

WEST FORK KICKAPOO RIVER WATERSHED (LW04)

The West Fork Kickapoo River Watershed is located in central Vernon County. This watershed includes all streams that flow to the West Fork of the Kickapoo River. Two flood control structures owned and operated by Vernon County create Seas Branch Pond and Jersey Valley Lake. Due to the steep topography in the area, much of the acreage in the watershed is woodland. The remaining acreage is either in agriculture or private property that is not farmed. Only one Wisconsin Pollutant Discharge Elimination System (WPDES) permit is issued in this watershed for K & K Cheese. Population of the West Fork Kickapoo River Watershed for the year 2000 was estimated at approximately 6,350, which includes portions of eight townships and three villages. Only the western half of Westby and Viroqua and the southern half of Cashton are located in this watershed. The fastest growing community in this watershed is Cashton at nearly 29%.

Table 1: Growth in Municipalities in the Watershed

<i>Municipality</i>	<i>1990</i>	<i>2000</i>	<i>% Change</i>
Cashton (part)	780	1,005	28.8%
Viroqua (part)	3,922	4,335	10.5%
Westby (part)	1,866	2,045	9.6%

Table 2: Land Cover in the Watershed

<i>Land Cover</i>	<i>Percent of Watershed</i>
Agriculture	52.7%
Forest (Total)	34.5%
<i>Broad-Leaf Deciduous</i>	33.9%
<i>Coniferous</i>	0.60%
Grassland	10.7%
Wetland (Total)	0.89%
<i>Emergent/Wet Meadow</i>	0.77%
<i>Forested</i>	0.11%
<i>Lowland Shrub</i>	0.01%
Development	0.29%
Other	0.94%

Overall, nonpoint source pollution is considered the primary cause of water quality problems in streams of the watershed and consequently the stream ranking of high has been assigned for nonpoint source pollution abatement efforts. There is an atrazine prohibition area in the Town of Viroqua in sections 7, 18, 17, 18, 19 and 20. These areas indicate that elevated levels of

Watershed At A Glance

- Drainage Area (m²):** 118
- Total Stream Miles:** 80.1
- Trout Stream Miles:** 47.6
- Sport Fishery Miles:** 0
- Lakes:** Jersey Valley Lake, Seas Branch Pond
- Exceptional/Outstanding Resource Waters:** Bishop Branch, Seas Branch
- Municipalities:** Cashton, Viroqua, Westby
- Major Public Lands:**
- ◆ Jersey Valley County Park
- Concerns and Issues:**
- ◆ Nonpoint source pollution
 - ◆ Atrazine
- Initiatives and Projects:**
- ◆ Wild trout reintroduction
 - ◆ In-stream habitat restoration
 - ◆ Continuous water temperature monitoring

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

The West Fork Kickapoo 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 pine and hemlock relicts. In addition to these special communities, the watershed is also home for a variety of rare plant and animal species including; one species each of fish, frog, mammal, snake and salamander and 3 different plant species. These plants and animals are listed on the state's NHI.

No extensive amount of public lands are found in the West Fork of the Kickapoo River Watershed. The largest single piece of public land is the 370 acre Jersey Valley Park that surrounds Jersey Valley Lake. Vernon County manages this park which offers fishing, hiking, swimming and picnicking. A barrier free fishing pier is also located in this park. The WDNR owns small tracts of land adjacent to the West Fork of the Kickapoo River, Cook Creek, Maple Dale Creek and Bishop Branch. In addition, WDNR easements are located on Seas Branch, Bishop Branch and West Fork of the Kickapoo River.

STREAMS AND RIVERS IN THE WATERSHED

Bishop Branch

Bishop Branch, located in central Vernon County, flows in a southeasterly direction for 6.0 miles before reaching the West Fork of the Kickapoo River south of Liberty. This stream has a gradient of 30 feet per mile and drains forested hillsides with agricultural activity limited to the valleys. Bishop Branch is a Class II trout stream from its mouth upstream for five miles and then Class I for the next one mile upstream. It is classified as an Exceptional Resource Water, (ERW).

The most recent survey, conducted in 1995, documented a self-sustaining brown trout population along with only a few brook trout and rainbow trout. At the time, the stream bottom was dominated by sand with some areas of cobble and gravel. In-stream cover consisted of deep pools, woody debris and LUNKER structures. A fish and habitat survey of Bishop Branch should be conducted to determine its existing condition. Bishop Branch would benefit from the purchase of streambank easements from willing sellers and the restoration of in-stream habitat. WDNR records indicate that Bishop Branch was last stocked with brown trout in 1995. Access to Bishop Branch is from WDNR owned land, WDNR easements and one road crossing. A rare aquatic species has been found in this creek.

