

LOWER LEMONWEIR RIVER WATERSHED (LW27)

The Lower Lemonweir River Watershed is located in the driftless region of Wisconsin in Juneau County. All the creeks and ditches drain to the Lemonweir River, which then flows into the Wisconsin River. Many of the creeks in the watershed consist of sand and silt substrates, with low gradients and small to moderately sized attached spring ponds.

Population in the watershed for the year 2000 was estimated to be close to 9,874. Overall, population growth in the watershed is low.

Table 1: Growth in Municipalities in the Watershed

<i>Municipality</i>	<i>1990</i>	<i>2000</i>	<i>% Change</i>
Mauston	3,439	3,740	8.04%
New Lisbon	1,491	1,436	-3.68%

Forest covers the largest percent of land in the watershed, although agriculture also covers a high percent of land. Wetlands account for just over 13% of the watershed, a percent that is higher than most of the watersheds in the Lower Wisconsin Basin. This high number of wetlands could explain why the Lower Lemonweir River Watershed is the second largest producer of cranberries in the Basin.

Table 2: Land Cover in the Watershed

<i>Land Cover</i>	<i>Percent of Watershed</i>
Forest (Total)	40.6%
<i>Broad-Leaf Deciduous</i>	37.0%
<i>Coniferous</i>	3.6%
Agriculture	35.0%
Wetland (Total)	13.2%
<i>Forested</i>	5.4%
<i>Emergent/Wet Meadow</i>	5.2%
<i>Lowland Shrub</i>	2.6%
Grassland	7.9%
Open Water	1.4%
Other	1.0%
Development	0.9%

Overall, nonpoint source pollution from both urban and rural sources is considered the primary cause of water quality problems in streams in the Lower Lemonweir River watershed.

Watershed At A Glance

Drainage Area (m²): 207.0

Total Stream Miles: 128.7

Trout Stream Miles: 27.5

Sport Fishery Miles: 46.7

Lakes: Decorah Lake

Exceptional/Outstanding Resources Waters: Brewer Creek, Little One-mile Creek and Webster Creek.

Municipalities: New Lisbon, Mauston

Major Public Land or Reservations: Ho Chunk Nation, Bass Hollow County Recreation Area, and Several Large Tracts of Juneau County Forests

Concerns and Issues:

- ◆ Nonpoint source pollution
- ◆ Atrazine

Initiatives and Projects:

- ◆ Wild trout reintroduction

The groundwater in the Lower Lemonweir River Watershed has been ranked as a high priority with respect to nonpoint source pollution reduction. The cause of groundwater contamination from nonpoint sources of pollution may result from over fertilizing and over spreading of manure on agriculture fields. In fact, there are a couple of areas in the watershed that are considered to be atrazine prohibition zones. These areas indicated that elevated levels of atrazine, an herbicide used on corn, has been found in some tested private water wells. Soils are permeable which has allowed atrazine to reach the groundwater in some locations. See Appendix B.

Some work is being done in this watershed to help clean up the surface and groundwater. Nonpoint activities are currently being done on Little One-mile Creek, One-mile Creek and unnamed tributaries to One-mile Creek. Students at Mauston High School, with cooperation from the wildlife management classes and the WDNR, are conducting in-stream trout habitat work on One-mile Creek.

There are two permitted municipal discharges in the Lower Lemonweir River Watershed Mauston and New Lisbon. The municipality of Mauston discharges their treated wastewater to the Lemonweir River while New Lisbon discharges to a tributary flowing to the Lemonweir River.

