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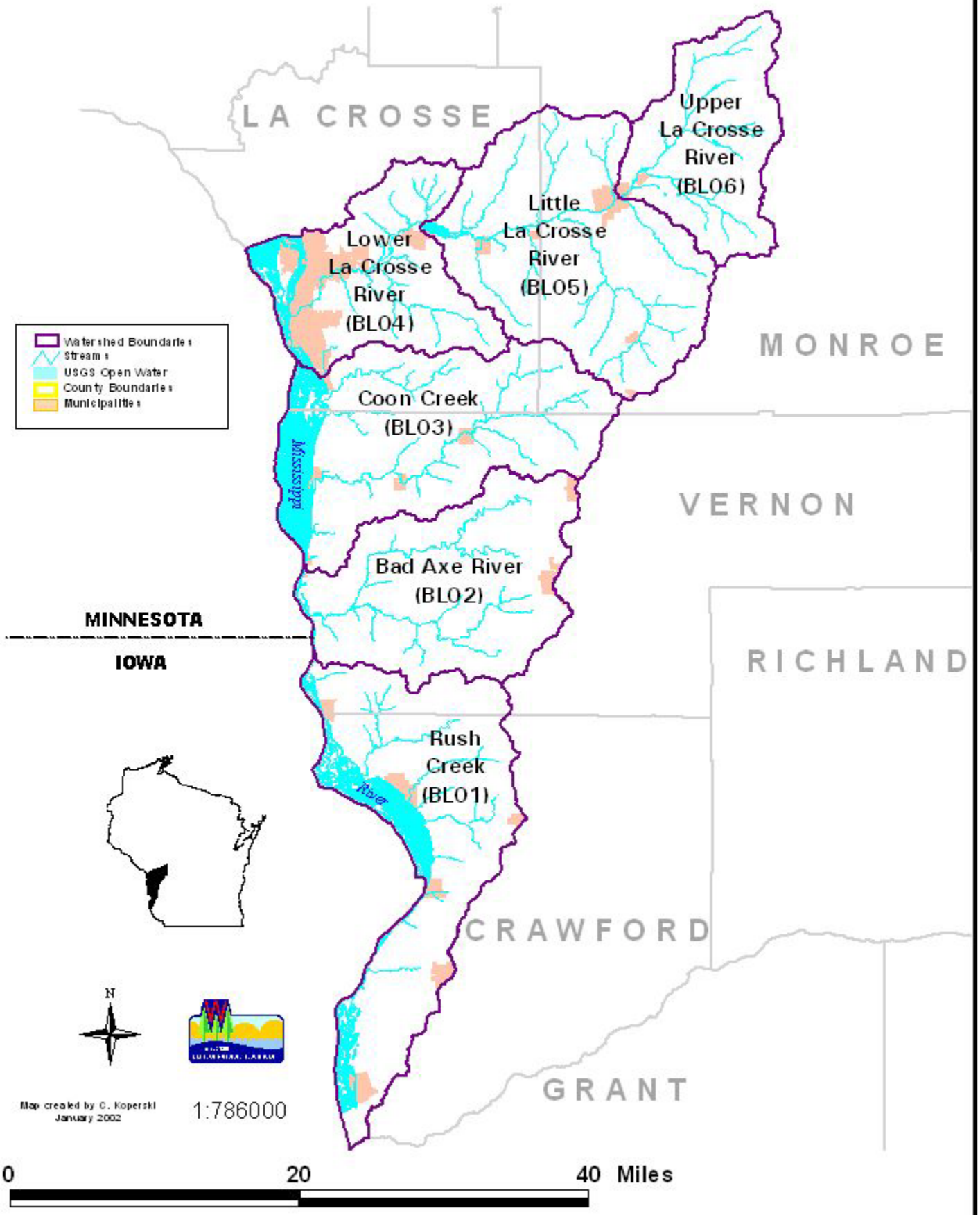
CHAPTER 4: INDIVIDUAL STREAM AND LAKE NARRATIVES BY WATERSHED

For management purposes the Bad Axe -La Crosse River Basin has been divided into six watersheds. The watershed boundaries are largely based on the hydrologic network of streams and where these streams ultimately drain to. The watersheds are named for the primary waterbody and numbered one through six as shown on Map 4. Watersheds of the Bad Axe - La Crosse River Basin. When looking for information on a particular stream, first determine which watershed it lies within. The streams are then listed alphabetically within each watershed discussion.

Since the La Crosse River flows through three watersheds, a separate discussion of this river and its impoundments was written. This discussion is located between the Coon Creek Watershed (BL03) and the Lower La Crosse River Watershed (BL04) discussions in this chapter.

Specific recommendations regarding individual streams, rivers and lakes are found in this chapter. Recommendations which apply across the entire basin are found in Chapter 5: Priority Issues and Actions.

Map 4. Watersheds of the Bad Axe - La Crosse River Basin

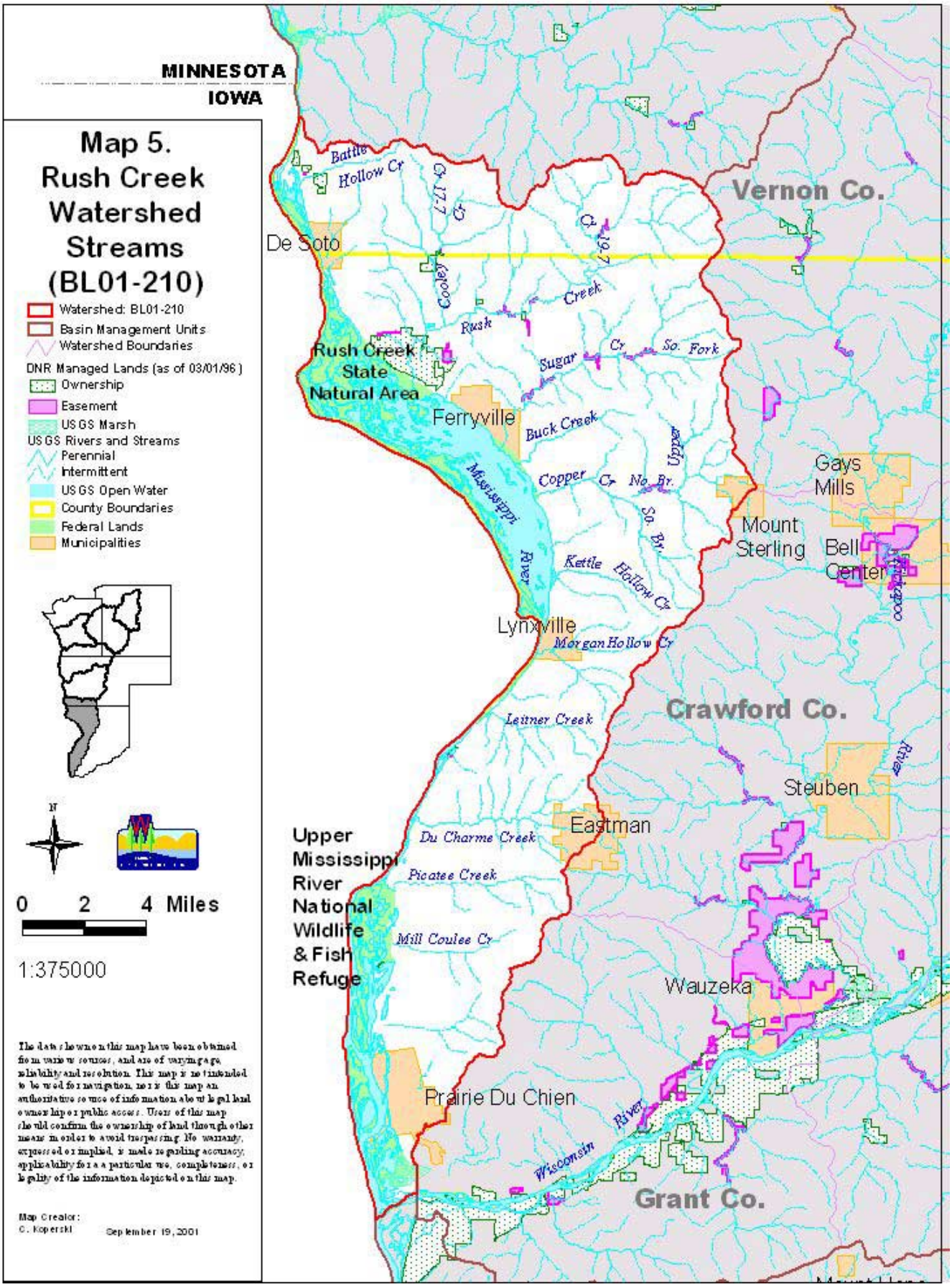


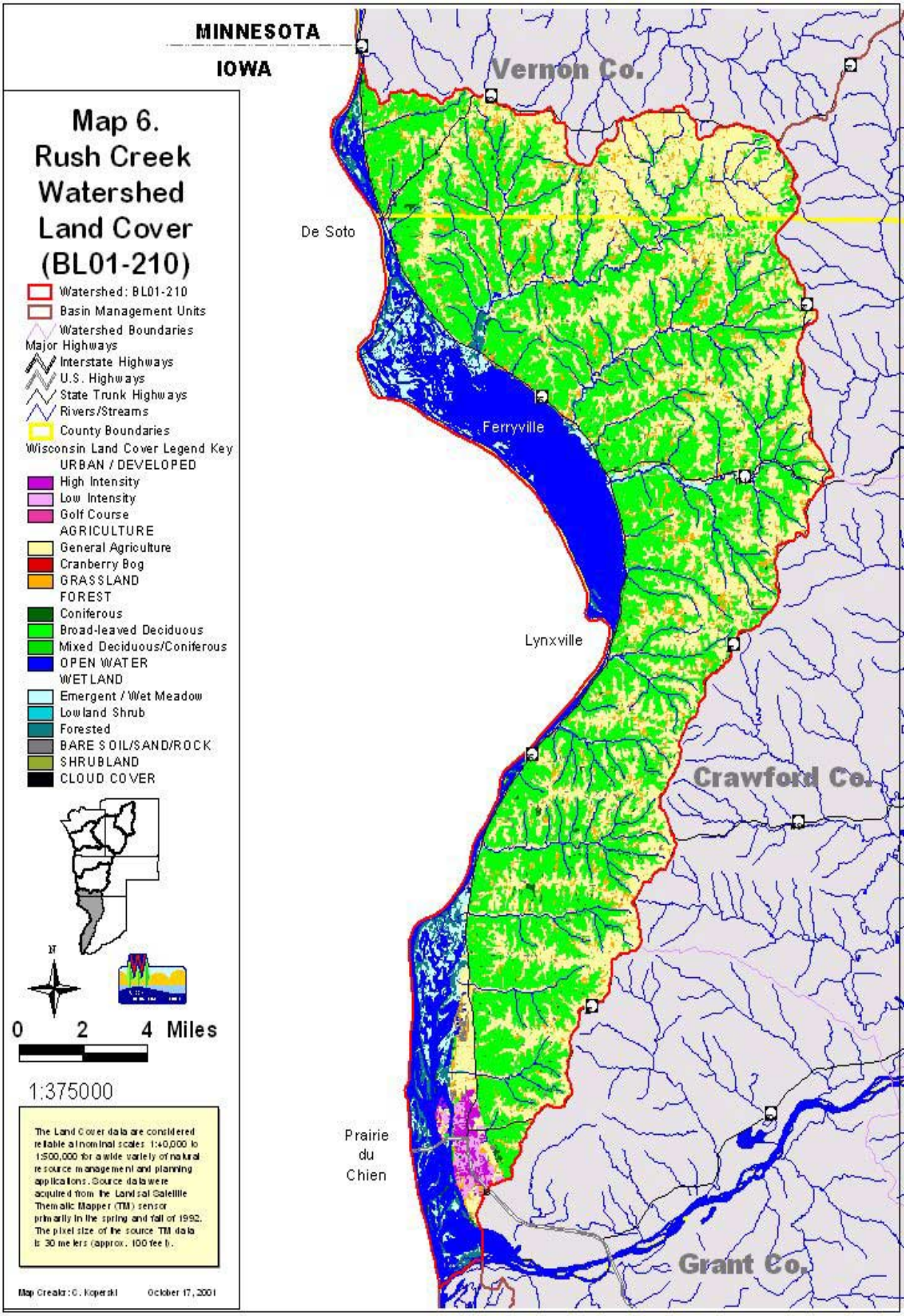
Rush Creek Watershed (BL01)

The Rush Creek Watershed contains many small to medium sized streams which all flow toward the Mississippi River from Battle Hollow Creek, on the northern border, south to Prairie du Chien. The ridge on which Highway 27 runs is the eastern border of the watershed. The topography of the Rush Creek watershed consists of steeply wooded hillsides with narrow ridgetops and valleys. Rock outcrops along the bluffs facing the Mississippi River are a common sight in the watershed. The severe elevation changes, common in this watershed, minimizes the usable acreage for agricultural purposes. The scenic beauty found in the Rush Creek Watershed has attracted many new landowners. Stream valleys and ridgetops with scenic vistas now contain many seasonal and permanent homes. Most streams located in the Rush Creek watershed are classified trout streams. Prairie du Chien, DeSoto, Ferryville, and the Valley Ridge Clean Water Commission each have wastewater treatment plants that discharge to the Mississippi River.

Table 4. Rush Creek Watershed at a Glance

Drainage Area (square miles)	241
Total Stream Miles	105
Total Trout Stream Miles	40 Class I = 2.6 Class II = 25.3 Class III = 12.1
Total ORW Miles ***Total ERW Miles***	0 17.3
Total Impaired Stream Miles/Lakes	None
Total Wetland Acres	9,795 (includes Mississippi River wetlands)
Best Water Quality	Cooley Creek
Lakes	None
Municipalities	De Soto, Ferryville, Lynxville, Prairie du Chien
Total Permitted Wastewater Discharges	4
Major Public Lands	➢Upper Mississippi River Fish and Wildlife Refuge ➢Rush Creek State Natural Area
Concerns and Issues	➢Agricultural non-point source pollution ➢Stormwater runoff volume from rural housing developments
Initiatives and Projects	➢Comprehensive stream surveys ➢Installation of in-stream habitat ➢Continuous water temperature monitoring


MINNESOTA
IOWA
Map 5.
Rush Creek
Watershed
Streams
(BL01-210)
Watershed: BL01-210
Basin Management Units
Watershed Boundaries
DNR Managed Lands (as of 03/01/96)
Ownership
Easement
USGS Marsh
USGS Rivers and Streams
Perennial
Intermittent
USGS Open Water
County Boundaries
Federal Lands
Municipalities
0 2 4 Miles
1:375000
The data shown on this map have been obtained from various sources, and are of varying age, reliability and resolution. This map is not intended to be used for navigation, nor is this map an authoritative source of information about legal land ownership or public access. Users of this map should confirm the ownership of land through other means in order to avoid trespassing. No warranty, expressed or implied, is made regarding accuracy, applicability for a particular use, completeness, or legality of the information depicted on this map.
Map Creator:
C. Koperski
September 19, 2001
Vernon Co.
Crawford Co.
Grant Co.
De Soto
Ferryville
Lynxville
Gays Mills
Mount Sterling
Bell Center
Steuben
Eastman
Wauzeka
Prairie Du Chien
Rush Creek State Natural Area
Upper Mississippi River National Wildlife & Fish Refuge
Battle Hollow Cr
Cooley Cr
Cr 177
Cr 197
Rush Creek
Sugar Cr
So. Fork
Buck Creek
Upper
Copper Cr
No. Br.
So. Br.
Kettle Hollow Cr
Morgan Hollow Cr
Leitner Creek
Du Charme Creek
Picatee Creek
Mill Coulee Cr
Mississippi River
Wisconsin River
Kickapoo River


MINNESOTA
IOWA
Vernon Co.
De Soto
Ferryville
Lynxville
Crawford Co.
Prairie du Chien
Grant Co.
Map 6.
Rush Creek Watershed Land Cover (BL01-210)
Watershed: BL01-210
Basin Management Units
Watershed Boundaries
Major Highways
Interstate Highways
U.S. Highways
State Trunk Highways
Rivers/Streams
County Boundaries
Wisconsin Land Cover Legend Key
URBAN / DEVELOPED
High Intensity
Low Intensity
Golf Course
AGRICULTURE
General Agriculture
Cranberry Bog
GRASSLAND
FOREST
Coniferous
Broad-leaved Deciduous
Mixed Deciduous/Coniferous
OPEN WATER
WETLAND
Emergent / Wet Meadow
Lowland Shrub
Forested
BARE SOIL/SAND/ROCK
SHRUBLAND
CLOUD COVER
N
0 2 4 Miles
1:375000
The Land Cover data are considered reliable at nominal scales 1:40,000 to 1:500,000 for a wide variety of natural resource management and planning applications. Source data were acquired from the Landsat Satellite Thematic Mapper (TM) sensor primarily in the spring and fall of 1992. The pixel size of the source TM data is 30 meters (approx. 100 feet).
Map Creator: C. Koperski
October 17, 2001

Recommendations:

1. WDNR should conduct fish and habitat surveys of **Buck Creek, Copper Creek and its tributaries, Sugar Creek and its tributaries, and Kettle Hollow Creek**.