Cook Creek

Cook Creek, located in central Vernon County, flows for 1.5 miles in an easterly direction before joining with Maple Dale Creek to form Bishop Branch. This stream has a gradient of 73 feet per mile and drains forested hillsides, the eastern portion of Viroqua, a quarry, and an agricultural headwater plateau. Cook Creek is a Class I trout stream for its entire length.

The most recent survey, conducted in 2000, documented brook trout, brown trout, mottled sculpin and brook stickleback. Cobble and gravel dominated the stream bottom. Cook Creek would benefit from the purchase of streambank easements from willing sellers and the restoration of in-stream habitat. WDNR records indicate that Cook Creek has been stocked with brook trout since 1974 and with wild brook trout since 1998. Access to Cook Creek is from WDNR owned land and one road crossing.

Elk Run

Elk Run, located in central Vernon County, flows in a southwesterly direction for 3.0 miles before reaching the West Fork of the Kickapoo River near Liberty. This stream has a steep gradient of 77 feet per mile and drains steep forested hillsides and a once farmed valley that now supports rural homes. Elk Run is not a classified trout stream.

The most recent survey was conducted in 1970. A fish and habitat survey of Elk Run should be conducted to determine its existing condition. WDNR records indicate that Elk Run has not been stocked. Access to Elk Run is from two road crossings.

Hall Creek

Hall Creek, located in north central Vernon County, flows in a southwesterly direction for 2.1 miles before reaching the West Fork of the Kickapoo River near Bloomingdale. The gradient of this stream is a steep 80 feet per mile and drains forested hillsides and an agricultural valley. Hall Creek is not a classified trout stream.

The most recent survey was conducted in 1970. A fish and habitat survey of Hall Creek should be conducted to determine its existing condition. WDNR records indicate that Hall Creek has not been stocked. Access to Hall Creek is from two road crossings. A rare aquatic species has been found in this creek.

Harrison Creek

Harrison Creek, located in central Vernon County, flows in a southeasterly direction for 3.5 miles before reaching the West Fork of the Kickapoo River near its mouth. This stream has a gradient of 49 feet per mile and drains forested hillsides and an agricultural valley. Harrison Creek is a Class II trout stream for its entire length.

The most recent survey, conducted in 1998, documented brown trout and numerous forage fish species. The stream bottom was dominated by sand, followed by silt with small amounts of gravel. In-stream cover consisted of undercut banks and woody debris. Problems noted include streambank erosion and overgrazing of livestock. Harrison Creek would benefit from the purchase of streambank easements from willing sellers and the restoration of in-stream habitat. WDNR records indicate that Harrison Creek has been stocked with brown trout since 1960 and with wild brown trout since 1998. Access to Harrison Creek is from four road crossings.

Knapp Creek

Knapp Creek, located in north central Vernon County, flows in a south westerly direction for 4.0 miles before reaching the West Fork of the Kickapoo River north of Bloomingdale. This

stream has a gradient of 34 feet per mile and drains forested hillsides and agricultural valleys and an agricultural headwater plateau. Knapp Creek is a Class III trout stream for its entire length.

The most recent survey, conducted in 1978, documented brown trout and numerous forage fish species. The stream bottom was dominated by cobble and gravel with the downstream areas containing significant amounts of silt. In-stream cover consisted of boulders and woody debris. A fish and habitat survey should be conducted of Knapp Creek to document existing conditions. WDNR records indicate that Knapp Creek was last stocked with brown trout in 1980. Access to Knapp Creek is from two road crossings. A rare aquatic species has been found in this creek.

Maple Dale Creek

Maple Dale Creek, also known as Pine Hollow Creek and Creek 2-3, is located in central Vernon County. This stream flows in a southerly direction for 2.0 miles before joining with Cook Creek to form Bishop Branch. Maple Dale Creek has a steep gradient of 80 feet per mile and drains forested hillsides, WDNR owned land in its natural state, and an extensive agricultural headwater plateau. An earthen dry dam is located on the WDNR owned land. Water impounds behind this structure only during times of extreme runoff. Maple Dale Creek is a Class III trout stream for its entire length.