The Lower Lemonweir River 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 cliff
- ◆ Dry prairie
- ◆ Dry-mesic prairie
- ◆ Hemlock relict
- ◆ Moist cliff
- ◆ Northern dry-mesic forest
- ◆ Northern mesic forest
- ◆ Oak barrens
- ◆ Pine barrens
- ◆ Pine relict
- ◆ Southern dry forest
- ◆ Southern dry-mesic forest
- ◆ Southern mesic forest
- ◆ Alder thicket
- ◆ Floodplain forest
- ◆ Northern sedge meadow
- ◆ Northern wet forest
- ◆ Shrub-carr
- ◆ Springs and spring runs, soft
- ◆ Slow, hard, warm stream

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, 2 species of birds, 4 species of dragonflies, 1 species of fish, 1 species of lizard, 1 species of mussel, and 14 plant species. These plants and animals are also listed on the state's Natural Heritage Inventory.

The Lower Lemonweir River Watershed contains a wide variety of activities to suit any recreational need. The Wisconsin River follows along the eastern edge of the watershed. This stretch of the river is a maze of braided channels, islands and bluffs. The diverse fisheries in the tributaries to the Wisconsin River offers game fishing to suit any angler. Public easements throughout the watershed allow access to Class I and II trout streams. For more information please contact the Department of Natural Resources in Adams Friendship.

STREAMS AND RIVERS IN THE WATERSHED

Brewer Creek

Brewer Creek, a tributary to the Lemonweir above Decorah Lake, is a Class I trout stream for 6.7 of its nine miles. The Class I trout waters are also considered Exceptional Resource Waters (ERW). Cattle access to the stream, which leads to bank erosion, and runoff from a barnyard are causing water quality and in-stream habitat problems. Brewer Creek has been ranked high as a small-scale nonpoint source priority watershed reduction project.

Cattail Valley Creek

This is a small, warm water forage fishery stream tributary to One-mile Creek. It has many nonpoint source problems including runoff from farm fields and barnyards, grazing and bank erosion, and stream channelization. In the mid-1970s abundant populations of leopard frogs were reported.

Cheese Factory Creek

This small tributary to One-mile Creek suffers from grazing and bank erosion problems. These problems may be adding sedimentation problem in One-mile Creek. This stream also has a history of an abundant population of leopard frogs.

Juneau County Ditch

Very little information is available with which to classify or determine use problems to Juneau County Ditch. More monitoring data is needed to assess the overall water quality.

Lemonweir River

The Lemonweir River in this watershed extends from its confluence with the Wisconsin River upstream to the dam at New Lisbon. The river has a diverse warm water sport fishery. The dominant gamefish in this reach is the smallmouth bass. Streambank erosion is a problem in this reach, resulting in sand and sediment accumulating in the deeper holes and backwater areas, and increased turbidity. It is believed that the proposed removal of the Lemonweir Mill Dam would eliminate backwater spawning and nursery areas.

Little Brewer Creek

Very little information is available with which to classify or determine use problems to the Little Brewer Creek. More monitoring data is needed to assess the overall quality of the stream.

Little One-mile Creek

Approximately three miles of this stream's length are considered Class III trout waters. Heavy pasturing and trampling of banks has caused severe bank erosion and sedimentation in the stream. Channel dredging in its upper end has added to the sedimentation problem. Sediment from this stream may be affecting One-mile Creek. Little One-mile Creek is considered a high priority for a small-scale nonpoint source pollution reduction project.

One-mile Creek

One-mile Creek is a tributary to the Lemonweir below Mauston. About 9.5 miles of its length are trout waters, five miles of Class I, two miles of Class II, and 2.5 miles of Class III. The Class I portion is also considered an Exceptional Resource Water (ERW). Sedimentation is causing in-stream habitat problems in some reaches. Cattle grazing adjacent to the stream is a source of the problem. Sediment from tributaries is also thought to be contributing to the problem. One-mile Creek is considered a high priority for a small-scale nonpoint source pollution reduction project. The WDNR has purchased some easements along this stream.

Seven-mile Creek

Very little information is available with which to classify or determine use problems to Seven-mile Creek. More monitoring data is needed to assess the overall quality of the stream.

Spring Creek

Very little information is available with which to classify or determine use problems to Spring Creek. More monitoring data is needed to assess the overall quality of the stream.