The map that accompanies this chapter indicates DNR easements along streambanks as well as DNR owned lands as of March 1, 1996. Additional easements and land may have been purchased in the area since 1996 that are not indicated on the map. The DNR installs signs where access is allowed onto private lands with DNR easements along streambanks. The easement allows for access to the stream for fishing and nature observation. The land is still privately owned and landowner rights should be respected.

Buck Creek

Buck Creek, located in northwest Crawford County, flows for 2.7 miles in a southwesterly direction before reaching the Mississippi River. The stream is located south of Ferryville between Sugar Creek and Copper Creek. It has a moderate gradient of 36.4 feet per mile. Only forage fish species were documented in a 1971 stream survey. Buck Creek is not a classified trout stream.

Since the most recent survey is nearly 30 years old, a fish and habitat survey should be conducted on Buck Creek. Public access is from the lower portion of Buck Creek, which flows through the Upper Mississippi River National Wildlife and Fish Refuge.

Cooley Creek

Cooley Creek, located in northwest Crawford and southwest Vernon Counties, flows for 4.1 miles in a southerly direction before reaching Rush Creek. It has a gradient of 57 feet per mile and drains steep forested hillsides with valley agricultural lands. Cooley Creek is a Class I trout stream for its entire length.

A 1994 stream survey documented numerous young brown trout in Cooley Creek confirming natural reproduction. However, siltation, bank erosion, beaver activity, and lack of in-stream cover are limiting the potential of the brown trout fishery in Cooley Creek. The stream bottom consists mainly of sand and gravel. WDNR has not stocked Cooley Creek with brown trout since 1993. Riparian buffers and in-stream habitat improvement would benefit this fishery. Access to Cooley Creek is from four road crossings and DNR owned land.

Copper Creek System

The Copper Creek system, located in western Crawford County, consists of Copper Creek, North Branch Copper Creek, South Branch Copper Creek, and Upper Copper Creek. Where the North and South Branch join, Copper Creek begins. Upper Copper Creek flows into the North Branch. Land use in the Copper Creek area is similar to the rest of Crawford County, consisting of farms and recreational homes. Steep wooded hillsides with narrow ridgetops and valleys are characteristic sights in the area. Fishery surveys dating from 1946 mention how frequent, severe

flooding occurs within the Copper Creek drainage area. Streams in the Copper Creek system have been stocked with hatchery-raised brown trout for many years. These streams have not been comprehensively surveyed since the early 1970's. At the time, the Copper Creek watershed was comprised of approximately 50% agriculture and 50% forest, with small areas of wetland near the mouth. In order to better understand and manage the streams of the Copper Creek system, extensive fishery and habitat surveys should be conducted in the near future.

Copper Creek

Copper Creek begins where the North Branch and the South Branch of Copper Creek join together. It is a 3.5 mile tributary to the Mississippi River which flows in a westerly direction and has an average gradient of approximately 7 feet per mile. Copper Creek is a Class III trout stream above HWY 35. The most recent fishery survey documented stocked brown trout, as well as many Mississippi River species, such as largemouth bass, bluegill, green sunfish, carp, and rock bass. Access to Copper Creek is from the Upper Mississippi Fish and Wildlife Refuge as well as DNR owned land and easements.

Copper Creek, North Branch

North Branch Copper Creek flows in a westerly direction for 3.8 miles before reaching Copper Creek. It has a gradient of 42 feet per mile is a Class II trout stream. Brown trout, rainbow trout, and forage species were documented in 1965. At the time, the stream bottom consisted primarily of 50% sand with lesser amounts of gravel, cobble and boulder. Access to North Branch Copper Creek is from one road crossing and DNR owned easements.

Copper Creek, South Branch

South Branch Copper Creek flows in a northerly direction for 2.7 miles before reaching Copper Creek. It has a gradient of 46 feet per mile and is a Class I trout stream. A 1965 survey documented a stream bottom consisting of equal amounts of boulder, rubble, sand, and silt. This stream was previously known as Emerson Creek. Access to South Branch Copper Creek is from one road crossing and a DNR owned easement.

Copper Creek, Upper

Upper Copper Creek flows in a southerly direction for approximately 1.6 miles before reaching the North Branch Copper Creek. It has a moderate gradient of 55 feet per mile and is a Class II trout stream. A 1965 survey of Upper Copper Creek revealed only forage species inhabiting the stream. At the time, the stream bottom consisted mostly of sand, with lesser amounts of gravel, cobble, boulder and silt. A small portion of Upper Copper Creek was surveyed in 1989 revealing numerous minnow species along with a few brown trout. Access to Upper Copper Creek is from two road crossings.

Creek 17-7

Creek 17-7 is a tributary to Cooley Creek in Vernon County. It flows for one mile at a steep gradient of 75 feet per mile. Creek 17-7 is a Class III trout stream.

A 1976 survey documented brown trout and forage fish species. The stream bottom was comprised largely of cobble and gravel with lesser amounts of boulder and sand. In-stream cover consisted of boulders and aquatic vegetation. A fish and habitat survey should be conducted to

update information for this stream. No DNR stocking records exist for this stream. Access to Creek 17-7 is from two road crossings and DNR owned land.

Du Charme Creek

Du Charme Creek, located in southwest Crawford County, flows for approximately four miles in a westerly direction before reaching the Mississippi River. It has a gradient of 46.7 feet per mile. Du Charme Creek is not a classified trout stream.

A fishery survey conducted in summer 2000 documented numerous forage fish species, very few bluegill and even fewer brown trout. The stream has not been stocked in the past with trout by the Wisconsin DNR, but was stocked with wild brook trout in October 2000 as part of a brook trout reintroduction program. The stream will be resurveyed in upcoming years to determine the status of the Du Charme Creek fishery. Access to Du Charme Creek is from one road crossing and the Upper Missippi River Fish and Wildlife Refuge.

Kettle Hollow Creek

Kettle Hollow Creek, also known as Creek 2-15, is a 1.7 mile stream that flows west into Cold Springs, a backwater of the Mississippi River popular for its year round fishing. The stream's gradient is a steep 100 feet per mile. Some agricultural activities exist in the extreme upper portion of the five square mile watershed that drains to Kettle Hollow Creek. Much of the stream is shaded by trees as it flows downhill toward the Mississippi River. The lowest portion of Kettle Hollow Creek flows through a floodplain forest before reaching a Mississippi River backwater called Cold Springs. Kettle Hollow Creek is not a classified trout stream.

A diversion structure was installed in 1994 under the HWY 35 bridge to introduce the highly oxygenated water of Kettle Hollow Creek to the south lobe of Cold Springs under the ice of winter when low dissolved oxygen levels negatively affect the fishery. Due to the creek's isolation from brown trout water, brook trout reintroduction to Kettle Hollow Creek may be a possibility. However, a fish and habitat survey should be conducted to assess the likely success of such a management decision. Access to Kettle Hollow Creek is on the lower end from the Upper Mississippi River Fish and Wildlife Refuge.

Leitner Creek

Leitner Creek flows in a westerly direction for approximately 1.7 miles toward the Mississippi River with a gradient of 47.1 feet per mile. It drains steep forested hills with agriculture on some ridgetops. Leitner Creek is not a classified trout stream.

A fishery survey conducted on the upper end of Leitner Creek in 2000 documented very few forage fish and no trout. The surveyed station contained equal amounts of cobble, gravel, and sand with lesser amounts of silt and clay. The majority of adult trout habitat consisted of small pools created by the scour of woody debris. Streambank erosion was common. Wild brook trout were stocked in Leitner Creek in October 2000 in an attempt to re-establish wild brook trout in southwest Wisconsin. A follow-up survey will be conducted in upcoming years to determine the status of the fishery. Access to Leitner Creek is from one road crossing.

Mill Coulee Creek

Mill Coulee Creek, also known as Creek 1-3, flows west toward the Mississippi River for approximately two miles. The gradient of the stream is 47.6 feet per mile. It drains steep forested hills with agriculture in the valley. Mill Coulee Creek is not a classified trout stream.

A stream survey in 1970 documented only forage fish species. The stream was resurveyed in 2000, and again, only forage fish species were found. Cobble and gravel comprised nearly 60% of the stream bottom in addition to smaller amounts of sand, silt, boulder and clay. Habitat conditions were conducive for brook trout re-introduction. In October 2000, wild brook trout were stocked in Mill Coulee Creek. The stream will be resurveyed in upcoming years to determine the status of the fishery. Access to Mill Coulee Creek is from three road crossings and the Upper Mississippi River Fish and Wildlife Refuge.

Picatee Creek

Picatee Creek flows approximately 6 miles west toward the Mississippi River. It drains steep forested hills with agriculture in the valleys and ridgetops. Picatee Creek is not a classified trout stream.

A fishery survey conducted in 2000 documented only brook stickleback, a forage species. Low water volumes and small stagnant pools were documented in a middle reach of the stream. The lower end of Picatee Creek likely contains warm water species from the Mississippi River. A small portion of the lower end of the creek flows through land owned by the Wisconsin DNR.

Rush Creek

Rush Creek flows for approximately 11 miles west toward the Mississippi River with an average gradient of 23 feet per mile. It drains steep forested hills and agricultural lands. Rush Creek is a Class III trout stream from HWY 35 upstream approximately 4 miles, then Class II for the remaining miles 7 miles upstream.

The most recent fish survey, conducted in 1994, documented numerous minnow species, white sucker, burbot, rainbow, brook, and brown trout. The fishery is dominated by brown trout with scant numbers of rainbow and brook trout. Rush Creek had been stocked the year previous to the survey. Rush Creek continues to be stocked with brown, brook and rainbow trout. Bank erosion is light to medium, however some bends are steep and lack vegetation. In-stream cover for fish consists of some overhanging vegetation along with a few undercut banks. Additional overhead cover and shoreline restoration work would likely improve the habitat and winter survival of trout in Rush Creek. Problems affecting Rush Creek are bank erosion, lack of in-stream cover, beaver activity, and flooding. The 1994 survey estimated the watershed comprised of 37% agricultural activity and approximately 62% forest and wooded wetland. Access to Rush Creek is from four road crossings, the Upper Mississippi River Fish and Wildlife Refuge, the Rush Creek State Natural Area, which surrounds the lower 2 miles of Rush Creek, and DNR owned easements.

Sugar Creek

Sugar Creek, located in northwest Crawford County, flows in a westerly direction for approximately 9.5 miles before reaching the Mississippi River. It has an average gradient of 47.4 feet per mile and drains steep wooded hillsides and some agricultural lands. Sugar Creek is a Class III trout stream for the lowest 2.5 miles and Class II upstream for 7 miles.

Figure 20. Sugar Creek

The most recent fishery survey, conducted in 1976, documented numerous brown trout, very few brook trout, and some warm water species in the station nearest the Mississippi River. Trout habitat improvement work has been done on DNR easements along Sugar Creek. This stream flows through a large piece of land that recently received long term protection through a purchase by the Mississippi Valley Conservancy. A portion of this land is currently managed as prairie. The WDNR has stocked brown trout fingerlings in Sugar Creek for many years. More recently, wild brown trout have been stocked. A 1998 fish survey documented possible natural reproduction and winter survival of trout in Sugar Creek. The recent addition of overhead cover for trout to Sugar Creek and the trend toward less active farming in the watershed warrants a complete fish and habitat survey of Sugar Creek to document changes in the habitat and fishery. Access to Sugar Creek is from three road crossings, DNR easements and the Upper Mississippi River Fish and Wildlife Refuge.

Sugar Creek, South Fork

South Fork Sugar Creek flows for approximately a two miles in a westerly direction before reaching Sugar Creek in northwest Crawford County. It has a gradient of 66 feet per mile and drains steep forested hills with some agricultural activity in the valley. South Fork Sugar Creek is a Class II trout stream for its entire length.

The most recent fishery survey conducted in 1976 documented brook and brown trout fingerlings. The survey stated that the fishery would benefit from trout habitat improvement work. Since the last survey was conducted over 20 years ago, a fish and habitat survey should be conducted on South Fork Sugar Creek. No DNR fish stocking of South Fork Sugar Creek has occurred. Access to this stream is from a small DNR easement where it enters Sugar Creek.

Species of Concern in the Rush Creek Watershed

The Wisconsin DNR Bureau of Endangered Resources is responsible for tracking natural communities, plant, animal and insect species that are of concern due to their low or declining acreage or numbers. The Natural Heritage Inventory is a list of plant, animal, insect, and natural communities in the State of Wisconsin each of which are categorized as endangered, threatened or of special concern.

Definitions

Wisconsin Endangered Species: Any species whose continued existence as a viable component of this state's wild animal or plant community is determined by WDNR to be in jeopardy on the basis of scientific evidence.

Wisconsin Threatened Species: Any species which appears likely to become endangered within the foreseeable future based on scientific evidence.

Wisconsin Special Concern Species: Any species about which some problem of abundance or distribution is suspected in Wisconsin, but not yet proven. The purpose of this category is to focus attention on certain species before they become threatened or endangered.

This information is used to identify critical habitat for these species to prevent further degradation and thus help protect the endangered community. Protection of threatened and endangered species in a watershed requires cooperation between bureaus within WDNR, private landowners, University personnel, sporting groups, industry and municipalities in the search of solutions for protecting critical habitat.

Table 5. Rush Creek Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Bird			
Bald Eagle	Haliaeetus leucocephalus	Special Concern	The bald eagle prefers large trees in isolated areas in proximity to large areas of surface water, large complexes of deciduous forest, coniferous forest, wetland and shrub communities.
Cerulean Warbler	Dendroica cerulea	Threatened	The cerulean warbler prefers lowland deciduous forests dominated by mature stands of American elm, cottonwood, and green ash and large upland blocks of dry-mesic to mesic forests.
Red-Shouldered Hawk	Buteo lineatus	Threatened	The red-shouldered hawk prefers larger stands of medium-aged to mature lowland deciduous forests, dry-mesic and mesic forest with small wetland pockets.
Butterfly			
Columbine Dusky Wing	Erynnis lucilius	Special Concern	The columbine dusky wing would be found in damp areas like streambed areas in southern mesic forests where columbine grows wild.
Gorgone Checker Spot	Chlosyne gorgone	Special Concern	The gorgone checker spot prefers open areas on prairie slopes and ridges as well as grassy areas near streams.
Little Glassy Wing	Pompeius verna	Special Concern	The little glassy wing prefers moist openings, often in wooded areas, and predominantly in the southern half of the state. Larvae feed on grasses.
Ottoe Skipper	Hesperia ottoe	Special Concern	The ottoe skipper prefers tall-grass prairie often on hills or slopes. It also requires a mixture of suitable nectar plants.
Fish			
Mud Darter	Etheostoma asprigene	Special Concern	The mud darter prefers moderate currents in sloughs, overflow areas, sluggish riffles, and pools of large, low-gradient rivers over bottoms of mud, sand, gravel, clay, or bedrock.
Weed Shiner	Notropis texanus	Special Concern	The weed shiner prefers sloughs, lakes, and quiet sections of medium/large streams or rivers over substrates of sand or mud.
Moth			
Abbreviated Underwing Moth	Catocala abbreviatella	Special Concern	The abbreviated underwing moth prefers prairie and hosts on the Amorpha canescens plant.
Whitney's Underwing Moth	Catocala whitneyi	Special Concern	The whitney's underwing moth prefers prairie and hosts on the Amorpha canescens plant.

Table 5. Rush Creek Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Natural Community			
Bat Hibernaculum	Bat hibernaculum		This habitat is generally a cave or mine shaft that maintains optimum winter temperatures for hibernating bats.
Dry Prairie	Dry prairie		This grassland community occurs on dry, often loess-derived soils, usually on steep south or west facing slopes or at the summits of river bluffs with sandstone or dolomite near the surface. Little bluestem, side-oats grama, hairy grama, and prairie dropseed are dominant prairie grasses. Common shrubs and forbs include lead plant, silky aster, flowering spurge, purple prairie-clover, cylindrical blazing-star, and gray goldenrod.
Floodplain Forest	Floodplain forest		This is a lowland hardwood forest community that occurs along large rivers, usually stream order 3 or higher, that flood periodically. Canopy dominants may include silver maple, river birch, green ash, hackberry, swamp white oak, and cottonwood. Buttonbush is a locally dominant shrub and may form dense thickets on the margins of oxbow lakes, sloughs and ponds within the forest. Nettles, sedges, ostrich fern and green-headed or tall coneflower are important understory herbs, and lianas such as Virginia creepers, grapes, Canada moonseed, and poison-ivy are often common. Characteristic herbs of this community are cardinal flower and green dragon.
Oak Opening	Oak opening		An oak-dominated savanna community in which there is less than 50% tree canopy. Bur, white, and black oaks are dominant in mature stands as large, open-grown trees with distinctive limb architecture. Shagbark hickory is sometimes present. American hazelnut is a common shrub, and the herblayer is similar to those found in oak forests and prairies.
Southern Dry Forest	Southern dry forest		Oaks are the dominant species in this upland forest community of dry sites. White oak and black oak are dominant, often with admixtures of red and bur oaks and black cherry. In the well developed shrub layer, brambles, gray dogwood, and American hazelnut are common. Frequent herbaceous species are wild geranium, false Solomon's-seal, hog-peanut, and woodland sunflower.
Southern Dry-Mesic Forest	Southern dry-mesic forest		Red oak is a common dominant tree of this upland forest community type. White oak, basswood, sugar and red maples, and white ash are also important. The herbaceous understory flora is diverse and includes wild geranium, false Solomon's seal, hog peanut, woodland sunflower, jack-in-the-pulpit, enchanter's-nightshade, large-flowered bellwort, interrupted fern, lady fern, and tick-trefoils.

