

GREEN RIVER AND CROOKED CREEK WATERSHED (LW07)

The Green River and Crooked Creek Watershed is approximately 122 square miles and is located in Grant County. Streams in this watershed are tributary to the Wisconsin River. The watershed is in the unglaciated, or driftless, region of the state and lies on the north slope of Military Ridge. Most streams are spring fed and have a high gradient and as a result, streams exhibit generally good water quality and have a high recreational use potential. Overall population in the watershed is low and growth is not rapid. In fact, the village of Woodman experienced a 20% decrease in overall population over the last decade.

Table 1: Growth in Municipalities in the Watershed

<i>Municipality</i>	<i>1990</i>	<i>2000</i>	<i>% Change</i>
Boscobel	2,706	3,047	12.6%
Woodman	120	96	-20.0%

The dominant land cover in the watershed is broad-leaf deciduous forest. Agriculture is a major land use in the watershed and counts for approximately 37% of total land cover in the watershed. There are some larger grassland areas as well.

Table 2: Land Cover in the Watershed

<i>Land Cover</i>	<i>Percent of Watershed</i>
Forest (Total)	45.4%
<i>Broad-Leaf Deciduous</i>	44.1%
<i>Coniferous</i>	1.3%
Agriculture	37.5%
Grassland	8.7%
Wetland (Total)	5.2%
<i>Forested</i>	2.5%
<i>Emergent/Wet Meadow</i>	2.4%
<i>Lowland Shrub</i>	0.3%
Barren	1.4%
Open Water	1.2%
Development	0.8%

The primary water resource problem in the watershed results from nonpoint sources of pollution such as barnyard runoff, overgrazing along streams, and streambank and cropland erosion. As a result of these sources of pollution, this watershed is ranked as a high priority for nonpoint source reduction projects. In addition, the portion of the watershed in the Lower Wisconsin River Valley is considered an atrazine prohibition area. These areas indicate that

Watershed At A Glance

Drainage Area (m²): 122.0

Total Stream Miles: 56.0

Trout Stream Miles: 24.7

Sport Fishery Miles: 3.3

Lakes: Bullhead Slough

Exceptional/Outstanding Resource Waters: Big Green, Little Green, Crooked

Municipalities: Woodman, Boscobel

Major Public Lands:

- ◆ Woodman Unit of the LWSR
- ◆ Boscobel Unit of the LWSR
- ◆ Mount Hope Pond Conservation Area
- ◆ Semrad Slough

Concerns and Issues:

- ◆ Nonpoint source pollution
- ◆ Atrazine

Initiatives and Projects:

- ◆ Citizen monitoring on Big Green River
- ◆ Citizen monitoring on Sanders Creek
- ◆ Wild trout restoration

elevated levels of atrazine, an herbicide used on corn, has been found in some tested private water wells. Soils are permeable and have allowed atrazine to reach groundwater in some locations. See Appendix B.

The City of Boscobel wastewater treatment plant discharges treated wastewater to the Wisconsin River. One industrial discharge from Milk Specialties discharges treated wastewater to Crooked Creek.

The Green River and Crooked Creek Watershed has a variety of good quality habitats and rare plant communities that are listed on the state's Natural Heritage Inventory, (NHI), which is kept by the Bureau of Endangered Resources. The communities found in the watershed include:

- ◆ Dry prairie
- ◆ Dry-mesic prairie
- ◆ Pine relict
- ◆ Sand barrens
- ◆ Southern mesic forest
- ◆ Emergent aquatic
- ◆ Floodplain forest
- ◆ Shrub-carr
- ◆ Southern sedge meadow

In addition to these special communities, the watershed is also home for a variety of rare plant and animal species including; 5 species of birds, 7 species of dragonflies, 11 species of fish, 4 species of mayflies, 12 species of mussels, 24 species of plant species, and 1 species of snake. These plants and animals are also listed on the state's Natural Heritage Inventory (NHI).

