, diversion and impoundment of surface water
- ◆ Conversion of wetlands

Initiatives and Projects:

- ◆ Wetland restoration on private lands

large volumes of nutrients and sediments to streams. Overall, the watershed has been ranked as a medium priority for nonpoint source pollution.

The Cambria, Rio and Wyocena municipal wastewater facilities discharge to the North Branch Duck Creek, a tributary to Rocky Run and the groundwater, respectively. Six industrial facilities have a permit to discharge to several streams including; Duck Creek, the North Branch Duck Creek, the Wisconsin River, and Rocky Run. Three of these facilities also have a permit to discharge to groundwater. Most of these industrial facilities are food processing companies.

The Duck Creek and Rocky Run Watershed has a variety of good quality habitats and rare plant communities that are listed on the state's Natural Heritage Inventory, (NHI), kept by the Bureau of Endangered Resources. These communities include:

- ◆ Dry prairie
- ◆ Dry-mesic prairie
- ◆ Oak barrens
- ◆ Calcareous fen
- ◆ Emergent aquatic
- ◆ Floodplain forest
- ◆ Wet prairie
- ◆ Shrub-carr
- ◆ Southern sedge meadow
- ◆ Springs and spring runs, hard
- ◆ Stream, fast, soft and warm

In addition to these special communities, the watershed is also home for a variety of rare plant and animal species including; 1 species of beetle, 4 species of birds, 2 species of butterflies, 4 species of dragonflies, 9 species of fish, 2 species of mayflies, 4 species of mussels, 13 plant species, 1 species of mammal and 1 species of lizard. These plants and animals are also listed on the state's Natural Heritage Inventory (NHI).

There are numerous public wildlife and recreation areas in the watershed. The Peter Helland Wildlife Area is 2,997 acres and offers birdwatching, berry picking and canoeing. The Rocky Run Creek Fishery Area is 710 acres and is used for trout fishing and birdwatching. The 2,139 acre Mud Lake Wildlife Area contains prairie potholes, marsh, forest and grassland and is a good spot for canoeing and birdwatching. The Duck Creek Public Hunting Grounds is 159 acres and can also provide opportunities for birdwatching and hiking. The Jennings Creek Wildlife Area 530 acre area is good for trout fishing while the 695 acre Grassy Lake Wildlife Area is great for birdwatching and berry picking.

STREAMS IN THE DUCK CREEK AND ROCKY RUN WATERSHED

Duck Creek

Duck Creek is a tributary to the Wisconsin River. The creek runs through Wyocena and has been impounded at the junction of the North and Middle Branches of Duck Creek to create Wyona Lake in Wyocena. The creek supports a warmwater sport fishery. The creek receives point source discharges from Unimin, Chaquita Processed Foods and Grande Cheese.

Jennings Creek

Jennings Creek is a tributary to Duck Creek. The stream supports a Class II trout fishery. Although the creek is fairly well protected by wetlands, there are still in-stream habitat and

water quality issues. Straightening of the stream has resulted in poor in-stream habitat in some locations. In addition, a campground diverts a portion of the stream flow to form a lake. The lake acts to warm the water and once the water is discharged back to the stream, it has an increased temperature and can cause water quality and habitat problems.

Middle Branch Duck Creek

Middle Branch Duck Creek joins with North Branch Duck Creek at Wyona Lake to form the main stem of Duck Creek. The creek is a Class III trout stream for 2.5 miles of its length. Water quality in the upper reaches of the stream, above muck farms, has good water quality. Portions of the creek have been channelized, as have some of the unnamed tributaries. The stream carries a heavy sediment load, particularly from some muck farms adjacent to the stream. The owner of a muck farm has applied for federal funding through the Wetlands Reserve Program, (WRP), to restore the land back to a wetland. This would most likely help to improve the water quality within the stream. Public access to the stream could be improved.

North Branch Duck Creek

The North Branch of Duck Creek rises in northeastern Columbia County. Tributaries to the stream have been extensively modified. The stream does not support a balanced sport fishery and bank and adjacent farm field erosion are thought to be problems. Manure storage and management are also an issue of concern. The North Branch Duck Creek receives point source discharges from Del Monte Foods and the Cambria wastewater treatment plant. A small impoundment has been constructed on the stream in Cambria to create Lake Tarrant.