Table 5. Rush Creek Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Southern Mesic Forest	Southern mesic forest		This upland forest community occurs on rich, well-drained soils. The dominant tree species is sugar maple, but basswood and beech may be co-dominant. Many other trees are found, including those of the walnut family. The understory is typically open and supports fine spring ephemeral displays. Characteristic herbs are spring-beauty, trout-lilies, trilliums, violets, bloodroot, blue cohosh, mayapple and Virginia waterleaf.
Plant			
American Gromwell	Lithospermum latifolium	Special Concern	American gromwell prefers ungrazed, rich, dry-mesic deciduous woods south of the Tension Zone
Broad Beech Fern	Phegopteris hexagonoptera	Special Concern	Beech fern prefers rich mesic woods.
Engelmann Spike-Rush	Eleocharis engelmannii	Special Concern	Engelmann spike-rush prefers moist sandy areas such as drying lakebeds.
Hairy-Jointed Meadow-Parsnip	Thaspium barbinode	Endangered	Hairy-jointed meadow-parsnip prefers low, wet woods, and sandy open ground.
Nodding Rattlesnake-Root	Prenanthes crepidinea	Endangered	Nodding rattlesnake-root prefers wet-mesic prairies, open mesic woodlands, and alluvial streambanks.
Purple Milkweed	Asclepias purpurascens	Endangered	Purple milkweed prefers dry fields and thickets.
Shadowy Goldenrod	Solidago sciaphila	Special Concern	Shadowy goldenrod is endemic to the Driftless Area and prefers exposed sandstone cliffs.
Upland Boneset	Eupatorium sessilifolium var brittonianum	Special Concern	Upland boneset prefers well drained, open woods and thickets.
Yellow Gentian	Gentiana alba	Threatened	Yellow gentian has been observed in wet, sandy railroad prairie; thin soil on open and wooded ridges and blufftop; wooded ravine in clay soils and damp roadside on edge of woods.
Yerba de Tajo	Eclipta alba	Special Concern	Yerba de tajo plant prefers lowland forests and sloughs.

Table 5. Rush Creek Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Snail			
Smooth Coil	Helicodiscus singleyanus	Special Concern	The smooth coil is found on hill prairie settings. Need some protection via vegetation detritus, but survive well in well drained habitats.
Wing Snaggletooth	Gastrocopta procera	Threatened	The wing snaggletooth occurs on hill or "goat" prairies with southern or western exposures in western Wisconsin and prefers to live under organic debris.
Snake			
Black Rat Snake	Elaphe obsoleta	Special Concern	The black rat snake prefers moist, wooded east and north slopes of bluffs along rivers.
Bull Snake	Pituophis melanoleucus	Special Concern	The bull snake prefers dry prairies, dry mesic prairies, oak savanna and oak openings. Best habitat usually occurs on south and west facing hillsides.
Timber Rattlesnake	Crotalus horridus	Special Concern	The timber rattlesnake prefers deciduous forests and croplands during the summer and steep, rugged bluffs and rocky outcrops during the spring and fall.

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3. Brynildson, Clifford. May 21, 1969. Survey of South Branch Copper Creek. WDNR La Crosse Service Center Files

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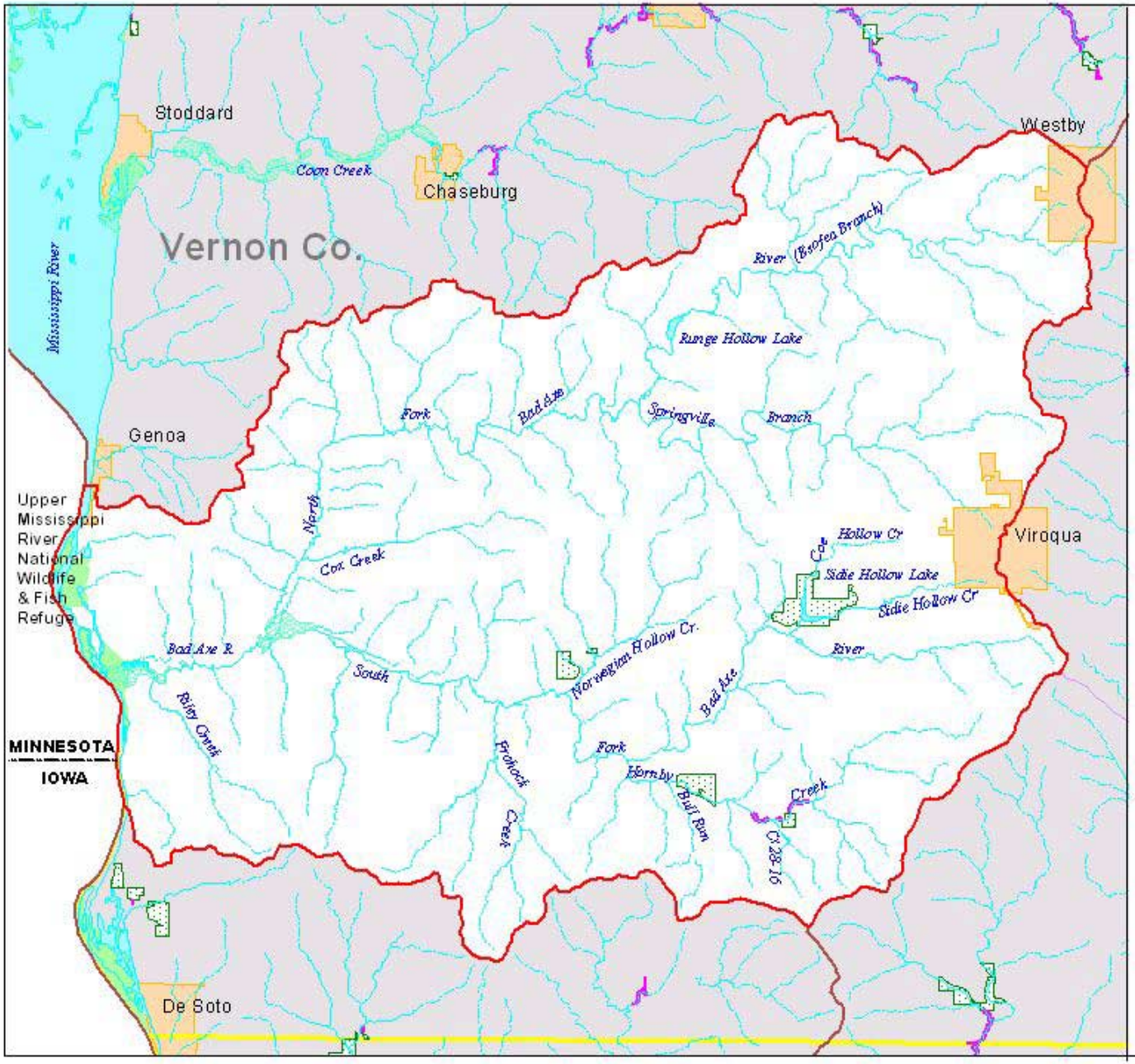
Bad Axe River Watershed (BL02)

The Bad Axe River Watershed, which lies entirely within Vernon County, encompasses approximately 200 square miles of steep forested hillsides, ridge top and valley farms. The only farms with sizable tillable acreage in the basin are located on the upper plateau of the Bad Axe River watershed, west of Westby and Viroqua. The communities of Viroqua, Westby and Genoa are all found within this watershed. Exessive flooding in the Bad Axe River watershed in the 1950s and 1960s prompted the construction of many flood control structures on numerous streams. Some of these structures are designed to permanently detain water (wet dam) while many others impound water only during rain events (dry dam) then slowly release it over time. Vernon County is responsible for maintaining many of these flood control structures. Recreational parks surround two wet flood control structures: Sidie Hollow County Park on Sidie Hollow Creek and Coe Hollow Creek and Duck Egg County Park on the Springville Branch. Generally, the North Fork of the Bad Axe River contains warmer water than the South Fork, consequently more of the South Fork is classified as trout water. However, the North Fork contains a very diverse fishery below Runge Hollow Lake. The Bad Axe River only totals five miles in length and contains a fishery more similar to the Mississippi River rather than the North and South Forks that feed it. The shift of agricultural land to recreational land is taking place in the Bad Axe River Watershed as in other parts of rural Wisconsin.

Figure 21 North Fork Bad Axe River

The Vernon County Natural Resources Conservation Service (NRCS) is currently administering an Environmental Quality Incentives Program (EQIP) project in this watershed. The main focus of this effort is to reduce gully and streambank erosion in the Bad Axe River Watershed. This project requires landowners to sign up in order to be considered for streambank or gully erosion projects on their property. The Bad Axe River Watershed EQIP project has signed up 92



Map 7. Bad Axe River Watershed Streams (BL02-210)

Watershed: BL02-210
Basin Management Units
Watershed Boundaries
USGS Marsh
USGS Rivers and Streams
Perennial
Intermittent
USGS Open Water
DNR Managed Lands (as of 2000)
Ownership
Easement

County Boundaries
Federal Lands
Municipalities

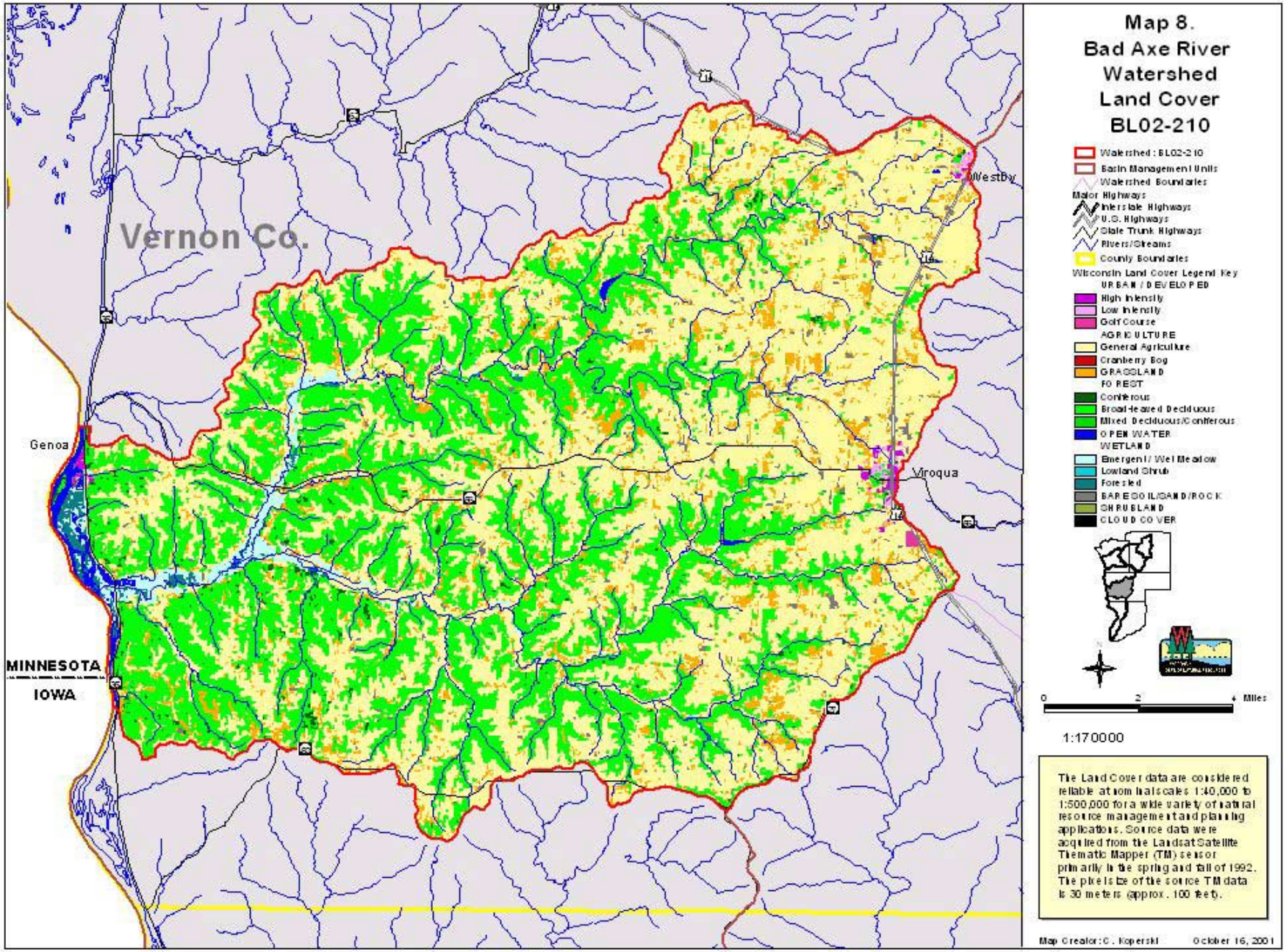
0 2 4 Miles

1:170000

The data shown on this map have been obtained from various sources, and vary in age, relevancy and resolution. This map is not intended to be used for navigation, nor is this map an authoritative source of information on legal and ownership or public access. Users of this map should refer to the ownership [illegible] in order to avoid trespassing. No warranty, expressed or implied, is made regarding accuracy, applicability, fitness for a particular use, completeness, or legality of the information depicted on this map.

Map Creator:
C. Koperski

September 14, 2001


Map 8.
Bad Axe River
Watershed
Land Cover
BL02-210
Watershed : BL02-210
Basin Management Units
Watershed Boundaries
Major Highways
Interstate Highways
U.S. Highways
State Trunk Highways
Rivers/Streams
County Boundaries
Wisconsin Land Cover Legend Key
URBAN / DEVELOPED
High Intensity
Low Intensity
Golf Course
AGRICULTURE
General Agriculture
Cranberry Bog
GRASSLAND
FOREST
Coniferous
Broad-leaved Deciduous
Mixed Deciduous/Coniferous
OPEN WATER
WETLAND
Emergent / Wet Meadow
Lowland Shrub
Forested
BARE SOIL/SAND/ROCK
SHRUBLAND
CLOUD COVER
0
2
4 Miles
1:170000
The Land Cover data are considered reliable at nominal scales 1:40,000 to 1:500,000 for a wide variety of natural resource management and planning applications. Source data were acquired from the Landsat Satellite Thematic Mapper (TM) sensor primarily in the spring and fall of 1992. The pixel size of the source TM data is 30 meters (approx. 100 feet).
Map Creator: C. Koperski
October 16, 2001
Vernon Co.
Genoa
Westby
Viroqua
MINNESOTA
IOWA

landowners for projects over the last four years. Only one more year (2002) of sign up remains. After three construction seasons, this project has improved 30,837 feet of streambank with shaping, riprap and LUNKER structures, which has saved an estimated 9,839 tons of soil from washing into streams. A total of 120 gullies have been stabilized with dams, grassed waterways, critical area shaping and seeding, saving approximately 8,375 tons of soil from reaching streams.

Table 6. Bad Axe River Watershed at a Glance	
Drainage Area (square miles)	195
Total Stream Miles	105
Total Trout Stream Miles	64.5 Class I = 12.4 Class II = 17.1 Class III = 35.0
Total ORW Miles ***Total ERW Miles***	0 11.2
Total Impaired Stream Miles/Lakes	None
Total Wetland Acres	2,553 (includes Mississippi River wetlands)
Best Water Quality	Hornby Creek
Lakes	Runge Hollow Lake, Sidie Hollow Lake
Municipalities	Viroqua, Westby
Total Permitted Wastewater Discharges	4
Major Public Lands	➢Upper Mississippi River Fish and Wildlife Refuge ➢Sidie Hollow County Park ➢Duck Egg County Park ➢Esofea County Park
Concerns and Issues	➢Urban and agricultural non-point source pollution ➢Stormwater volume, quality and temperature
Initiatives and Projects	➢Comprehensive stream surveys ➢Installation of in-stream habitat ➢Continuous water temperature monitoring

Recommendations

1. Fish and habitat surveys should be conducted on **Bull Run, Cox Creek, Frohock Creek, Hornby Creek, Norwegian Hollow Creek, Sidie Hollow Creek, Bad Axe River**, and **Unnamed Creek 28-16**.