The Woodman and Boscobel Units of the Lower Wisconsin State Riverway, (LWSR), are in this watershed. These units combined have 5,224 acres of public land, and 1,926, and 1,342, acres respectively. The Woodman unit has a boat launch and fishing with disabled access while the Boscobel Unit offers fishing and dog training. Other wildlife areas in the watershed include the Mount Hope Pond Conservation Area and the Semrad Slough. Trout fishing is available at the 200-acre conservation area and fishing and birdwatching are the primary recreational opportunities on the 278-acre slough.

STREAMS AND RIVERS IN THE WATERSHED

Big Green River

Currently, 11 of the Big Green River's 14 miles are supporting a Class I trout stream. Eleven of these also designated as an outstanding resource water, (ORW), and the WDNR owns easements on 8 of these 11 miles. The Big Green River has been ranked high as a nonpoint source priority. Recent changes in farming operations have concentrated more livestock into smaller areas in this subwatershed. Feedlots and barnyards exist close to the creek and on some of the unnamed tributaries to the stream. The proximity of manure storage pits to surface water is a threat. Cattle grazing and trampling of banks are a problem in some areas. Sediment in some pools and in the lower reaches of the stream may be causing in-stream habitat problems. A citizen stream monitoring group has been collecting data on the river since June 2000. Some of the parameters being monitored include turbidity, temperature, dissolved oxygen and flow. To see the data collected by this group, visit http://members.tripod.com/nohrchapter/monitor_home.htm.

Crooked Creek

Crooked Creek is a Class I trout stream for about 5.4 of its seven miles. Because it is considered Class I, it is also listed as an exceptional resource water (ERW). Water quality is generally very good. The creek has been ranked as a high priority for nonpoint source pollution reduction. Barnyard runoff in the upper reaches has caused water quality problems. Other barnyards and feedlots in the stream's drainage area may also be problematic. Grazing and cattle access to the stream may be causing some problems locally. One industrial facility discharges treated wastewater to Crooked Creek.

Dry Hollow Creek

Dry Hollow Creek is a small spring-fed tributary to the Big Green River. About 0.6 miles of its length are Class I trout. A number of barnyards adjacent to the creek are thought to be affecting stream habitat and water quality. The stream experiences problems with streambank pasturing and erosion.

Little Green River

The Little Green River is a tributary of the Big Green. It is classified as a Class I trout stream for 3.6 miles of its length. The river is also listed as an outstanding resource water (ORW). A survey conducted in the summer of 2000 indicated an increase in the number of trout. The Little Green River has been ranked as a high priority for nonpoint source pollution reduction. Cattle grazing and trampling of streambanks is an apparent problem, and barnyards near the stream may also be a problem.

Long Hollow Creek

Long Hollow Creek is a small spring-fed tributary to the Big Green River. Currently, the lower 0.1 mile of the stream supports the natural reproduction of brown trout. Stream bank erosion and erosion due to pasturing may contribute some sediment to the stream.

Sanders Creek

Sanders Creek is a tributary to the Wisconsin River at Boscobel. The stream is a Class II trout stream for four miles of its length, above the former Boscobel Wastewater Treatment Plant. The lower 1.5 miles are currently classified as a limited forage fishery (LFF). The discharge to this stream has been removed, however, and the stream should be re-surveyed to determine its current use. The stream has a history of supporting brown trout. A cursory habitat evaluation of the creek was conducted in the summer of 2001. The survey determined that the creek's habitat was in fair condition, but in some places was closer to poor. The watershed and the creek exhibited areas of erosion. This erosion has led to sedimentation in the stream. The creek is also the focus of citizen monitoring. Volunteers began to monitor the stream in July 2000 for turbidity, temperature, dissolved oxygen, and the overall health of the habitat and the biotic community in the creek. Today, the lower reach could probably support a warm water sport fishery. This segment, however, has very little in-stream habitat and floods often. Sanders Creek has been ranked as a high priority for nonpoint source pollution reduction. Intensive agricultural activity occurs in the subwatershed and runoff from barnyards and feedlots, cattle access to the stream and streambank erosion are problems.

Wisconsin River

This watershed is adjacent to a portion of the Wisconsin River. For more information on the Wisconsin River, see page 90.