Rocky Run

Rocky Run is a popular trout stream in Columbia County that begins at Mud Lake and flows to the Wisconsin River. From Highway 22 west to Highway 51 the stream is trout water and six miles are Class II while another two miles are Class III. In warmer years, however, the trout waters begin further downstream of Highway 22. A rare aquatic species has been found in the creek in past surveys. Manure management and cattle access to the stream are problems in the upper reaches below the Mud Lake State Wildlife Area. The creek has been impounded on the upper end to create the Mud Lake State Wildlife Area. Portions of the upper reach above Highway 22 have been ditched. There is also a private impoundment above Highway 22 that warms the water. One to two miles of trout waters have been lost due to increased water temperatures. There are not really any impacts on the trout section of the stream although irrigation permits may cause a problem during periods of low flow.

Rocky Run receives point source discharges from Alliant/WI Power and Light and a tributary to the stream receives discharge from the Rio wastewater treatment plant. The creek has been ranked as a high priority for nonpoint source pollution and would benefit from a nonpoint pollution reduction project.

South Branch Duck Creek (Roelke Creek)

The South Branch of Duck Creek is a small tributary to the Duck Creek system. The stream is pretty much protected by wetlands. The creek has been classified as a Class I trout stream and an exceptional resource water (ERW). There is a muck farm on the creek that has caused

some problems in the past. One of the impacts has been that the stream has left its channel and follows the drainage ditch created by the muck farm. The owner of the farm had applied for federal funds through the Wetlands Reserve Program, (WRP), to restore the land to wetland. This restoration will help put stream back in its original channel and improve water quality. Public access to this stream could be improved.

Wisconsin River

A very small portion of this watershed is adjacent to the Wisconsin River. For more information on the Wisconsin River, see page 90.

LAKES IN THE DUCK CREEK AND ROCKY RUN WATERSHED

Columbia Lake

Lake Columbia is the manmade cooling impoundment of the Columbia Generating Station. It was constructed by building a dike around 500 acres of wetlands adjacent to the Wisconsin River in the 1970s. The plant went on line in 1977. A lake depth of seven feet is fairly uniform throughout. A center dike allows water to circulate around the lake from the hot discharge to the cooler intake. Typically there is a 25 F degree difference between the discharge and intake with 15-20 F degree dissipation occurring on the hot side of the lake. Cooling towers operate during summer months and/or when power generation heats the lake intake above a certain temperature. Water loss from evaporation and seepage through the dike requires make-up water to be pumped into the lake from the Wisconsin River. The hot water creates a harsh aquatic environment. Entire lake temperatures from May - November exceed 90 F degrees. Aquatic vegetation, which typically supports aquatic invertebrates, which in turn provide forage for fish, cannot survive these extreme temperatures. Fish species which have adapted to this environment are large and smallmouth bass, bluegill, bullheads, channel catfish and gizzard shad. Many of the smaller fish are in poor condition. When the predator species become larger, i.e. bass greater than 14 inches and catfish greater than 16 inches, they can utilize the larger gizzard shad and gain weight. Hybrid striped bass (white bass X striped bass) are stocked to provide a unique fishery and control the shad population. Since the lake doesn't freeze, it provides anglers with an open water fishing opportunity throughout the winter. The lake receives treated discharges of domestic sewerage from the power plant and the acidic runoff from the coal pile.

Crystal Lake

Crystal Lake is a 27-acre lake with a maximum depth of 12 feet located just south east of Pardeeville. The lake's fishery has largemouth bass and panfish. Public access to the lake could be improved.

Curtis Lake

Curtis Lake, located on a tributary to Duck Creek just south west of Wyocena, is a small 39-acre lake with a maximum depth of 7 feet. The lake is a spring fed lake. The lake has no known fishery and is lacking in public access.

George Lake

Lake George is approximately 36 acres and located in the northwest corner of the watershed. The lake is landlocked. The lake supports a panfish fishery and also contains some largemouth bass and northern pike. Weeds can cause a problem in this lake.

Mud Lake

Mud Lake is located in the headwaters of Rocky Run. The lake is 12 acres with a maximum depth of 1 foot. It is really more of a wetland than an open water lake. The lake does not have a fishery, but is extremely valuable for waterfowl and birds. The lake can be accessed from the road.

Tarrant Lake

Tarrant Lake is an impoundment on the North Branch of Duck Creek in Cambria. The lake is 25 acres and shallow. The pond is turbid and experiences problems with nonpoint sources of pollution. This has led to a fertile, turbid condition and the lake experiences algae and weed problems. The lake contains panfish, northern pike, largemouth bass and catfish.

Wyona Lake (Wyocena Millpond)

The lake is a manmade 93-acre lake in the village of Wyocena. The lake has a maximum depth of 12 feet. The lake's fishery is northern pike, largemouth bass and panfish. The lake experiences some problems as a result of algae growth and carp.