2. The **Cox Creek and Frohock Creek** fisheries would benefit from improved in-stream habitat.

3. The **North Fork of the Bad Axe River** fishery would benefit from improved in-stream habitat and reduced streambank erosion.

4. The **South Fork of the Bad Axe River** fishery would benefit from the reduction of streambank erosion.

5. The **Springville Branch** fishery would benefit from the removal of beaver dams, the reduction of non-point source pollution and the continued proper operation of the Viroqua Wastewater Treatment Plant.

6. **Runge Hollow Lake** is considered a high priority to receive a lakes planning grant to assess the impacts of nonpoint source pollution to the lake.

7. **Sidie Hollow Lake** is considered a high priority to receive a lakes planning grant to assess the impacts of nonpoint source pollution to the lake.

8. The WDNR should seek a self-help volunteer monitor for **Sidie Hollow Lake**.

The map that accompanies this chapter indicates DNR easements along streambanks as well as DNR owned lands as of March 1, 1996. Additional easements and land may have been purchased in the area since 1996 that are not indicated on the map. The DNR installs signs where access is allowed onto private lands with DNR easements along streambanks. The easement allows for access to the stream for fishing and nature observation. The land is still privately owned and landowner rights should be respected.

Bad Axe River

The Bad Axe River, located in southwestern Vernon County, flows in a westerly direction for approximately five miles before reaching the Mississippi River south of Genoa. The lower end of the Bad Axe River flows through the Upper Mississippi National Wildlife Refuge and the Genoa National Fish Hatchery. It has a slight gradient of less than 20 feet per mile and drains steep forests, agricultural land, and lowland pasture. Approximately 370 acres of wetland adjoin the lower end of the Bad Axe River near the Mississippi River. The Bad Axe River is not a classified trout stream, but contains warm water sport fish.

The most recent survey, completed in 1960, documented a 60 foot wide river averaging over four feet deep. Low mud flats, steep eroding banks and forested bank cover were observed. The fish found in the Bad Axe River were all species common to the Mississippi River such as northern pike, sauger, largemouth bass, white crappie, black crappie, freshwater drum, mooneye and northern redhorse. A fishery survey should be conducted to update the biological information available for the Bad Axe River. No WDNR stocking records exist for the Bad Axe River. Access to the river is from three road crossings and the Upper Mississippi River National Fish and Wildlife Refuge.

Bull Run

Bull Run, located in south central Vernon County, flows in a northerly direction for 1.2 miles before reaching Hornby Creek. It has a steep gradient of 111 feet per mile and drains steep forested hillsides and hilly agricultural land. A dry flood control structure is located on the upper end of Bull Run to reduce flash flooding. The riparian area of the stream is entirely forested. Bull Run is not a classified trout stream.

The latest survey, completed in 1971, documented cool, clear water with a stream bottom consisting mainly of sand, rubble, gravel and a small amount of boulder. Aquatic vegetation was scarce. No deep pools were present and very little in-stream cover existed for adult trout. No trout were found, although a variety of forage fish species were documented. A fish and habitat survey should be conducted on Bull Run to update biological and physical data. No WDNR stocking records exist for Bull Run. One road crossing provides access to this stream.

Coe Hollow Creek

Coe Hollow Creek, located in central Vernon County, flows for approximately one mile in a southwesterly direction before reaching Sidie Hollow Lake just west of Viroqua. It has a moderately high gradient of 85 feet per mile and drains steep forested hills and some agricultural land. Coe Hollow Creek is a Class I trout stream for its entire length of 1.2 miles.

The most recent survey, conducted in 1999, documented cool clear water with a stream bottom comprised mainly of gravel and rubble with lesser amounts of silt and sand. Most of the riparian area was woodland, with some manicured lawn in the county park. In-stream habitat consisted of LUNKER structures, undercut banks and woody debris. Naturally reproducing populations of both brook and brown were documented as well as a wide variety of aquatic invertebrates. Only one forage fish species was observed. The WDNR stocking records show this stream has never been stocked. Access is possible from one road crossing, Sidie Hollow Lake and Sidie Hollow County Park.

Cox Creek (Romance Creek, Creek 36-16)

Cox Creek, also known as Romance Creek or Creek 36-16, is in located west central Vernon County just northeast of Romance. It flows in a westerly direction for nearly three miles before reaching the North Fork of the Bad Axe River. It has a moderate gradient of approximately 54 feet per mile and drains steep forests, lowland pasture and agricultural land. Cox Creek is a Class I trout stream for its entire length of 2.6 miles.

The most recent survey, completed in 1974, documented cool, clear water that carried a low suspended silt load. The streambed consisted mainly of rocks and boulders, detritus and scattered beds of aquatic vegetation. Bank cover consisted mainly of willow and various grass species. Pasture comprised most of the riparian area, with some swamp hardwood, shrub marsh, cultivated land and upland hardwoods. Light bank erosion was present in the lower portion due to over-grazing. Boulders and scattered beds of watercress provided in-stream cover. Brook trout and a variety of forage fish species were collected during the survey. The fishery of this stream would benefit from additional in-stream cover. A fish and habitat survey should be conducted to update the 1974 information. Cox Creek has been sporadically stocked by WDNR with brook and brown trout from 1975 to 1994. Access is possible from three road crossings.

Creek 28-16

Creek 28-16, located in south central Vernon County, flows for approximately one mile in a northwesterly direction before reaching Hornby Creek. It has a steep gradient of 160 feet per mile and drains steep forests and hilly pastures. A dry flood control structure is located on this stream to reduce flash floods. Unnamed Creek 28-16 is a Class III trout stream for the lower 0.5 mile. A fish and habitat survey of Creek 28-16 should be conducted to update the biological and physical information. The WDNR does not have any stocking records for this stream. Access is difficult because no public land exists and no roads cross the stream.

Esofea Ponds

Esofea Park, located on the North Fork of the Bad Axe River in central Vernon County, contains three small ponds. These ponds are stocked annually by WDNR with rainbow trout. The ponds ultimately outlet to the North Fork Bad Axe River.

Frohock Creek (Creek 15-14)

Frohock Creek, located in southwestern Vernon County, flows for nearly three miles in a northerly direction until it reaches the South Fork of the Bad Axe River. It has a steep gradient of 63 feet per mile and drains hilly forests, lowland pasture and agricultural land. Frohock Creek is a Class I trout stream for its entire length.

The most recent survey, conducted in 1984, documented cool, clear water that carried a low suspended silt load. The streambed consisted mainly of boulder and rubble with lesser amounts of silt, sand and gravel. Bank cover consisted of various grasses, cottonwood, willow and box elder. Boulders, undercut banks, aquatic vegetation, logs and downed trees provided good in-stream cover in some stretches. Fish found during this survey included brown, brook and rainbow trout as well as a variety of forage fish species. The Frohock Creek fishery would benefit from additional in-stream cover. A fish and habitat survey should be conducted on Frohock Creek to update available information. WDNR records indicate Frohock Creek has not been stocked since 1978. Access is possible from one road crossing.

Hornby Creek

Hornby Creek, located in south central Vernon County just southwest of Viroqua, flows for nearly six miles in a northwesterly direction before reaching the South Fork of the Bad Axe River. It has a moderate gradient of 40 feet per mile and drains steep forested land, rolling agricultural land and lowland pastures. Hornby is a Class I trout stream for its entire length.

The most recent survey, completed in 1975, documented cool, clear water with a stream bottom consisting mainly of boulder, rubble, gravel and sand with lesser amounts of silt, detritus and bedrock. In-stream habitat structures provided cover for trout in Hornby Creek. Naturally reproducing brown trout, a variety of forage fish, aquatic invertebrates and vegetation were all documented. A follow up fishery survey conducted in 1984 confirmed a healthy naturally reproducing brown trout fishery. Since this data is nearly 20 years old, an updated fish and habitat survey should be conducted on Hornby Creek. WDNR records indicate Hornby Creek was stocked with brown trout from 1960 to 1993. Two road crossings, Eagles Park, DNR owned land and DNR owned easements all provide access to Hornby Creek.

North Fork of the Bad Axe River

The North Fork of the Bad Axe River, located in west central Vernon County just west of Viroqua, flows for approximately 23 miles in a southwesterly direction before meeting the South Fork to form the Bad Axe River. It has a slight gradient of 21 feet per mile and drains steep forests as well as ridgetop and valley agricultural lands. The 45 acre Runge Hollow Lake results from storage of water behind the wet flood control structure located approximately 15 miles upstream from the mouth of the North Fork. The eight or so miles of the North Fork above Runge Hollow lake is locally known as Esofea Branch. The North Fork of the Bad Axe River is classified as warm water sport fish from its mouth upstream to CTH "O". Above CTH "O", the North Fork is a Class II trout stream for approximately nine miles.

Stream surveys conducted between 1991and 1994 documented a very diverse fishery which included brown trout, rainbow trout, northern pike, black and yellow bullhead, burbot, rockbass, pumpkinseed, green sunfish, bluegill, smallmouth and largemouth bass, yellow perch, sauger, walleye, and a variety of forage fish. The major problem affecting the North Fork Bad Axe fishery is lack of in-stream cover, largely due to poor bank stability. In-stream habitat improvements such as rock rip- rap, creation of deep pools, as well as sloping and seeding of streambanks should improve the population of smallmouth bass in the North Fork of the Bad Axe River.

A fishery and habitat survey of the North Fork above Runge Hollow Lake (Esofea Branch) conducted in 2000 documented a stream bottom comprised mainly of rubble, sand and gravel with lesser amounts of silt, boulder and clay. The riparian land consisted of mainly meadow, with woods, pasture, barnyards and homes making up the balance. Submerged vegetation, woody debris, overhanging vegetation, undercut banks, boulders and LUNKER structures all provide adequate in-stream cover for adult fish. Fish collected include brook trout, brown trout, largemouth bass, white sucker, and a variety of forage fish species.

WDNR records indicate the North Fork has been stocked with brown trout from 1966 to the present, and recently the portion above Runge Hollow Lake received brook trout. Access to the North Fork of the Bad Axe River is found at Esofea County Park and numerous road crossings.

Norwegian Hollow Creek

Norwegian Hollow Creek, located in west central Vernon County, flows in a southwesterly direction for approximately three miles before reaching the South Fork of the Bad Axe River. It has a steep gradient of 83 feet per mile and drains steep forests and agricultural land. Norwegian Hollow Creek is a Class III trout stream for its entire length.

The most recent survey, completed in 1975, documented cool clear water with a stream bottom consisting mainly of boulder, rubble, gravel and lesser amounts of sand, silt, and marl. Brown trout were collected during the survey, along with a variety of forage fish species, aquatic invertebrates and aquatic vegetation. WDNR records indicate Norwegian Hollow Creek was stocked from 1961 until 1993 with brown trout. A fish and habitat survey should be conducted on Norwegian Hollow Creek to update biological information and assess the necessity for further stocking. Access to this stream is possible from three road crossings.

Riley Creek (Creek 16-1)

Riley Creek, located in southwestern Vernon County, flows in a northwesterly direction for nearly three miles before reaching the Bad Axe River. It has a moderate gradient of 55 feet per mile and drains steep forests and some agricultural land. This stream is surrounded by approximately 38 acres of wetland near its mouth. Riley creek is not a classified trout stream.

The most recent survey, conducted in 1970, documented sand as the primary bottom substrate, with lesser amounts of rubble and gravel. Riley Creek was ditched as it approaches the Bad Axe River. Slight bank erosion from livestock and high water was observed. There are no WDNR stocking records for Riley Creek. Access to this stream is via two road crossings.

Runge Hollow Lake

A flood control structure built in the mid 1970's impounds approximately 45 acres of water called Runge Hollow Lake on the North Fork of the Bad Axe River just downstream of Esofea in central Vernon County. The average depth is approximately 15 feet. In 1990 a fishery survey documented a healthy largemouth bass fishery. The WDNR last stocked the lake in 1995 with brook trout and largemouth bass. The lake is surrounded by private property, but one public boat landing exists on the southwest corner of the lake near the dam off an old town road.

Water quality data has been collected on Runge Hollow Lake by a self-help volunteer monitor since 1995. Water clarity is measured by lowering a Secchi disk into the lake. Most data indicate a clear lake with plentiful aquatic plant growth. Occasional algae blooms have been documented. Runge Hollow Lake is considered a high priority to receive a lakes planning grant to assess the impacts of nonpoint source pollution to the lake.

Sidie Hollow Creek

Sidie Hollow Creek, located in central Vernon County just west of Viroqua, flows for approximately one mile in a southwesterly direction before reaching Sidie Hollow Lake. It has a gradient of 66 feet per mile and drains steep forested land, lowland pasture, and agricultural land. Sidie Hollow Creek is a Class II trout stream for the 0.5 miles immediately upstream of Sidie Hollow Lake.

The most recent survey, conducted in 1975, documented a cool, clear stream with a bottom consisting mainly of rubble with lesser amounts of boulder, gravel, sand, silt and detritus. Aquatic vegetation was scarce. Brown trout and a variety of forage fish were collected, as well as bluegill and largemouth bass, which likely emigrated from Sidie Hollow Lake. A fish and habitat survey of Sidie Hollow Creek should be conducted to update physical and biological information and determine the need for further fish stocking. WDNR stocked brown trout in Sidie Hollow Creek from 1961 to 1989. Between 1989 and 1991, a variety of fish including brook, rainbow trout and largemouth bass were stocked. Access to the stream is available from Sidie Hollow Lake and Sidie Hollow County Park.

Sidie Hollow Lake

Sidie Hollow Lake is a 38 acre impoundment of Coe Hollow and Sidie Hollow Creeks, just west of Viroqua in central Vernon County. The dam is a U. S. Project P.L. 566 multi purpose structure constructed in the 1960's for flood control and recreation. The dam outlet discharges to the upper end of the South Fork of the Bad Axe River. Sidie Hollow Lake County Park surrounds the lake

and offers camping, a boat ramp and picnic shelters. The shoreline is moderately irregular with steep banks bordering all sides of the lake. The banks along the east side of the lake are slightly eroded because of trails created by heavy fishing pressure. The water quality of Sidie Hollow Lake is largely dependent upon the inlet waters, Sidie Hollow and Coe Hollow Creeks, which together drain approximately seven square miles of hilly forest and agricultural lands. The lake has a maximum depth of 22 feet and is managed for brown trout, largemouth bass and bluegill. Fish stocked in Side Hollow Lake over the years include brook, brown and rainbow trout, splake, largemouth bass, walleye, and bluegill.

Water quality data was collected on Runge Hollow Lake by a self-help volunteer monitor in 1988, 1990, 1992 and 1993. Water clarity is measured by lowering a Secchi disk into the lake. Occasional algae blooms have been documented. A self-help monitor should be found to continue monitoring this lake. A 1994 aquatic plant survey of Sidie Hollow Lake documented a diverse plant community containing at least 16 species residing in the shallow depths of the lake. Sidie Hollow Lake is considered a high priority to receive a lakes planning grant to assess the impacts of nonpoint source pollution to the lake.

South Fork of the Bad Axe River

The South Fork of the Bad Axe River, located in southwestern Vernon County, flows in a westerly direction for approximately 18.5 miles before joining the North Fork to create the Bad Axe River. It has a slight gradient of 20 feet per mile and drains steep agricultural, pasture, and wooded land. The uppermost 1.5 miles is also known as South Bottom Creek, where a dry flood control dam traverses the stream. This structure allows normal stream flows through, but only temporarily impounds water during rain events then slowly releases it over time. A wet flood control structure which creates Sidie Hollow Lake is located just north of the dry dam on Coe Hollow and Sidie Hollow Creeks. Both structures were built in the 1960's to reduce the effects of flash flooding, common in the hilly terrain of the driftless area. The South Fork Bad Axe River is a Class III trout stream for its entire length. The stretch of stream above the dry dam has minimal habitat for trout due to high flows during rain events.

Figure 22 Example of a P.L. 566 Dry Dam Structure.

Fish and habitat surveys, conducted between 1991 to 1994, documented a predominately sand bottom, varying abundance of aquatic vegetation and lack of undercut banks, all which provided little habitat for trout. Streambank erosion due to pasturing of livestock and high water during spring also decreased in-stream habitat quality. Brown and brook trout, smallmouth bass, pumpkinseed, burbot and a wide variety of forage fish were collected during these surveys. The reduction of streambank erosion caused by grazing livestock would improve in-stream habitat for

the South Fork of the Bad Axe River fishery. The South Fork has been stocked by WDNR since 1960 with brown trout and occasionally brook trout, rainbow trout, largemouth bass, and smallmouth bass. Numerous road crossings provide access to the river.