LAKES IN THE WATERSHED

Bullhead Slough

Bullhead Slough is located on the Wisconsin River floodplain just northeast of Woodman. The slough is very shallow and winterkill is a problem. The fishery in the slough consists of northern pike, largemouth bass and panfish. The slough provides habitat for waterfowl during the spring and the fall.

The water in the slough is tinted an orange or yellow color. According to water resource biologists, this discoloration is the result of anoxic conditions of the water near the bottom. As the water in the slough becomes anoxic, it causes iron to mobilize from the soil and enter the water column. This iron precipitates out and is thought to be the cause of the orange tint of the water.

RECOMMENDATIONS (LW07)

- ◆ Areas along the **Little Green River, Big Green River, Sanders Creek and Crooked Creek** should be identified and prioritized for streambank protection and terrestrial and in-stream habitat restoration work.
- ◆ A water quality assessment and classification monitoring should be conducted on **Sanders Creek** to determine the potential of the lower 1.5 miles now that the Boscobel Sewage Treatment Plant no longer discharges to the stream. This monitoring should also assess the potential for in-stream habitat work.
- ◆ Baseline monitoring on the **Big Green River, Little Green River, and Crooked Creek** should be conducted.
- ◆ The **Big Green and Little Green Rivers, Crooked Creek and Sanders Creek** should be considered for nonpoint source pollution reduction projects through programs such as the Targeted Runoff Management grant program (TRM).

WATERHSED MAP

Streams in the Green River and Crooked River Watershed (LW07) Grant County Area: 122 square miles

Stream Name	WBIC	Length (miles)	Existing Use	Potential Use	Supporting Potential Use	Codified Use and Trout Stream Classification	Proposed Codified Use	303(d) Status	Rare Aquatic Species	Use Impairment		NPS Rank	Monitored/Evaluated/Unassessed	Data Level	Trend	Ref.*	
										Source	Impact						
Big Green River	1203900	0-1	WWSF	same	Part	DEF	same	N	N	BY, CL, PSB, SB	HAB	H	M (1994)	B2	U	5, 11, 15, 16, 20	
		1-12	COLD I	same	Full-thr	COLD II/ORW	COLD I	N				I					
		12-14	U	U	U	ORW	same	N				U					
Crooked Creek	1205600	0-0.8	WWSF	same	Part	DEF	same	N	N	HM, PSB, SB	HAB	H	M (1996)	B2	U	5, 11, 15, 16, 20	
		0.8-6.2	COLD I	same	Full	COLD I/ERW	same	N				U					
		6.2-7	U	U	U	ERW	same	N				U					
Dry Hollow Creek	1204100	0-0.6	COLD I	same	Part	COLD II	COLD I/ERW	N	N	NPS, PSB, SB	HAB	M	E	U	I	5, 11, 15, 20	
		0.6-2	U	U	U	DEF	ERW	N				U					
Little Green River	1204000	0-3.6	COLD I	same	Full	COLD I/ORW	same	N	N	HM, NPS	HAB	H	M (2000)	B2	U	5, 11, 15, 20	
		3.6-7	U	U	U	ORW	same	N				U					
Long Hollow Creek	1204400	0-0.1	COLD I	same	Part	COLD II	COLD I/ERW	N	N	NPS, PSB, SB	HAB	L	E	U	U	5, 11, 15, 20	
		0.1-2	U	U	U	DEF	same	N				U					
Sanders Creek	1205800	0-1.5	WWSF	same	Not	LFF	DEF	N	N	HM, NPS	HAB	H	M (2001)	B4, H2	U	5, 11, 15, 16, 20	
		1.5-5.5	COLD II	same	Part	COLD II	same	N				U					
		5.5-7	U	U	U	DEF	same	N				U					
Unnamed streams		17															
Total Stream Miles		56															
COLD		20.7															
COLD I		4															
WWSF		3.3															
U		28															

***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 Green River and Crooked River Watershed (LW07)											Grant 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
Bullhead Slough	1205400	Grant	40	10	DG	Y	NW							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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