The most recent survey, conducted in 1971, documented a diverse forage fishery. Stocking of wild brook trout was recommended at the time. A fish and habitat survey of Maple Dale Creek should be conducted to determine existing conditions. WDNR records indicate that wild brook trout were stocked in 2001. Access to Maple Dale Creek is from two road crossings and WDNR owned land.

Rocky Run

Rocky Run, located in central Vernon County, flows in a southwesterly direction for 1.4 miles before reaching the West Fork of the Kickapoo River near Liberty. This stream has a gradient of 60 feet per mile and drains forested hillsides and an agricultural valley. Rocky Run is not a classified trout stream.

The most recent survey, conducted in 1990, documented brown trout and several forage fish species. Due to the presence of brown trout in 1990 and the upgrade of the West Fork of the Kickapoo River to Class II trout where Rocky Run meets the river, a fish and habitat survey should document existing conditions to determine if reclassification of Rocky Run is justified. WDNR records indicate that Rocky Run has not been stocked with trout. Access to Rocky Run is from one road crossing.

Seas Branch

Seas Branch, located in central Vernon County, flows in an easterly direction for 4.5 miles before reaching the West Fork of the Kickapoo River near Avalanche. This stream has a gradient of 50 feet per mile and drains forested hillsides, an agricultural valley and an agricultural headwater plateau. A wet flood control structure which creates the 11-acre Seas Branch Pond is located approximately 2.5 miles upstream from the mouth of the stream. Seas

Branch is a Class I trout stream for its entire length and an Exceptional Resource Water, (ERW).

In 1997, Seas Branch contained a self-sustaining brown trout population throughout its entire length. Water temperatures and habitat in Seas Branch upstream of the flood control structure was conducive to the establishment of a brook trout population. Consequently an experimental stocking of wild brook trout coupled with removal of brown trout from upper Seas Branch was undertaken in 1997. The brown trout removal effort involved shocking the stream and moving brown trout to Seas Branch downstream of the flood control structure where upstream migration is prohibited. Annual fishery surveys indicate a thriving brook trout fishery upstream of the dam without the competition of brown trout for food and habitat. The brown trout fishery downstream of the flood control structure is also thriving. These findings support the Class I designation for the entire stream.

The most recent survey, conducted in 1997, documented brook trout, brown trout and numerous forage fish species. The stream bottom consisted primarily of cobble and gravel. In-stream cover was comprised of LUNKER structures, boulders, and woody debris. Only brook trout and mottled sculpin have been documented upstream of the dam since the brown trout removal effort began in 1998.

WDNR records indicate Seas Branch was stocked with brown trout from 1960 to 1995. Brook trout were stocked from 1988 to 1997. Access to Seas Branch is from one WDNR easement and the county owned flood control structure. A rare aquatic species has been found in this creek.

West Fork Kickapoo River

The West Fork of the Kickapoo River, located in central Vernon County, flows in a southeasterly direction for 24 miles before reaching the Kickapoo River. This river has a gradient of 11 feet per mile and drains forested hillsides and agricultural valleys. A wet flood control structure is located on the upper end of this river creating Jersey Valley Lake. The West Fork of the Kickapoo River is a Class II trout stream from its mouth upstream 15.8 miles to the STH 82 bridge and Class I upstream from this bridge for 8.2 miles.

The most recent survey, conducted in 2000, documented healthy brook trout and brown trout populations as well as a diverse forage fishery. The stream bottom was dominated by cobble and gravel. In order of abundance, in-stream cover consisted of LUNKER structures, woody debris, boulders, undercut banks, and boulders. Since the 2000 survey was conducted upstream of STH 82, an updated fish and habitat survey should be conducted of the river downstream of STH 82. The West Fork of the Kickapoo River would benefit from the purchase of streambank easements from willing sellers and the restoration of in-stream habitat. WDNR records indicate that the West Fork of the Kickapoo River has been stocked with brown trout consistently from 1960 to 1998. Wild brook trout have been stocked yearly since 1999. Access to the West Fork of the Kickapoo River is from 14 road crossings, WDNR owned land and the Vernon County Jersey Valley Park. A rare aquatic species has been found in this creek.

LAKES IN THE WATERSHED

Jersey Valley Lake

Jersey Valley Lake is a 56-acre impoundment of the West Fork of the Kickapoo River. The portion of river upstream of the impoundment is locally known as Jersey Valley Creek. This lake has a maximum depth of 18 feet and receives drainage from agricultural and forested land.