Springville Branch

Springville Branch, located in west central Vernon County, flows for approximately eight miles in a westerly direction before reaching the North Fork of the Bad Axe River. It has a moderate gradient of 40 feet per mile and drains steep forests, lowland pasture, agricultural land and a portion of the City of Viroqua. The natural origin of Springville Branch is in the small village of Springville where springs well up in the stream bed creating a quicksand like stream bottom. However, since the City of Viroqua discharges stormwater and treated wastewater to a natural channel that eventually reaches the Springville Branch at Springville, the length of the perennial flowing stream has increased. The downstream end of Springville Branch flows through Duck Egg, a Vernon County park, where a wet flood control structure is owned and maintained by Vernon County.

Springville Branch contains cool, clear water which turns turbid during periods of rain and associated run-off. Fish kills have sporadically occurred during high flow events throughout the years. The ultimate source of these fish kills has not been positively identified. Springville Branch is a Class II trout stream from its mouth upstream to Springville (approximately 7.6 miles), and a limited aquatic life stream upstream of Springville to Viroqua. Limited aquatic life streams cannot provide the life cycle requirements for fish species, and have limited ability to support other fully aquatic life forms.

The latest fish and habitat surveys, completed in 1998 and 1999 documented a stream bottom composed mainly of gravel and rubble with lesser amounts of silt and sand. The presence of beaver dams caused silt accumulation and altered flow of the stream. The streambanks contained little to no erosion. A wide variety of aquatic vegetation and aquatic insects, as well as pickerel frogs and wood turtles were documented during these surveys. Fish collected include brook and brown trout, smallmouth bass, green sunfish and a variety of forage fish species. Maintenance or improvement of Springville Branch includes control of beaver dams, reduction of non-point source runoff, and proper operation of the Viroqua Wastewater Treatment Plant. WDNR stocked Springville Branch from 1960 to 1998 with brown trout and occasionally with rainbow trout and smallmouth bass. Four road crossings and Duck Egg County Park provide access to the stream.

Species of Concern in the Bad Axe River Watershed

The Wisconsin DNR Bureau of Endangered Resources is responsible for tracking natural communities, plant, animal and insect species that are of concern due to their low or declining acreage or numbers. The Natural Heritage Inventory is a list of plant, animal, insect, and natural communities in the State of Wisconsin each of which are categorized as endangered, threatened or of special concern.

Definitions

Wisconsin Endangered Species: Any species whose continued existence as a viable component of this state's wild animal or plant community is determined by WDNR to be in jeopardy on the basis of scientific evidence.

Wisconsin Threatened Species: Any species which appears likely to become endangered within the foreseeable future based on scientific evidence.

Wisconsin Special Concern Species: Any species about which some problem of abundance or distribution is suspected in Wisconsin, but not yet proven. The purpose of this category is to focus attention on certain species before they become threatened or endangered.

This information is used to identify critical habitat for these species to prevent further degradation and thus help protect the endangered community. Protection of threatened and endangered species in a watershed requires cooperation between bureaus within WDNR, private landowners, University personnel, sporting groups, industry and municipalities in the search of solutions for protecting critical habitat.

Table 7. Bad Axe River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Bird			
Bald Eagle	Haliaeetus leucocephalus	Special Concern	The bald eagle prefers large trees in isolated areas in proximity to large areas of surface water, large complexes of deciduous forest, coniferous forest, wetland and shrub communities.
Fish			
Mud Darter	Etheostoma asprigene	Special Concern	The mud darter prefers moderate currents in sloughs, overflow areas, sluggish riffles, and pools of large, low-gradient rivers over bottoms of mud, sand, gravel, clay, or bedrock.
Silver Chub	Macrhybopsis storeriana	Special Concern	The silver chub prefers sand substrate in large low gradient rivers. Can be found in a variety of habitats from riffles to deep pools.
Weed Shiner	Notropis texanus	Special Concern	The weed shiner prefers sloughs, lakes, and quiet sections of medium/large streams or rivers over substrates of sand or mud.
Natural Community			
Bat Hibernaculum	Bat hibernaculum		This habitat is generally a cave or mine shaft that maintains optimum winter temperatures for hibernating bats.
Dry Cliff	Dry cliff		These dry vertical bedrock exposures occur on many different rock types. Scattered pines, oaks, or shrubs often occur. However, the most characteristic plants are often ferns, common polypody and rusty woodsia, along with columbine, harebell, pale corydalis, juneberry, bush honeysuckle, and rock spikemoss.
Dry Prairie	Dry prairie		This grassland community occurs on dry, often loess-derived soils, usually on steep south or west facing slopes or at the summits of river bluffs with sandstone or dolomite near the surface. Little bluestem, side-oats grama, hairy grama, and prairie dropseed are dominant prairie grasses. Common shrubs and forbs include leadplant, silky aster, flowering spurge, purple prairie-clover, cylindrical blazing-star, and gray goldenrod.
Moist Cliff	Moist cliff		This “micro-community” occurs on shaded (by trees or the cliff itself because of aspect), moist to seeping mossy, vertical exposures of various rock types, most commonly sandstone and dolomite. Common species are columbine, fragile ferns, wood ferns, rattlesanke-root, and wild sarsaparilla. Driftless Area cliffs might have northern monkshood.

Table 7. Bad Axe River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Pine Relict	Pine relict		These isolated stands of white pine and red pine or, less commonly. Jack pine, occur on sandstone outcrops or in thin soils over sandstone. The understories often contain blueberries, huckleberry, wintergreen, pipsissewa, and partridge-berry, sometimes mixed with herbs typically found in southern Wisconsin's oak forests and prairies.
Southern Dry-Mesic Forest	Southern dry-mesic forest		Red oak is a common dominant tree of this upland forest community type. White oak, basswood, sugar and red maples, and white ash are also important. The herbaceous understory flora is diverse and includes wild geranium, false Solomon's seal, hog peanut, woodland sunflower, jack-in-the-pulpit, enchanter's-nightshade, large-flowered bellwort, interrupted fern, lady fern, and tick-trefoils.
Southern Mesic Forest	Southern mesic forest		This upland forest community occurs on rich, well-drained soils. The dominant tree species is sugar maple, but basswood and beech may be co-dominant. Many other trees are found, including those of the walnut family. The understory is typically open and supports fine spring ephemeral displays. Characteristic herbs are spring-beauty, trout-lilies, trilliums, violets, bloodroot, blue cohosh, mayapple and Virginia waterleaf.
Plant			
One-Flowered Broomrape	Orobanche uniflora	Special Concern	One-flowered broomrape prefers mesic woods.
Salamander			
Four-Toed Salamander	Hemidactylium scutatum	Special Concern	The four-toed salamander closely associates with springs, spring creeks and spring-fed bogs in northern mesic & southern mesic forests.
Snail			
Smooth Coil	Helicodiscus singleyanus	Special Concern	The smooth coil is found on hill prairie settings. Need some protection via vegetation detritus, but survive well in well-drained habitats.
Wing Snaggletooth	Gastrocopta procera	Threatened	The wing snaggletooth occurs on hill or "goat" prairies with southern or western exposures in western Wisconsin and prefers to live under organic debris.

Table 7. Bad Axe River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Snake			
Black Rat Snake	Elaphe obsoleta	Special Concern	The black rat snake prefers moist, wooded east and north slopes of bluffs along rivers.
Bull Snake	Pituophis melanoleucus	Special Concern	The bull snake prefers dry prairies, dry mesic prairies, oak savanna and oak openings. Best habitat usually occurs on south and west facing hillsides.
Timber Rattlesnake	Crotalus horridus	Special Concern	The timber rattlesnake prefers deciduous forests and croplands during the summer and steep, rugged bluffs and rocky outcrops during the spring and fall.
Turtle			
Wood Turtle	Clemmys insculpta	Threatened	The wood turtle prefers lowland hardwood forests and open wet meadows associated with moderate to fast current streams and rivers with sand or gravel substrates.

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Coon Creek Watershed (BL03)

The Coon Creek Watershed, located in west central Vernon, southwest Monroe, and southern La Crosse counties, covers 238 square miles and includes all streams that drain to Coon Creek as well as the following Mississippi River tributaries: Chipmunk Coulee Creek, Mormon Coulee Creek, Creek 16-6 and Creek 29-1. This watershed contains 88 miles of trout streams, many of which contain self-sustaining trout populations (Class I). The Coon Creek Watershed contains steep, wooded hills with farming activities in both the valleys and ridgetops. Streams in the Coon Creek watershed characteristically contain clear, cold spring-fed water with gravel and rubble bottoms in their upper reaches changing to predominantly sand bottoms further downstream. Numerous streams in the watershed contain both natural and restored overhead cover for trout and are accessible for fishing through public easements.

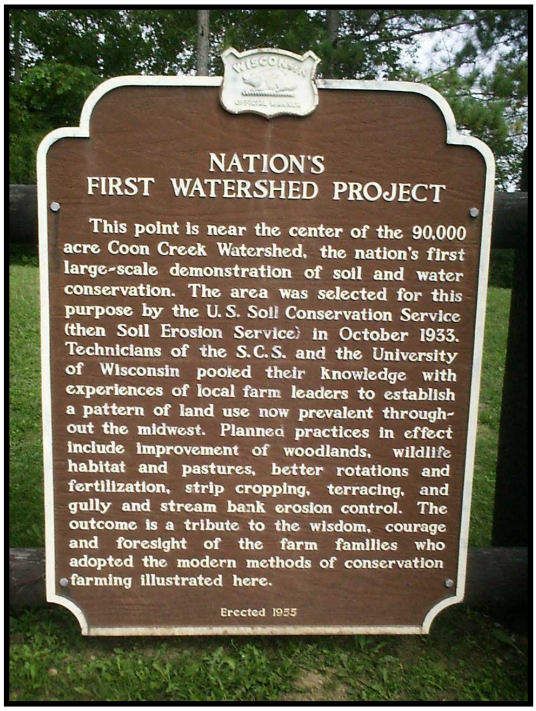
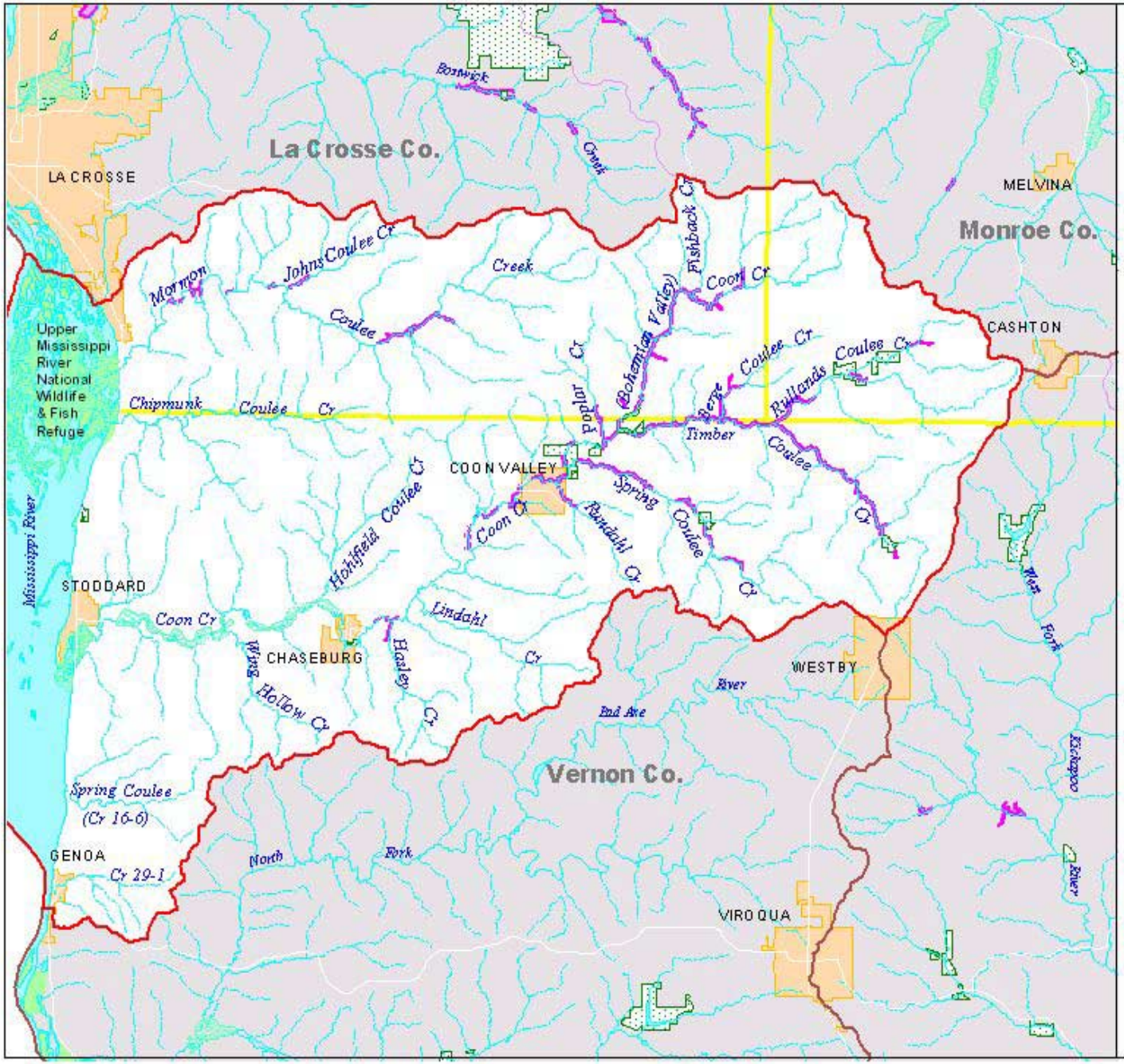
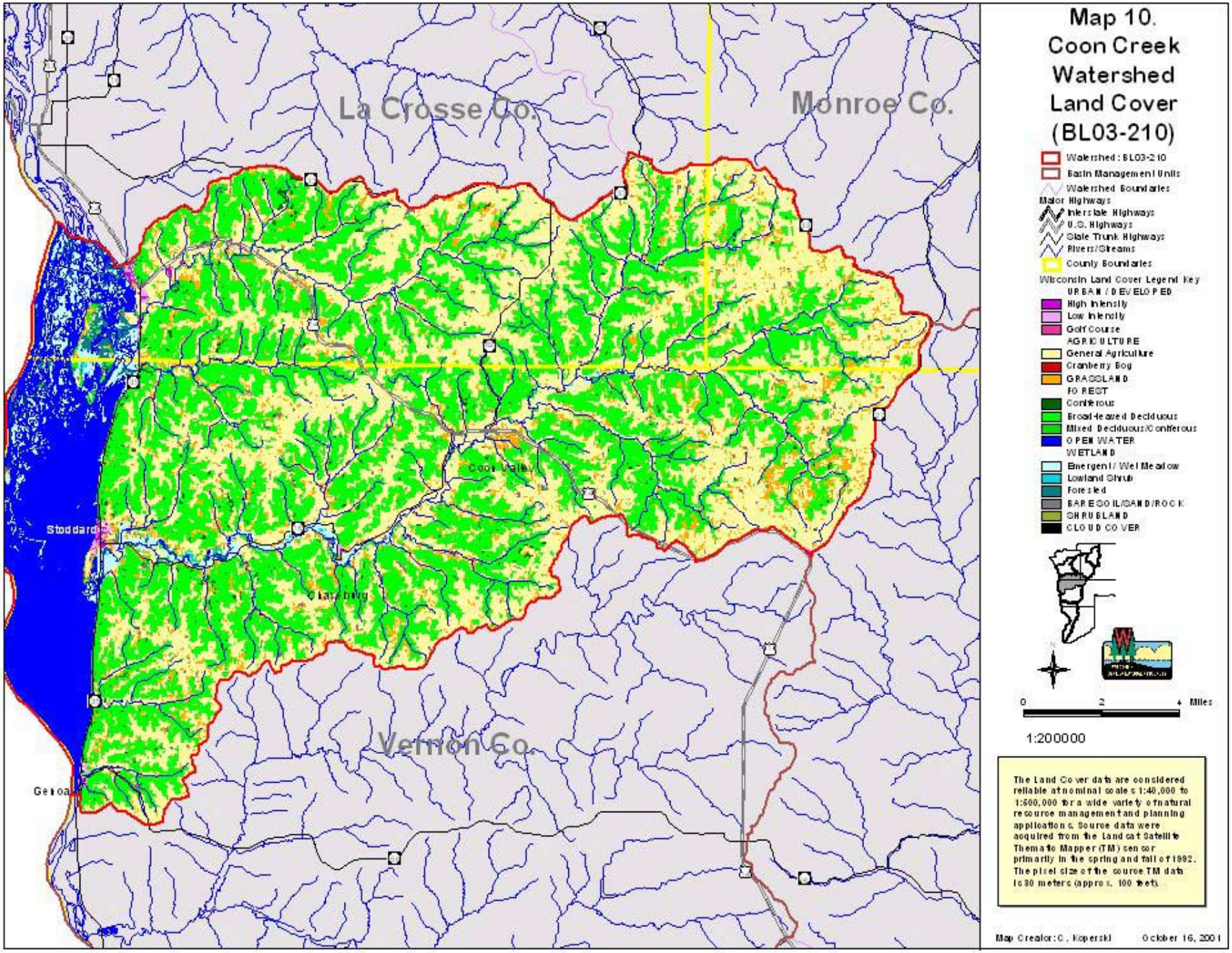


Figure 23. Nation's First Watershed Project.