Tetzel Creek

Very little information is available with which to classify or determine use problems to Tetzel Creek. More monitoring data is needed to assess the overall quality of the stream.

Webster Creek

Webster Creek is a tributary to the Lemonweir below New Lisbon. There are two miles of Class II trout waters, while another three miles are considered Class III trout waters. Some reaches of the stream are severely affected by nonpoint source pollution. Manure and cattle access to the stream are causing heavy siltation and turbidity, degrading in-stream habitat and fish populations.

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**Decorah Lake**

Decorah Lake is a 104-acre impoundment of the Lemonweir River formed by a dam at Mauston. A heavy nutrient load to the lake has resulted in excessive aquatic plant growth. The plant growth, coupled with sedimentation and turbidity, has caused stunted panfish populations. In 1988, a proposal suggested a run-of-the-river hydropower operation be established at the dam.

RECOMMENDATIONS (LW27)

- ◆ **Brewer Creek, Little One-mile Creek, and One-mile Creek** should be considered for a nonpoint source pollution reduction project such as a Targeted Runoff Management grant (TRM).
- ◆ The **Lemonweir River** should be assessed to determine if rare aquatic elements previously found are still present.
- ◆ The populations of leopard frogs in the watershed should be surveyed to determine the health and abundance of the frog. If a decline is indicated, more work should be done to determine the potential causes.
- ◆ **Juneau County Ditch, Little Brewer Creek, Seven-mile, Spring, and Tetzal Creeks** should be monitored to determine fishery health and use problems.
- ◆ Examine the impact of removing the Lemonweir Dam to determine if the removal would eliminate necessary spawning and nursery areas.
- ◆ The **Lemonweir River** should be monitored as a part of the WDNR's baseline monitoring.
- ◆ The effect of **Decorah Lake** on the water quality of the Lemonweir River should be monitored.
- ◆ A lake management plan should be developed to determine management options in the lake to improve the water quality and the fishery of **Decorah Lake**.

Watershed map

Streams in the Lower Lemonweir River Watershed (LW27)										Juneau County			Area: 207 sq miles			
Stream Name	WBIC	Length	Existing Use	Potential Use	Supporting Potential Use	Modified Use and Trout Stream Classification	Proposed Codified Use	303(d) Status	Rare Aquatic Species	Use Impairment		NPS Rank	Monitored/ Assessed/ Unassessed	Data Level	Trend	Ref.*
										Source	Impact					
Brewer Creek	1305000	0-6.7	COLD I	same	Full-thr	COLD I/ERW	same	N	N	NPS, HM	HAB	H	E (1993)	U	U	4, 6, 7, 15
Cattail Valley Cr.	1303500	6.7-8	COLD	same	U	DEF/ERW	same	N								
Juneau County Ditch	1344800	0-5.3	WWFF	same	U	DEF	same	N	N	NPS	HAB	M	E	U	U	7
		5.3-15	LAL	same	U	DEF	same	N	N	NPS, HM	HAB	NR		U	U	4, 6, 7
			U	U	U	DEF	same	N								
Lemonweir River	1301700	0-30.7	WWSF	same	Full-thr	WWSF	same	N	Y	NPS	HAB	M	E	U	U	7
Little Brewer Creek	1305100	2	U	U	U	DEF	same	N	N			NR		U	U	7
Little One-mile Cr.	1303900	0-3	COLD III	same	Part	COLD III	same	N	N	NPS	HAB	H	E	U	U	4, 6, 7, 15
		3-6	COLD	same	U	DEF	same	N								
		0-0.5	WWSF	same	U	DEF	same	N	N			H	E	U	U	4, 7, 15
		0.5-3	COLD III	same	Full-thr	COLD III	same	N		NPS	HAB					
		3-5	COLD II	U	U	COLD II	same	N								
		5-10	COLD I	U	U	COLD I/ERW	same	N								
		10-13	COLD	U	U	DEF/ERW	same	N								
Seven-mile Creek	1302400	15	WWSF	same	U	DEF	same	N	N			NR		U	U	6, 7
Spring Creek	1304100	2	LFF	same	U	DEF	same	N	N			NR		U	U	7
Stewart Creek	1304000	4	LFF	same	U	DEF	same	N	N			NR		U	U	7
Teitzel Creek		2	U	U	U	DEF	same	N	N			NR		U	U	7
Webster Creek	1305700	0-0.5	WWSF	same	U	DEF	same	N	N			M	E	U	U	4, 7, 15
		0.5-3.5	COLD III	same	Part	COLD III	same	N		NPS	HAB					
		3.5-5.5	COLD II	U	U	COLD II	same	N								
		5.5-9	U	U	U	DEF	same	N								
Unnamed Trib to Onemile Cr. (T16R3E, S27)	1304400	3.3	COLD I	same	Full-thr	COLD I/ERW	same	N	N			H	E	U	U	6, 7
Unnamed trib to Webster Cr. (T16NR2E, Sec 24)		4.5	LAL	same	Full	DEF	same	N	N			L		U	U	7
Unnamed streams		8.2				DEF										
Total Stream Miles		128.7														
COLD		7.3														
COLD I		15														
COLD II		4														
COLD III		8.5														
WWSF		46.7														
WWFF		6														
LAL		9.8														
LFF		6														
U		25.4														