An aquatic plant survey, conducted in 1995, documented a total of 19 aquatic plant species, 13 of which were submerged plant species, three floating leaf species and three emergent plant species. This diverse plant community inhabited nearly the entire shore of the lake to a depth of greater than 10 feet. Healthy aquatic plant communities improve water quality in many ways: they trap nutrients, debris, and pollutants entering a water body; they may absorb and break down pollutants; they reduce erosion by stabilizing banks and shorelines, stabilizing bottoms and reducing wave action; they remove nutrients that would otherwise be available for algae blooms. Cover for fish and aquatic insects are also another important function of aquatic plants.

The watershed draining into Jersey Valley Lake is at least 80% agricultural. Runoff from these lands may be contributing nutrients to this impoundment. Evidence of excessive nutrients in the lake are the summer algae blooms that plague this lake. WDNR should consider Jersey Valley Lake a high priority to receive a lake planning grant and a lake protection grant.

Over the years, Jersey Valley Lake has been stocked with brook trout, rainbow trout, largemouth bass, walleye, and sauger. The primary function of this lake is flood control, but the lake and surrounding land also provides recreational opportunities to a region of the state with very few lakes. Jersey Valley County Park is a 370-acre tract of land, located 3 miles north of Westby on County Highway X. This park offers swimming, hiking, fishing and picnicking. Additionally, Jersey Valley offers a handicap accessible fishing dock.

Seas Branch Pond

Seas Branch Pond is an 11-acre impoundment of Seas Branch. This pond has a maximum depth of 10 feet and receives drainage from an agricultural valley with wooded hillsides, a quarry and a rural housing development. Seas Branch is a Class I brook trout stream upstream of the dam and a Class I brown trout stream downstream of the dam. The bottom draw structure of the dam discharges colder, deeper water from the pond; however, stream temperatures below the dam are warmer than those documented upstream of the dam. The stream temperature cools further downstream, but not to those found upstream of the dam. During summer, Seas Branch Pond can become cloudy with algae, which also results in a cloudy stream below the dam for a stretch. Despite the cloudy water and warmer stream temperatures, a self-sustaining brown trout population flourishes below the dam.

In 1997, Seas Branch Pond was drained in order to effectively remove brown trout from the upper half of the stream (see Seas Branch narrative). Wild brook trout were stocked in the pond in 1999 and rainbow trout in 2000 and 2001. Vernon County owns an access easement to Seas Branch Pond from CTH Y where fishing and non-motorized boating is allowed.

RECOMMENDATIONS (LW04)

- ◆ Fish and habitat surveys of **Bishop Branch, Elk Run, Hall Creek, Knapp Creek, Maple Dale Creek, Rocky Run, and West Fork of the Kickapoo River** downstream of **STH 82** should be conducted to determine existing conditions.
- ◆ **Bishop Branch, Cook Creek, Harrison Creek and West Fork of the Kickapoo River** would benefit from the purchase of streambank easements from willing sellers.
- ◆ **Bishop Branch, Cook Creek, Harrison Creek and West Fork of the Kickapoo River** would benefit from the restoration of in-stream habitat.
- ◆ WDNR should consider **Jersey Valley Lake** a high priority to receive a lake planning grant and a lake protection grant.
- ◆ **Bishop Branch, Hall Creek, Knapp Creek, Seas Branch, and the West Fork Kickapoo River** should be surveyed to determine if rare aquatic species previously found in the creek are still present.

WATERSHED MAP

Streams in the West Fork Kickapoo River Watershed (LW04) Vernon & Monroe Counties Area: 118 sq miles