Farming practices utilized since European settlement in the mid-1800's created massive soil erosion and frequent flash floods triggered by the cultivation and pasturing of steep slopes. In 1933, the Coon Creek watershed was designated as the first soil conservation project in the nation within the Soil Conservation Service(SCS), now known as the Natural Resource Conservation Service (NRCS). The purpose of the project was to determine which flood control and watershed conservation measures were effective in reducing erosion. The successful flood control and conservation practices were then promoted in other areas where similar erosion problems had occurred. The Civilian Conservation Corps (CCC) was mobilized to install contour strips, grass waterways, fences to exclude cattle from steep hillsides, as well as plant trees and shrubs. They also installed streambank protection such as willow plantings, brush mats, as well as rock and timber pilings on eroding banks. The success of this soil conservation project is evidenced by farmers still maintaining original contour strips, re-vegetated hillsides, and recovery of the Class I trout streams. Numerous studies have been conducted on the Coon Creek Watershed since the 1933 project. It is important to note that the Wisconsin DNR defined Coon Creek Watershed encompasses 238 square miles, whereas the NRCS defined Coon Creek Watershed encompasses 141 square miles including only Coon Creek and its tributaries.

Recognizing the high quality trout streams in the Coon Creek watershed, the WDNR created the Coon Creek Fishery Area. WDNR ownership of land and easements on private property provides access to Coon Creek upstream of Chaseburg, Timber Coulee, Rullands Coulee, Bohemian Valley, Spring Coulee Creeks, and many unnamed tributaries for fishing and hiking. Parking areas are found throughout the fishery area and posted signs ask users to respect private landowners while enjoying the streams on public easements.


La Crosse Co.
Monroe Co.
Vernon Co.
LA CROSSE
MELVINA
CASHTON
COON VALLEY
STODDARD
CHASEBURG
WESTBY
GENOA
VIROQUA
Upper Mississippi River National Wildlife & Fish Refuge
Mississippi River
Bostwick Creek
Morron Coulee
Johns Coulee Cr
Creek
Fishback Cr
Coon Cr
Bohemian Valley
Poplar Cr
Berge Coulee Cr
Rullands Coulee Cr
Chipmunk Coulee Cr
Timber Coulee Cr
Spring Coulee Cr
Randahl Cr
Coon Cr
Holtfield Coulee Cr
Coon Cr
Lindahl Cr
Hasley Cr
Wing Hollow Cr
Bad Axe River
West Fork Kickapoo River
Spring Coulee (Cr 16-6)
Cr 29-1
North Fork
Map 9.
Coon Creek
Watershed
Streams
(BL03-210)
Watershed: BL03-210
Basin Management Units
Watershed Boundaries
USGS Marsh
USGS Rivers and Streams
Perennial
Intermittent
USGS Open Water
DNR Managed Lands (as of 2000)
Ownership
Easement
Federal Lands
Municipalities
County Boundaries
0
2
4 Miles
1:200000
Map Creator:
C. Koperski
September 18, 2001


Map 10.
Coon Creek
Watershed
Land Cover
(BL03-210)
Watershed : BL03-210
Basin Management Units
Watershed Boundaries
Major Highways
Interstate Highways
U.S. Highways
State Trunk Highways
Rivers/Streams
County Boundaries
Wisconsin Land Cover Legend Key
URBAN / DEVELOPED
High Intensity
Low Intensity
Golf Course
AGRICULTURE
General Agriculture
Cranberry Bog
GRASSLAND
FOREST
Coniferous
Broad-leaved Deciduous
Mixed Deciduous/Coniferous
OPEN WATER
WETLAND
Emergent / Wet Meadow
Lowland Shrub
Forested
BARE SOIL/SAND/ROCK
SHRUBLAND
CLOUD COVER
0
2
4 Miles
1:200000
The Land Cover data are considered reliable at nominal scales 1:40,000 to 1:600,000 for a wide variety of natural resource management and planning applications. Source data were acquired from the Landsat Satellite Thematic Mapper (TM) sensor primarily in the spring and fall of 1992. The pixel size of the source TM data is 30 meters (approx. 100 feet).
Map Creator: C. Koperski
October 16, 2001
La Crosse Co.
Monroe Co.
Vernon Co.
Coon Valley
Stoddard
Genoa

Colder stream temperatures than in the past are suspected in Coon Creek watershed streams. Proof of this comes from a decrease in fish species diversity found in area streams. Fewer fish species can tolerate constant cold water temperatures. The loss of some forage fish species over the years may be linked to decreasing average water temperatures. The observation that more natural springs are flowing than in past years also points to colder stream temperatures. To document current water temperature trends, continuous data loggers were installed in 1999 in Coon, Spring Coulee, Timber Coulee, Rullands Coulee, Bohemian Valley, Poplar, and Mormon Coulee Creeks. These data loggers will collect water temperature hourly for approximately eight years.

The communities of Coon Valley and Chaseburg each discharge treated wastewater to Coon Creek. Both the La Crosse and Pineview Mobile Home Parks discharge treated wastewater to Mormon Coulee Creek and St. Joseph discharges to a dry creek bed tributary to Mormon Coulee Creek. Both Genoa and Stoddard send their treated wastewater to the Mississippi River.

Table 8. Coon Creek Watershed at a Glance	
Drainage Area (square miles)	238
Total Stream Miles	134.2
Total Trout Stream Miles	89.2 Class I = 42.7 Class II = 30.3 Class III = 16.2
Total ORW Miles ***Total ERW Miles***	16.0 22.9
Total Impaired Stream Miles/Lakes	None
Total Wetland Acres	6,050 (includes Mississippi River wetlands)
Best Water Quality	Bohemian Valley Creek
Lakes	None
Municipalities	Chaseburg, Coon Valley, Genoa, St. Joseph, Stoddard, Westby
Total Permitted Wastewater Discharges	7
Major Public Lands	➢Upper Mississippi River Fish and Wildlife Refuge ➢Coon Creek State Fishery Area
Concerns and Issues	➢Urban and agricultural non-point source pollution ➢Stormwater volume, quality and temperature
Initiatives and Projects	➢Comprehensive stream surveys ➢Baseflow water chemistry sampling ➢Installation of in-stream habitat ➢Continuous water temperature monitoring

Recommendations

1. The purchase of additional streambank easements along **Berge Coulee, Bohemian Valley, Fishback, Mormon Coulee, Rullands Coulee, Spring Coulee, Rundahl, and Coon Creeks** is recommended according to the Coon Creek Fishery Area Master Plan.

2. The WDNR should extend the Coon Creek Fishery Area to include **Lindahl Creek and Coon Creek** downstream of Chaseburg to the Mississippi River.

3. **Chipmunk Coulee Creek (Creek 3-6) and Spring Coulee Creek (Creek 16-6)** would benefit from the acquisition of streambank easements and in-stream habitat restoration.

4. WDNR should conduct surveys of **Spring Coulee Creek (Creek 16-6) and Hohlfield Creek (Creek 20-16)** to determine success of wild brook trout stocking.

5. WDNR should conduct a fish and habitat survey of **Unnamed Creek 29-1, Fishback Creek, Hasley Creek, Poplar Creek, Wing Hollow Creek** to document existing conditions.

6. The WDNR should survey **Mormon Coulee Creek** in the near future to determine if the introduction of wild brown trout develops into a self sustaining population.

7. The WDNR should continue in-stream habitat restoration in all streams where necessary in **Coon Creek Fishery Area** streams.

8. The La Crosse County Land Conservation Department should continue baseflow sampling of **Mormon Coulee Creek** to determine water quality trends.

9. The WDNR should continue continuous temperature monitoring of streams in the Coon Creek Watershed to document trends.

10. The City of La Crosse and the Town of Shelby should create a stormwater plan for the **Mormon Coulee Creek** drainage area, with costs shared by new subdivision developments.

The map that accompanies this chapter indicates DNR easements along streambanks as well as DNR owned lands as of March 1, 1996. Additional easements and land may have been purchased in the area since 1996 that are not indicated on the map. The DNR installs signs where access is allowed onto private lands with DNR easements along streambanks. The easement allows for access to the stream for fishing and nature observation. The land is still privately owned and landowner rights should be respected.

Berge Coulee Creek

Berge Coulee Creek, also known as Bergen Coulee and Creek 35-16, is located in southeastern La Crosse County, northeast of Coon Valley. It flows in a southerly direction for approximately 1.5 miles before reaching Timber Coulee Creek. It has a steep gradient of 77 feet per mile and drains forested hillsides, lowland pasture and agricultural land. Berge Coulee Creek is a Class I trout stream for its entire length.

The most recent survey, conducted in 1975, found clear, cool water that carried a low suspended silt load. The streambed consisted of rubble, gravel, sand, silt and abundant aquatic vegetation. Pasture comprised the majority of bank cover, with some swamp hardwood and shrub marsh also. In-stream cover was common and consisted of undercut banks, rocks, boulders, logs and trees. A few deep holes were present in the lower section of the stream with good underwater cover. A 1983 fishery survey documented a naturally reproducing population of brown trout. There are no WDNR stocking records for Berge Coulee Creek. Access is available from three road crossings and WDNR streambank easements.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Of the samples taken between 1998 and 2001, Berge Coulee Creek met the county phosphorus goal in 100% of the samples taken. The county fecal coliform bacteria goal was met in 80% of the samples taken. These data point to high water quality conditions in Berge Coulee Creek. La Crosse County should continue baseflow sampling of Berge Coulee Creek to determine water quality trends.

Bohemian Valley Creek

Bohemian Valley Creek flows through La Crosse, Monroe and Vernon Counties. This creek is actually the uppermost nine miles of Coon Creek, but is locally known as Bohemian Valley Creek. Since it is smaller in size and managed differently than Coon Creek, it is discussed here separately from the Coon Creek narrative. It begins in Monroe County and flows for 9 miles in a southwesterly direction, cutting through the southeastern corner of La Crosse County into Vernon County. It has a moderate gradient of 45 feet per mile and drains steep sloped agricultural land and forested hillsides as well as lowland pasture. Bohemian Valley Creek is a Class I trout stream for its entire length.

Three P.L. 566 dry pool flood detention structures exist in the watershed draining toward Bohemian Valley Creek. From the Korn Spring (Section 24, T15N,R5W) downstream, water temperature and quality are ideal for brown trout. The cool water temperatures are the result of more than 50 springs entering the creek in La Crosse County alone. The stream was most recently visited in 1999 when adult male and female brown trout were collected for brood stock, which provide offspring used for wild brown trout stocking statewide. However, the most recent habitat survey was conducted in 1975. The water was clear and contained a low suspended silt load. The streambed consisted mainly of boulder, rubble, gravel, and sand with lesser amounts of silt and detritus. Bank cover was composed of firm pasture, shrub marsh, meadow pasture and upland hardwood. In-stream fish cover was found throughout the stream and consisted of wing deflectors, LUNKER structures, boulders, aquatic vegetation beds, and log tangles. Fishery population surveys conducted in the 1980's and 1990's documented a healthy, naturally reproducing brown trout population along with a variety of forage fish.

In 1955, the Wisconsin Conservation Department (now the WDNR) initiated a fishery habitat demonstration project along Bohemian Valley, Timber Coulee and Rullands Coulee Creeks. The purpose of this project was to develop and perfect in-stream habitat restoration techniques. This pioneering project resulted in restoration methods that are still used today in coulee region streams.

Perpetual fish management easements were purchased by the WDNR, as recommended in the Coon Creek Fishery Area Master Plan, from Korn Springs in Monroe County downstream to the Vernon and La Crosse County line. Protection easements were also purchased on most of the major springs entering Bohemian Valley Creek. This stream has not been stocked since 1996. Access to the stream is possible from three road crossings and WDNR easements.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Of the samples taken between 1998 and 2001, Bohemian Valley Creek met the county phosphorus goal in 100% of the samples taken. The county fecal coliform bacteria goal was met in 80% of the samples taken. These data indicate very good water quality in Bohemian Valley Creek. La Crosse County should continue baseflow sampling of Bohemian Valley Creek to determine water quality trends.

Chipmunk Coulee Creek (Creek 3-6)

Chipmunk Coulee Creek, also known as Creek 3-6, is located in northwestern Vernon County. It flows in a southwesterly direction for approximately 5.5 miles before reaching the Mississippi River between La Crosse and Stoddard. This stream has a gradient of 54 feet per mile and drains steep forested hillsides, agricultural land, and expanding rural subdivisions. Chipmunk Coulee Creek is a Class I trout stream for its entire length.

The most recent survey, conducted in 1999, documented a stream bottom consisting mainly of sand and clay with lesser amounts of silt, gravel, detritus and rubble. Riparian land use was comprised mostly of woodland with some home developments and very little meadow area. Fish cover was primarily woody debris with some overhanging vegetation and undercut banks. A variety of aquatic invertebrates were collected as well as numerous minnow species. Game species collected included brown trout, brook trout, tiger trout (brook and brown trout hybrid), northern pike, green sunfish, largemouth bass and pumpkinseed. Chipmunk Coulee Creek would benefit from the acquisition of streambank easements and in-stream habitat restoration. There are no Wisconsin DNR stocking records for this stream. Access is possible from four road crossings and the Upper Mississippi River National Wildlife Refuge.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Of the samples taken between 1998 and 2001, Chipmunk Coulee Creek met the county phosphorus goal in 70% of the samples taken. The county fecal coliform bacteria goal was met in over 90% of the samples taken. These data indicate good water quality in Chipmunk Coulee Creek. The county ranks Chipmunk Coulee Creek as a low priority on which to expend effort to reduce phosphorus and bacterial contamination. La Crosse County should continue baseflow sampling of Chipmunk Coulee Creek to determine water quality trends.

Coon Creek

Coon Creek, located in northwestern Vernon County, flows in a southwesterly direction for approximately 22 miles before reaching the Mississippi River near Stoddard. It has a slight gradient of 7.1 feet per mile and drains steep forested hillsides and agricultural lands. Coon Creek is a Class III trout stream from STH 35 upstream to CTH K at Chaseburg and Class II from CTH K upstream to the confluence of Bohemian Valley and Timber Coulee Creeks northeast of Coon Valley.

The latest survey, completed in 1986, documented watershed land use split evenly between agricultural land and forests, with approximately 140 acres of adjoining wetland. Riparian land was comprised of pasture, shrub marsh, swamp hardwood and cultivated land. In-stream cover consisted of logs, deep pools and undercut banks. Problems noted were bank erosion, log jams in the lower reaches, flooding and siltation. Severe flooding and siltation limit a good trout fishery in the lower reaches of Coon Creek. Brook, brown and rainbow trout, smallmouth bass, walleye and a variety of minnows were found during the 1986 survey.

The WDNR should continue stocking trout and restoring in-stream habitat from Coon Valley to Chaseburg. Coon Creek between Chaseburg and the Mississippi River would benefit from the acquisition of streambank easements and in-stream habitat restoration. Consequently, the WDNR should extend the Coon Creek Fishery Area to include Coon Creek downstream of Chaseburg to the Mississippi River.

From 1960 - 1997 brown trout and occasionally rainbow trout were stocked. From 1997 to present, brook trout have been introduced to the stream. Access to Coon Creek is possible from numerous road crossings, the Coon Valley Park at STH 14/61, WDNR easements, WDNR owned land, and from the Mississippi River. The lower portion of the stream flows through the Upper Mississippi National Wildlife Refuge. The Village of Chaseburg has a walking trail and wheelchair accessible fishing to Coon Creek. The Village of Coon Valley Park provides a looped walking path along both sides of Coon Creek with two bridges and wheelchair accessible trout fishing. The deep, swift current, in-stream habitat structures, and easy access create an enjoyable fishing experience for many.

Creek 29-1

Creek 29-1, located in west central Vernon County, flows in a northwesterly direction for three miles before reaching the Mississippi River near Genoa. It has a moderate gradient and drains steep forested hills and agricultural valley land. Creek 29-1 is currently not a classified trout stream.

A 1988 survey documented clear, cool water that carried a low suspended silt load. The streambed consisted of rubble, gravel, sand and silt. Willow, box elder, some elm and ash made up the bank cover. The 1988 survey revealed the stream was highly impacted by agriculture since virtually all of the watershed was cultivated with row crops or heavily pastured. In-stream cover consisted of rock and boulders with scattered logs and trees. Siltation and unstable streambanks caused by overgrazing and runoff seriously degraded streambank stability. As with many other streams in Vernon County, this stream would support trout if land use improved. Even in its degraded condition, overall biological productivity was high. Rocks in riffle areas carried large numbers of mayflies, caddisflies and freshwater shrimp. Watercress was also present in areas away from severe cattle traffic. Overhead cover was virtually nonexistent except for scattered areas of logjams and fallen trees. Some game species and forage fish species were found. If land

use has improved since 1988, a fish and habitat survey should be conducted to determine if brook trout reintroduction has the potential to succeed in Creek 29-1. There are no WDNR stocking records for this creek. Access to Creek 29-1 is from three road crossings.