*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 Lower Lemonweir River Watershed (LW27)

Juneau 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
Decorah Lake	1304600	Juneau	104	15	DG		BR		M					2	shallow impoundment

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

REFERENCES

1. Central Wisconsin Groundwater, The. The Central Wisconsin Groundwater Task Force Report. University of Wisconsin- Stevens Point, February 2001.
2. Enterprise Information, Technology and Applications, Bureau of. Wisconsin DNR. The WISCLAND Land Cover Data. Data from 1991 to 1993. Published in 1998.
3. Enterprise Information, Technology and Applications, Bureau of. Wisconsin DNR. User's Guide to WISCLAND Land Cover Data. 1998.
4. Fix, Steve. Lower Wisconsin River Basin Water Quality Management Plan. Wisconsin DNR. Bureau of Water Resources Management. PUBL-WR-001-94-REV. 1994.
5. Jason Folstad. Personal Communications. Wisconsin Department of Natural Resources 2001.
6. Klick, Thomas, and C.W. Threinen. Surface Water Resources of Juneau County. Wisconsin Department of Natural Resources. 1969.
7. Hazuga, Mark. Personal Communications. Wisconsin Department of Natural Resources 2001.
8. Ironside, Scott. Personal Communications. Wisconsin Department of Natural Resources. 2001.
9. North Central Wisconsin Regional Planning Commission. Watershed Population Estimates for the State of Wisconsin. May 2000.
10. Oregon State University. Government Information Sharing Project. Wisconsin 1990 Census. <http://govinfo.library.orst.edu/cgi-bin/state2?wi>. Updated: Tuesday, November 20, 2001
11. University of Wisconsin-Madison, Applied Population Laboratory (APL). Census 2000 Data Releases, <http://www.ssc.wisc.edu/poplab/census2000.htm>. 2001©.
12. Wisconsin Department of Agriculture, Trade and Consumer Protection. Atrazine prohibitions web site. <http://datcp.state.wi.us/arm/agriculture/pest-fert/atrazine> and ATCP 30, of the Wisconsin Administrative Code.
13. Wisconsin Department of Natural Resources. Fish Management Files, North Central District.
14. Wisconsin Department of Natural Resources. Wisconsin Lakes. Bureau of Water Resources Management and Bureau of Fisheries Management. Wisconsin Department of Natural Resources, PUB-FH-800, 2001.
15. Wisconsin Department of Natural Resources. Wisconsin Trout Streams, Fisheries Management, Bureau of, 1980.