Stream Name	WBIC	Length (mile)	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					
Bishop Branch	1188500	0-6.0	COLD II	COLD I	Part	COLD II/ERW	same	N	Y	NPS	HAB	H	E	B4, H2	S	2,3,11, 13,17
Cook Creek	1189000	0-1.5	COLD I	same	Thr	DEF	COLD I	N	N	NPS	HAB	H	M	B4, H4	S	2,3,9,13
Elk Run	1189200	0-3.0	WWFF	COLD I	U	DEF	same	N	N			NR	E	B3	U	2,13
Hall Creek	1190700	0-2.1	WWFF	COLD I	U	DEF	same	N	Y			NR	E	B3	U	2,13
Harrison Creek	1188000	0-3.5	COLD II	COLD I	Part	COLD II	same	N	N	SB, PSB	HAB	H	M	B4, H3	S	2,3,6,13
Knapp Creek	1191400	0-4.0	COLD III	COLD I	U	COLD III	same	N	Y	NPS	HAB	H	E	B3	U	2,3,13, 18
Maple Dale Creek	1188800	0-2.0	COLD III	COLD I	U	COLD III	same	N	N			H	E	B3	U	2,3,13, 16
Rocky Run	1189300	0-1.4	WWFF	COLD I	U	DEF	same	N	N			NR	E	B3, H2	U	2,12,13
Seas Branch	1189800	0-4.5	COLD I	same	Thr	COLD II (2.5) COLD I/ERW (2)	COLD I	N	Y	HM, NPS	TEMP, HAB	M	M	B4, H4	I	1,2,3,5, 13
West Fork Kickapoo R	1187900	0-15.8	COLD II	same	Thr	DEF	COLD II	N	Y	SB, PSB	HAB	H	M	B4, H4	I	2,3,10, 13,14
Trib to W Fk Kickapoo R (T13NR3W, 7-8)	1190500	0-0.6	COLD I	same	Fully	DEF	COLD I	N	N			L	M	B4, H3	I	7,13
Trib to W Fk Kickapoo R (T13NR3W, 19-3)	1189700	0-1.5	COLD I	same	Fully	DEF	COLD I	N	N			L	M	B4, H3	I	8,13
14 Unnamed Streams		26														
Total Stream Miles		80.1														
	COLD I	16.3														
	COLD II	25.3														
	COLD III	6.0														
	WWFF	6.5														
	U	26														

***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 West Fork Kickapoo River Watershed (LW04)

Vernon 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
Jersey Valley Lake	1191600	Vernon	51	18	DG	N	BR, P	R			N	50.5	Plan-R Prot-R	1	

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

REFERENCES

1. Avery, Ed L. June 30, 1999. Re-establishing Native Brook Trout Communities in Wisconsin Streams. La Crosse DNR Service Center Files.
2. Klick, Thomas A. and C.W. Threinen. 1973. Surface Water Resources of Vernon County. Wisconsin Department of Natural Resources.
3. Kmiolek, Stan. 1980. Wisconsin Trout Streams. Wisconsin Department of Natural Resources. Publication 6-3600(80).
4. Konkel, Deborah and Susan Borman. April 1995. The Aquatic Plant Community of Jersey Valley Lake, Vernon County, Wisconsin. La Crosse DNR Service Center Files.
5. Langrehr, Jill B. June 21, 2000. Comprehensive Survey of Seas Branch, Vernon County. La Crosse DNR Service Center Files.
6. Langrehr, Jill B. October 14, 2000. Comprehensive Survey of Harrison Creek, Vernon County. La Crosse DNR Service Center Files.
7. Langrehr, Jill B. October 14, 2000. Comprehensive Survey of Creek 7-8, Vernon County. La Crosse DNR Service Center Files.
8. Langrehr, Jill B. October 14, 2000. Comprehensive Survey of Creek 19-3, Vernon County. La Crosse DNR Service Center Files.
9. Langrehr, Jill B. December 19, 2001. Comprehensive Survey of Cook Creek, Vernon County. La Crosse DNR Service Center Files.
10. Langrehr, Jill B. December 21, 2001. Comprehensive Survey of West Fork of the Kickapoo River, Vernon County. La Crosse DNR Service Center Files.
11. Stephens, Tracy J. 1995. Evaluation of the Success of Transferred Wild *Salmo trutta* (Brown Trout) in Bishop Branch Creek. La Crosse DNR Service Center Files.
12. Timler, Stephan. June 20, 1990. Unreported raw data of Rocky Run fishery survey. La Crosse DNR Service Center Files.
13. Vetrano, David. January 2002. Personal Communication. Fisheries Biologist. La Crosse DNR Service Center.
14. Vetrano, David. March 19, 1996. Current Status and Recommendations for the West Fork Kickapoo River - Vernon County. La Crosse DNR Service Center Files.
15. WDNR. Vernon County Stocking Records. La Crosse DNR Service Center Files.
16. Wright, Kenneth J. March 16, 1972. 101 Survey of Pine Hollow Creek (Maple Dale Creek or Creek 2-3), Vernon County. La Crosse DNR Service Center Files.
17. Wright, Kenneth J. March 3, 1975. Stream Shocker Survey of Bishop Branch Creek, Vernon County. La Crosse DNR Service Center Files.
18. Wright, Kenneth J. January 18, 1979. Trout Stream Inventory and Classification of Knapp Creek, Vernon County. La Crosse DNR Service Center Files.