Fishback Creek

Fishback Creek, located in southeastern La Crosse County, flows in a southerly direction for two miles before reaching Bohemian Valley Creek (upper Coon Creek). It has a steep gradient of 100 feet per mile and drains forested hillsides and agricultural land. Fishback Creek is classified as a Class II trout stream for the lower 0.5 mile and Class III for the remaining 1.5 miles.

A 1975 stream survey documented cool, clear water that carried a low suspended silt load. Rubble comprised the majority of the streambed with lesser amounts of sand, silt, gravel, and boulder. The riparian land consisted of pasture, swamp hardwood, and shrub marsh. Approximately six acres of wetland adjoin the creek. In-stream cover was common and composed of boulders, woody debris and aquatic vegetation. A 1988 fish survey documented brook trout, brown trout and a variety of minnows species. The WDNR should update fish and habitat data from Fishback Creek.

Fishback Creek hasn't been stocked since 1990. Access is possible from the CTH "G" road crossing where DNR easements border the stream above and below the bridge for approximately 182 feet of public frontage.

Hasley Creek

Hasley Creek, located in northwestern Vernon County, flows for approximately 1.5 miles in a northerly direction before reaching Coon Creek east of Chaseburg. It has a gradient of 57 feet per mile and drains steep forested hillsides and agricultural land in the valley. Numerous springs enter the stream at various locations. Hasley Creek is classified as a Class III trout stream for its entire length.

The most recent survey, completed in 1974, documented clear, cool water that carried a low suspended silt load. The streambed was composed of rubble, gravel, sand and a trace of silt. Bank cover consisted of willow, elm, box elder, and grasses. In-stream cover consisted of thick beds of watercress and veronica. A few deep holes were present but contained little cover. Brown trout were found during this survey along with a few minnow species. There is navigable water access from Coon Creek and a DNR easement borders Hasley Creek where it meets Coon Creek. The last stocking date for Hasley Creek was in 1975 when yearling brown trout were planted. Since the fish and habitat data are 25 years old, Hasley Creek should be re-surveyed.

Hohlfield Creek (Creek 20-16)

Hohlfield Creek, also known as Creek 20-16, is located in northwestern Vernon County. In past years this stream was also known as Huff Creek and Swain Hollow Creek. It flows in a southwesterly direction for approximately four miles before reaching Coon Creek west of Chaseburg. Hohlfield Creek has a slight gradient 18 feet per mile and drains steep forested hillsides and agricultural valley land. Hohlfield Creek is a Class I trout stream for its entire length.

The most recent survey, completed in 1999, documented a streambed consisting mainly of sand and silt, with lesser amounts of gravel and rubble. The riparian land use was pasture and meadow.

Fish cover consisted of overhanging vegetation and woody debris with aquatic vegetation and few undercut banks. A naturally reproducing brown trout population, a variety of aquatic invertebrates and minnows were noted. Hohlfield Creek was stocked with brown trout up until 1998. Since 1998, only brook trout have been introduced. Hohlfield Creek should be re-surveyed in a few years to determine the success of stocking wild brook trout. Access to the stream is possible from five road crossings.

Johns Coulee Creek (Creek 20-6)

Johns Coulee Creek, also known as Creek 20-6, is located in southern La Crosse County. It flows in a southwesterly direction for approximately two miles before reaching Mormon Coulee Creek. This stream has a moderate gradient of 47 feet per mile. Johns Coulee Creek is a Class I trout stream for its entire length.

A fish and habitat survey conducted in 2000 documented a naturally reproducing brook trout population and very few brown trout. The stream bottom was comprised mainly of sand, gravel and clay. Overhanging vegetation was the primary in-stream fish habitat, followed by woody debris and undercut banks. No WDNR stocking records exist for Johns Coulee Creek. Access to the stream is possible from two road crossings and the WDNR owns fishing easements on the lower end.

Lindahl Creek

Lindahl Creek, also known as Hagen Creek or Dodson Hollow Creek, is located in northwestern Vernon County. It flows in a westerly direction for approximately three miles before reaching Coon Creek east of Chaseburg. This stream has a moderately steep gradient of 53 feet per mile and drains steep wooded hillsides and agricultural valley land. Lindahl Creek is a Class I trout stream for its entire length.

The most recent survey, completed in 1999, documented a streambed consisting mainly of sand and silt with lesser amounts of gravel. The riparian land use was pasture, woodland and meadow, with some shrub and cropland. Fish cover consisted mainly of undercut banks and overhanging vegetation with little woody debris. Natural reproduction of brown trout was evident. A variety of aquatic invertebrates and minnows were also observed. Lindahl Creek would benefit from the acquisition of streambank easements and in-stream habitat restoration work. The stream was last stocked in 1998 with brown trout. Access is possible from Coon Creek.

Mormon Coulee Creek

Mormon Coulee Creek, located in southeast La Crosse County, flows in a westerly direction for approximately 15 miles before reaching the Mississippi River south of La Crosse. It has a gradient of 23 feet per mile and drains steep forested hillsides, agricultural valley land, and numerous housing developments. Mormon Coulee Creek is a Class II trout stream for its entire length.

The stream contains a gravel and cobble bottom in the extreme upper end which eventually contains more sand, silt and clay downstream. Brown trout have been stocked in Mormon Coulee Creek since 1976. Several forage fish species and numerous year classes of brown trout and brook trout were documented in a June, 2000 fish and habitat survey. The majority of in-stream cover was woody debris. More permanent cover in the form of LUNKER structures have been installed in some areas. Mormon Coulee Creek would benefit from the purchase of additional

streambank easements and in-stream habitat restoration. Recently, wild brown and brook trout were stocked in Mormon Coulee Creek. The stream should be re-surveyed in the near future to determine if the introduction of these wild trout develop into self sustaining populations. Access to Mormon Coulee Creek is from 14 road crossings, a Town of Shelby park, and DNR streambank easements.

The lower end of Mormon Coulee Creek is located on the south end of the City of La Crosse and the Town of Shelby. The stream has a fairly wide valley here surrounded by steep hills. The major land use was agriculture until fairly recently. Due to the close proximity to the City of La Crosse and beautiful landscape, numerous housing developments have been built in the lower end of the Mormon Coulee Creek watershed and more are planned. Trout streams in urban areas are rare due to stormwater runoff. Stormwater from areas with impervious surfaces, such as roofs, sidewalks and streets generate more runoff than vegetated areas. This added volume of runoff is often times warmer than the cold temperatures healthy trout streams require. When this warm water is discharged to trout streams or their tributaries, warming of the stream creates conditions which stress trout. The accumulation of these subdivisions eventually will produce stormwater volumes that exceed what agricultural lands previously generated. Additional volume of stormwater can reduce in-stream habitat through its scouring and erosive action. Infiltration of stormwater reduces surface water volume fluctuations in the stream during both dry and wet periods by returning the stormwater to groundwater, as was the case with natural vegetation or agricultural crops. Rain and snow that percolates through the ground, rather than over the land surface, is much cooler once it reaches the stream. All new subdivisions in the Mormon Coulee Creek watershed should detain and infiltrate their stormwater. To reduce the costs of stormwater systems and reduce the affects of stormwater to the stream, the City of La Crosse and the Town of Shelby should create a stormwater plan for the Mormon Coulee watershed with costs shared by new subdivision developments.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Mormon Coulee Creek is sampled at two different locations: near the mouth and approximately seven miles upstream from the mouth. Of the samples taken between 1998 and 2001 at the middle sampling location, Mormon Coulee Creek met the county phosphorus goal in approximately 80% of the samples taken and the county fecal coliform bacteria goal in approximately 70% of the samples taken. At the lower sampling location, Mormon Coulee Creek met the county phosphorus goal in only 20% of the samples taken and the county fecal coliform bacteria goal in approximately 85% of the samples taken. These data point to a sizable nutrient load that is entering the lower half of the stream. The county ranks Mormon Coulee Creek in the top 50% of county streams on which to expend effort to reduce phosphorus and bacterial contamination. La Crosse County should continue baseflow sampling of Mormon Coulee Creek to determine water quality trends.

Poplar Creek

Poplar Creek, located in northwestern Vernon County and southeastern La Crosse County, flows for approximately two miles in a southerly direction before reaching Coon Creek northeast of Coon Valley. In Vernon County, this stream is also known as Creek 4-8 and in La Crosse County as Creek 33-11. This stream has a steep gradient of 100 feet per mile and drains steep forested land, agricultural and lowland pasture. Poplar Creek is classified as a Class II trout stream for the 0.6 miles located in Vernon County and Class I for the 1.4 miles in La Crosse County.

The most recent habitat survey, completed in 1974 and 1975, found cool, clear water that carried a low suspended silt load. The streambed consisted of rubble, gravel, sand and lesser amounts of detritus, boulder, silt and marl. Bank cover consisted of boxelder, willow, cottonwood, elm, and various grasses. In-stream cover was abundant and consisted of undercut banks, brush tangles, scattered beds of aquatic vegetation, and several deep pools. In-stream habitat structures have been installed in Poplar Creek. Fish surveys conducted in 1989 documented brown trout and a variety of forage fish species. Since no WDNR stocking records exist for this creek, the trout population most likely migrated up from Coon Creek. Access is possible from the CTH "P" bridge. DNR holds streambank easements for the entire length of Poplar Creek. It is likely that the Vernon County portion of Poplar Creek is Class I rather than Class II. A fish and habitat survey should be conducted to determine the present condition of Poplar Creek and to aid in possible reclassification of the stream.

Rulland's Coulee Creek

Rulland's Coulee Creek, located in southwest Monroe County, flows in a southwesterly direction for 4.5 miles before reaching Timber Coulee Creek. It has a gradient of 62 feet per mile and drains steep forested hills and agricultural valley land. Rullands Coulee Creek is a Class I trout stream for its entire length.

A habitat survey, conducted in 1975, found the stream bed consisted predominately of rubble and gravel with lesser amounts of silt, sand and detritus. Siltation could be attributed to some bank erosion and general watershed runoff. Bank cover was equally divided between upland hardwoods and pasture. Sufficient sunlight reached the stream for moderate to abundant aquatic vegetation growth. Aquatic vegetation, deep pools, LUNKER structures, and woody debris comprised the majority of in-stream cover. Undercut banks were scarce. The most recent fishery survey, conducted in 1991, found that young of the year trout made up the majority of the brown trout population and the fingerling trout population increased dramatically from prior years. In fact, adult brown trout from Rulland's Coulee Creek are used as brood stock for the WDNR fish hatcheries which raise wild trout. Between surveys, extensive in-stream habitat improvements were made as well as the purchase of streambank easements along much of the stream corridor. Land around key springs was also purchased by the WDNR. Rulland's Coulee Creek has not been stocked since 1969. Three road crossings provide access to the stream as well as the DNR owned land and streambank easements adjacent to the stream.

In 1955, the Wisconsin Conservation Department (now the WDNR) initiated a fishery habitat demonstration project along Bohemian Valley, Timber Coulee and Rullands Coulee Creeks. The purpose of this project was to develop and perfect in-stream habitat restoration techniques. This pioneering project resulted in restoration methods that are still used today in coulee region streams.

Rundahl Creek (Creek 8-8)

Rundahl Creek, also known as Creek 8-8, flows for 1.5 miles in a westerly direction toward Coon Creek just north of Coon Valley. This stream has a steep gradient of 120 feet per mile and drains steep forested hillsides and agricultural lands. Rundahl Creek is a Class I trout stream for its entire length.

A 1999 survey documented brook and brown trout with a largely wooded stream corridor. In-stream cover consisted of woody debris, overhanging vegetation and some undercut banks. Gravel spawning areas were abundant. This stream would benefit from the purchase of additional

streambank easements from willing sellers as stated in the Coon Creek Fishery Area Master Plan. Rundahl Creek has been stocked with wild brook trout since 1997. Access to Rundahl Creek is from one road crossing and one WDNR owned streambank easement.

Spring Coulee Creek

Spring Coulee Creek, located in northern Vernon County, flows in a northwesterly direction for six miles before reaching Coon Creek northeast of Coon Valley. It has a moderate gradient of 45 feet per mile and drains steep forested hills and agricultural valley land. Spring Coulee Creek is a Class I trout stream for its entire length.

The most recent habitat survey, conducted in 1974, found cool, clear water that carried a low suspended silt load. The streambed consisted of rubble, sand, silt and lesser amounts of gravel, boulder and detritus. Bank cover consisted of shrub marsh, pasture, upland hardwood, swamp hardwood, row crops and open marsh. In-stream cover was common and consisted of rocks, boulders, undercut banks, LUNKER structures, aquatic vegetation and an occasional log. A fair number of deep holes with good cover were also present. Fishery surveys conducted in the 1980's documented naturally reproducing brook and brown trout populations as well as a wide variety of forage fish species. Spring Coulee Creek was stocked from 1960 to 1986 with brown trout. Between 1986 and 1990, brook trout were stocked. Access to the stream is from DNR owned streambank easements, two DNR owned parcels and four bridges.

Spring Coulee Creek (Creek 16-6)

Spring Coulee Creek, also known as Creek 16-6, flows for approximately two miles in a westerly direction before reaching the Mississippi River just north of Genoa. This stream has a moderate gradient of 46 feet per mile and drains steep forested hills, lowland pasture, and agricultural land. Creek 16-6 is not a classified trout stream.

The most recent survey, conducted in 1999, documented a stream bottom comprised mainly of sand, with lesser amounts of silt, gravel, clay, rubble, detritus and boulder. The riparian land use was largely pasture and with some woodland. Fish cover was comprised of overhanging vegetation, woody debris and submergent vegetation. No trout were found during this survey, although bluegill, northern pike, and a variety of forage fish species, aquatic invertebrates and vegetation were recorded. Since this stream contained appropriate habitat and water quality, wild brook trout were recently introduced. A fishery survey should be conducted to document the status of the Spring Coulee Creek brook trout fishery. Access is possible from three road crossings, the Upper Mississippi Fish and Wildlife Refuge, and DNR owned land.

Timber Coulee Creek

Timber Coulee Creek, located in north central Vernon County, flows in a westerly direction for approximately 8.2 miles before reaching Coon Creek northeast of Coon Valley. This stream has a gradient of 40 feet per mile and drains steep forested hillsides and agricultural valley land. Timber Coulee Creek is a Class I trout stream for its entire length.

Surveys of this stream first began in 1950. Trout were found but bank erosion was severe. In 1966, a P.L.566 flood detention project was installed in the watershed upstream of Timber Coulee Creek to alleviate flooding, but flash flooding still occurred, affecting the survival of trout in the stream. In 1955, the Wisconsin Conservation Department (now the WDNR) initiated a fishery habitat demonstration project along Bohemian Valley, Timber Coulee and Rullands Coulee

Creeks. The purpose of this project was to develop and perfect in-stream habitat restoration techniques. This pioneering project resulted in restoration methods that are still used today in coulee region streams. Streambank erosion was reduced and fish cover increased by the installation of large rocks, root masses, log and rock deflectors.

Figure 24. Timber Coulee Creek at CTH P and CTH G in Vernon County

The most recent stream survey, completed in 1999, found cold, clear water that carried a low suspended silt load. The streambed consisted of gravel, silt, rubble, and sand with lesser amounts of boulder, bedrock and detritus. Approximately 60% of in-stream fish cover consisted of LUNKER structures, while the remaining cover types were submergent vegetation, overhanging vegetation, boulders, woody debris, and natural undercut banks. A variety of aquatic insects have been documented through annual sampling. Six different forage fish species were collected in the 1999 survey as well as a fairly large mottled sculpin population, which are usually found only in very cold water. Both brook and brown trout were collected, however brown trout outnumber brook trout approximately 85:1. The brown trout population of Timber Coulee Creek was estimated at approximately 2000 fish per mile in 1999. Brown trout from Timber Coulee are collected on an as needed basis for brood stock to propagate wild brown trout for stocking statewide. These fish are then returned to the stream after the eggs and milt have been acquired.

To understand the temperature dynamics of Timber Coulee Creek, numerous data loggers have been collecting hourly water temperatures since 1999. Colder water temperatures documented in the upper portion of Timber Coulee Creek coincides with the discovery of a substantial sculpin population.

The most recent stocking date for Timber Coulee Creek was in 1999 when brook trout were planted. Access to Timber Coulee Creek is possible from three road crossings, a county wayside and from WDNR owned land. The entire length of Timber Coulee Creek is legally accessible via WDNR owned streambank easements.