RECOMMENDATIONS (LW20)

- ◆ Baseline monitoring should be conducted on **Rocky Run, Roelke Creek and Duck Creek**.
- ◆ Sediment monitoring of should be conducted on bottom sediments in **Wyona Lake** at Wyocena.
- ◆ **Rocky Run** should be considered for possible selection as a nonpoint source pollution reduction project, such as a Targeted Runoff Management project (TRM).
- ◆ The diversion of **Jennings Creek** by a campground should be removed.
- ◆ Habitat work should be conducted in **Jennings Creek** to make up for poor habitat caused by the straightening of the stream.
- ◆ **Roelke Creek** should be restored to its original channel.
- ◆ Easements should be purchased along **Roelke Creek and the Middle Branch of Duck Creek** to increase public access.
- ◆ **Lake Columbia's** fishery should be monitored.
- ◆ **Rocky Run** should be surveyed to determine if rare aquatic elements previously found in the stream are still present.

WATERSHED MAP

Streams in the Duck Creek And Rocky Run Watershed (LW20)

Columbia County

Area: 147.5 sq miles

Stream Name	WBIC	Length (miles)	Existing Use	Potential Use	Supporting Potential Use	Codified Use and Trout Stream Classification	Proposed Modified Use	303(d) Status	Rare Aquatic Species	Use Impairment		NPS Rank	Monitored/ Evaluated/ Unassessed	Data Level	Trend	Ref.*
										Source	Impact					
Duck Creek	1266300	12	WWSF	same	Part	DEF	same	N	N	HM, NPS	HAB, NUT	L	E		U	3, 5, 10, 11
Jennings Creek	1270200	0-8	COLD II	same	Part	COLD II	same	N	N	NPS, BDAM	HAB, TEMP	NR	M	B2	U	5, 15
		8-10	U	U	U	U	DEF	same	N							U
Mid. Br. Duck Creek	1269300	0-3	WWSF	same	Part	DEF	same	N	N	HM, NPS	HAB, NUT, MIG	M	E		U	3, 5, 11, 15
		3-5.5	COLD III	COLD II	Part	COLD III	same	N		NPS	HAB, PST	M			U	
		5.5-15	WWFF	same	Part	DEF	same	N		NPS	HAB	M			U	
N. Br. Duck Creek	1267500	0-20.6	WWSF	same	Part	WWSF	same	N	N	HM, NPS, PSI	HAB, DO	L	E		U	3, 5, 10, 12
		20.6-25	WWFF	same	Part	DEF	same	N		NPS, HM	HAB, MIG				U	
Rocky Run	1265000	0-2	WWSF	same	Part	DEF	same	N	Y	HM	HAB, TEMP	H	E	B2	U	3, 5, 10, 12, 15
		2-8	COLD II	same	Part	COLD II	same	N		BDAM	HAB, TEMP				U	
		8-10	COLD III	same	Part	COLD III	same	N		NPS	HAB				U	
S. Br. Duck Creek (Roelke)	1269600	10-17	WWFF	same	Part	DEF	same	N		HM, CL	TEMP				U	
		0-1	COLD I	same	Full	COLD I/ERW	same	N	N	NPS, BDAM	HAB, TEMP	NR	E		U	5, 15
Unnamed Trib to Rocky Run (Rio) (T11N R9E, S1)		1-2	COLD I	same	Part	DEF	same	N							U	
		1.5	LAL	same	Part	LAL	same	N	N	BDAM	HAB, TEMP	L	E		U	5
Unnamed streams		50.5														
Total Stream Miles		133														
COLD I		2														
COLD II		14														
COLD III		4.5														
WWSF		37.6														
WWFF		20.9														
LAL		1.5														
U		52.5														

***The numbers in this column refer to the References found in the corresponding Watershed Narrative. See Appendix J: "How to Read the Stream Tables," in Chapter 7 of the State of the Lower Wisconsin River Basin Report.**

Lakes in the Duck Creek And Rocky Run Watershed (LW20)

Columbia County

Lake Name	WBIC	County	Surface Area (Acres)	Max Depth	Lake Type	Winterkill	Access	SH	Hg	MAC	LMO	TSI	Lake Plan or Prot	P Sens	Comments
Columbia Lake	977600	Columbia	500	8			T		M					2	
Crystal Lake	979000	Columbia	27	12	SE	Y	T					70		2	
Curtis Lake	1266800	Columbia	39	7	SP									2	
George Lake	994800	Columbia	36	22	SE		BR							1	
Wyone Lake (Wyocena Millpond)	1267400	Columbia	93	12	DG	Y	BF		R					2	

See Appendix K: "How to Read the Lake Tables," in Chapter 7 of the Lower Wisconsin State of the Basin Report.

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