Wing Hollow Creek

Wing Hollow Creek, located in northwestern Vernon County, flows in northwesterly direction for 2.5 miles before reaching Coon Creek west of Chaseburg. It has a moderately steep gradient of 54 feet per mile and drains steep forested land and agricultural valley land. Wing Hollow Creek is a Class III trout stream for its entire length.

The most recent survey, conducted in 1974, found clear, cool water that carried a low suspended silt load. The streambed was comprised of sand, gravel, rubble, and lesser amounts of silt, detritus, and boulder. Bank cover consisted of willow, box elder, maple, oak, and various grasses. In-stream cover consisted of scattered beds of aquatic vegetation. Very few brown trout were captured during the survey. Wing Hollow Creek was stocked from 1984 until 1995 with brook trout. Brown trout were planted in 1997 and 1998. To determine the success of recent stocking, the WDNR should conduct a fish and habitat survey of Wing Hollow Creek. Access is possible from two road crossings.

Species of Concern in the Coon Creek Watershed

The Wisconsin DNR Bureau of Endangered Resources is responsible for tracking natural communities, plant, animal and insect species that are of concern due to their low or declining acreage or numbers. The Natural Heritage Inventory is a list of plant, animal, insect, and natural communities in the State of Wisconsin each of which are categorized as endangered, threatened or of special concern.

Definitions

Wisconsin Endangered Species: Any species whose continued existence as a viable component of this state's wild animal or plant community is determined by WDNR to be in jeopardy on the basis of scientific evidence.

Wisconsin Threatened Species: Any species which appears likely to become endangered within the foreseeable future based on scientific evidence.

Wisconsin Special Concern Species: Any species about which some problem of abundance or distribution is suspected in Wisconsin, but not yet proven. The purpose of this category is to focus attention on certain species before they become threatened or endangered.

This information is used to identify critical habitat for these species to prevent further degradation and thus help protect the endangered community. Protection of threatened and endangered species in a watershed requires cooperation between bureaus within WDNR, private landowners, University personnel, sporting groups, industry and municipalities in the search of solutions for protecting critical habitat.

Table 9. Coon Creek Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Bird			
Acadian Flycatcher	Empidonax virescens	Threatened	The acadian flycatcher prefers lowland deciduous forests and heavily wooded hillsides in large blocks of southern forests.
Bald Eagle	Haliaeetus leucocephalus	Special Concern	The bald eagle prefers large trees in isolated areas in proximity to large areas of surface water, large complexes of deciduous forest, coniferous forest, wetland and shrub communities.
Cerulean Warbler	Dendroica cerulea	Threatened	The cerulean warbler prefers lowland deciduous forests dominated by mature stands of American elm, cottonwood, and green ash and large upland blocks of dry-mesic to mesic forests.
Grasshopper Sparrow	Ammodramus savannarum	Special Concern	The grasshopper sparrow prefers prairies, retired cropland, unmowed highway right-of-ways, pastures (Kentucky bluegrass and timothy), shrub-carr wetlands, northern sedge meadows, and managed grasslands maintained for duck production.
Kentucky Warbler	Oporornis formosus	Threatened	The Kentucky warbler prefers woodlands on hillsides and in brush floodplains, especially near white oak swamps. Found particularly in areas with a dense understory near the base of surrounding bluffs. Occur along major rivers and in ravines and hillsides of streams that feed into rivers. Prefers moist ravines and bottom lands.
Upland Sandpiper	Bartramia longicauda	Special Concern	The upland sandpiper prefers tallgrass prairies, sedge meadows, unmowed alfalfa/timothy fields and scattered woodlands.
Butterfly			
Wild Indigo Dusky Wing	Erynnis baptisiae	Special Concern	The wild indigo dusky wing prefers upland fields, dry open woods, or barrens in sandy, acid, or serpentine soil. Recently colonized habitats include highway margins and railroad banks with stands of crown vetch. Caterpillar host plants include wild indigos, lupine, and crown vetch.
Fish			
Mud Darter	Etheostoma asprigene	Special Concern	The mud darter prefers moderate currents in sloughs, overflow areas, sluggish riffles, and pools of large, low-gradient rivers over bottoms of mud, sand, gravel, clay, or bedrock.
Pirate Perch	Aphredoderus sayanus	Special Concern	The pirate perch prefers quiet waters of oxbows, overflow ponds, sloughs, marshes, ditches, and the pools of low-gradient streams over bottoms of sand or soft muck with brush piles or dense vegetation.

Table 9. Coon Creek Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Silver Chub	Macrhybopsis storeriana	Special Concern	The silver chub prefers sand substrate in large low gradient rivers. Can be found in a variety of habitats from riffles to deep pools.
Speckeled Chub	Macrhybopsis aestivalis	Threatened	The speckeled chub prefers shallow riffles of large, sand-bottomed rivers and tributaries over 160 feet wide with varying turbidity.
Weed Shiner	Notropis texanus	Special Concern	The weed shiner prefers sloughs, lakes, and quiet sections of medium/large streams or rivers over substrates of sand or mud.
Lizard			
Western Slender Glass Lizard	Ophisaurus attenuatus	Endangered	The western slender glass lizard prefers oak savannas, dry-sand prairies, grasslands, and woodland edges.
Natural Community			
Dry Cliff	Dry cliff		These dry vertical bedrock exposures occur on many different rock types. Scattered pines, oaks, or shrubs often occur. However, the most characteristic plants are often ferns, common polypody and rusty woodsia, along with columbine, harebell, pale corydalis, juneberry, bush-honeysuckle, and rock spikemoss.
Dry Prairie	Dry prairie		This grassland community occurs on dry, often loess-derived soils, usually on steep south or west facing slopes or at the summits of river bluffs with sandstone or dolomite near the surface. Little bluestem, side-oats grama, hairy grama, and prairie dropseed are dominant prairie grasses. Common shrubs and forbs include lead plant, silky aster, flowering spurge, purple prairie-clover, cylindrical blazing-star, and gray goldenrod.
Emergent Aquatic	Emergent aquatic		These open, marsh, lake, riverine and estuarine communities with permanent standing water are dominated by robust emergent macrophytes, in pure stands of single species or in various mixtures. Dominants include cat-tails, bulrushes, bur-reeds, giant reed, pickerel-weed, water-plantains, arrowheads, and the larger species of spikerush.
Moist Cliff	Moist cliff		This “micro-community” occurs on shaded (by trees or the cliff itself because of aspect), moist to seeping mossy, vertical exposures of various rock types, most commonly sandstone and dolomite. Common species are columbine, fragile ferns, wood ferns, rattlesanke-root, and wild sarsaparilla. Driftless Area cliffs might have northern monkshood.

Table 9. Coon Creek Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Pine Relict	Pine relict		These isolated stands of white pine and red pine or, less commonly. Jack pine, occur on sandstone outcrops or in thin soils over sandstone. The understories often contain blueberries, huckleberry, wintergreen, pipsissewa, and partridge-berry, sometimes mixed with herbs typically found in southern Wisconsin's oak forests and prairies.
Southern Dry Forest	Southern dry forest		Oaks are the dominant species in this upland forest community of dry sites. White oak and black oak are dominant, often with admixtures of red and bur oaks and black cherry. In the well developed shrub layer, brambles, gray dogwood, and American hazelnut are common. Frequent herbaceous species are wild geranium, false Solomon's-seal, hog-peanut, and woodland sunflower.
Southern Dry-Mesic Forest	Southern dry-mesic forest		Red oak is a common dominant tree of this upland forest community type. White oak, basswood, sugar and red maples, and white ash are also important. The herbaceous understory flora is diverse and includes wild geranium, false Solomon's seal, hog peanut, woodland sunflower, jack-in-the-pulpit, enchanter's-nightshade, large-flowered bellwort, interrupted fern, lady fern, and tick-trefoils.
Southern Mesic Forest	Southern mesic forest		This upland forest community occurs on rich, well-drained soils. The dominant tree species is sugar maple, but basswood and beech may be co-dominant. Many other trees are found, including those of the walnut family. The understory is typically open and supports fine spring ephemeral displays. Characteristic herbs are spring-beauty, trout-lilies, trilliums, violets, bloodroot, blue cohosh, mayapple and Virginia waterleaf.
Plant			
Autumn Coral-Root	Corallorrhiza odontorhiza	Special Concern	Autumn coral-root prefers rich deciduous woods, mostly beech-sugar maple, or mixed hardwood forests under oaks where it grows in either dry or damp situations. It is occasionally found in pine plantations in sandy soil.
Broad Beech Fern	Phegopteris hexagonoptera	Special Concern	Broad beech fern prefers rich mesic woods.
Carey's Sedge	Carex careyana	Threatened	Carey's sedge prefers very rich mesic woods.

Table 9. Coon Creek Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Glade Fern	Diplazium pycnocarpon	Special Concern	Glade fern prefers cool woods and talus slopes.
Hooker Orchis	Platanthera hookeri	Special Concern	Hooker orchis prefers undisturbed mesic and wet-mesic forests, although they are occasionally found in dry forests.
Marbleseed	Onosmodium molle	Special Concern	Marbleseed prefers open, moderately dry areas; such as prairies and open woods.
Musk-Root	Adoxa moschatellina	Threatened	Musk-root prefers shaded, damp to dripping cliffs.
Northern Wild Monkshood	Aconitum noveboracense	Threatened	Northern wild monkshood prefers both algific talus slopes and cool, sandstone, dripping cliffs.
One-Flowered Broomrape	Orobanche uniflora	Special Concern	One-flowered broomrape prefers mesic woods.
Oregon Woodsia (Tetraploid)	Woodsia oregana var cathcartiana	Special Concern	Oregon woodsia prefers limestone, sandstone and basalt cliffs, dry or damp.
Purple-Stem Cliff-Brake	Pellaea atropurpurea	Special Concern	Purple-stem cliff-brake prefers calcareous rock (rock outcrops) and open woods.
Rock Stitchwort	Minuartia dawsonensis	Special Concern	Rock stitchwort prefers rocky or gravely, often calcareous soils.
Rocky Mountain Sedge	Carex backii	Special Concern	Rocky mountain sedge prefers dry, rocky or sandy open woodlands.
Shadowy Goldenrod	Solidago sciaphila	Special Concern	Shadowy goldenrod is endemic to the Driftless Area and prefers exposed sandstone cliffs.
Small Yellow Lady's-Slipper	Cypripedium parviflorum	Special Concern	Small-yellow lady's slipper prefers damp woods, bogs, and meadows.
Snowy Campion	Silene nivea	Threatened	Snowy campion prefers rich mesic or lowland woods.
Twinleaf	Jeffersonia diphylla	Special Concern	Twinleaf prefers rich woods with calcareous soils and limestone cliffs.

Table 9. Coon Creek Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Snake			
Black Rat Snake	Elaphe obsoleta	Special Concern	The black rat snake prefers moist, wooded east and north slopes of bluffs along rivers.
Timber Rattlesnake	Crotalus horridus	Special Concern	The timber rattlesnake prefers deciduous forests and croplands during the summer and steep, rugged bluffs and rocky outcrops during the spring and fall.
Turtle			
Wood Turtle	Clemmys insculpta	Threatened	The wood turtle prefers deciduous forests and open meadows along moderate to fast-moving streams and rivers.

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La Crosse River

The La Crosse River flows in a southwesterly direction for approximately 64 miles through Monroe and La Crosse Counties before reaching the Mississippi River at Riverside Park in the City of La Crosse. The river drains approximately 500 square miles of forested and agricultural land. Five dams on the La Crosse River create Lake Neshonoc in West Salem, Perch Lake in Sparta, Angelo Pond in the Town of Angelo, and Alderwood Lake and Hazel Dell Pond both of which lie within the Fort McCoy Military Reservation. All five impoundments are used for recreational purposes; however, the dams at Lake Neshonoc and Perch Lake also generate hydroelectric power.

The La Crosse River is classified as a warmwater sport fishery from its mouth upstream to Rockland. The river then gradually becomes colder and is capable of holding trout. From Rockland upstream to the confluence of Squaw Creek in Fort McCoy, the La Crosse River is a Class II trout stream. Upstream of Squaw Creek, the river is considered Class I.

Recommendations

1. Provide public access points to the **La Crosse River** below Veterans Memorial Park in West Salem for fishing, canoeing, and other recreational activities.

2. Establish permanent stable cover for fish in the **La Crosse River** downstream of Lake Neshonoc in the form of boulder retards, “LUNKER” type bank cover, and rock riprap.

3. Modify the hydraulic connections between the lower **La Crosse River and associated marsh** to provide greater access to improve the success of northern pike spawning.

4. A fish survey should be conducted in **the La Crosse River** below Lake Neshonoc to document the spring movement of spawning fish and the continued status of rare and threatened fish species.

5. A fish and habitat survey should be conducted of the **La Crosse River** between Angelo Pond and Perch Lake.

6. A fish and habitat survey should be conducted of the **La Crosse River** between Perch Lake and Lake Neshonoc.

7. The old concrete dam structure in the **La Crosse River** below Lake Neshonoc is a navigational hazard and should be removed.

8. Educate citizens about the problems of purple loosestrife and work to eradicate it from the banks of the **La Crosse River**.

9. A canoe route map with information regarding the **La Crosse River** as well as attractions, amenities, and other tourism information for the area should be produced.

10. **Angelo Pond** is considered a high priority to receive a lakes planning grant to assess the impacts of nonpoint source pollution to the lake.

11. The WDNR should seek a self-help volunteer monitor to gather water quality information for **Angelo Pond**.

12. The City of Sparta and the WDNR should seek a self-help volunteer monitor to measure the water quality of **Perch Lake** and sediment trap volumes.

13. **Perch Lake** is considered a high priority to receive a lakes planning grant to assess nonpoint source pollution affecting the lake.

14. Carp removal efforts by the **Lake Neshonoc** Protection and Rehabilitation District should continue.

15. The WDNR should seek a new **Lake Neshonoc** self-help volunteer monitor for water quality data collection.

16. The **Lake Neshonoc** Protection and Rehabilitation District may want to work cooperatively with a local school to develop a long term monitoring program of the sediment trap.

La Crosse River – Headwaters to Angelo Pond

The La Crosse River begins in north central Monroe County just east of the Fort McCoy Military Reservation. Cranberry operations impound some tributaries to the upper La Crosse River outside Fort McCoy. During dry weather periods, these impoundments may negatively affect the brook trout fishery found in the La Crosse River due to decreased stream flow and warm water temperatures from impounded water. Once the La Crosse River enters Fort McCoy, it soon encounters the first dam which creates the two acre Hazel Dell Pond. A little further downstream, the second dam on the La Crosse River creates the 11 acre Alderwood Lake. Then the La Crosse River flows through the North Impact Area where military bombing exercises are conducted. In order to minimize streambank erosion in the North Impact Area, Fort McCoy staff have photographed and tracked bomb hits near the river and adjusted either target placement or completely removed targets from the river corridor. Annual meetings with staff from Fort McCoy, Wisconsin DNR, and U.S. Fish and Wildlife Service have been conducted since 1994 regarding the monitoring and tracking of this La Crosse River issue.

Downstream of the North Impact Area, the La Crosse River flows through more of Fort McCoy. In 1997, Fort McCoy upgraded their wastewater treatment plant, which discharges to the La Crosse River, to include phosphorus treatment.

Access to streams and lakes within Fort McCoy for fishing and recreational purposes is granted by permit from the Fort McCoy Directorate of Training and Mobilization. A WDNR fishing license and State Trout Stamp are required as well as a Fort McCoy Fishing Permit. Fishing regulations and access are unique to the military installation and enforced by the Fort McCoy Directorate of Protective Services. Specified areas are closed to recreational activities for safety or security purposes. Information related to recreational opportunities within Fort McCoy can be obtained online at *www.mccoy.army.mil/Garrison/DTM/rd/bcrmt/contents.asp*

Once the river leaves Fort McCoy, it flows through the La Crosse River Fish and Wildlife Area owned by the State of Wisconsin. Soon after the public fishing area, the La Crosse River reaches its third dam, which creates Angelo Pond. Above Angelo Pond, the La Crosse River contains a

good population of brown trout. The river above Angelo Pond has been stocked on a fairly regular basis with brown trout since 1964. These uppermost 18 miles of river have a bottom consisting of predominantly sand, with some clay and gravel, and very little silt. Brook trout inhabit the La Crosse River from its headwaters down to an area of the river locally known as Trout Falls, near the mouth of Squaw Creek. Below the confluence with Squaw Creek, brown trout dominate the La Crosse River fishery.

Angelo Pond

Angelo Pond was created by a dam built between 1845 and 1850 to power a flour mill. The dam was later used to generate hydorelectric power until the 1960's. Currently the dam is owned by Monroe County and operates as run of river where water levels in the impoundment change due to the flow of the river, not by manipulation of the dam. This dam creates a 50 acre impoundment that is surrounded by a few homes and a town park. The park, located at the wayside off Hwy 21, contains a small boat landing. The average depth of the lake is two feet with a maximum of eight feet. A portion of the lake was dredged in the early 1980's to create some holes six to nine feet deep. Recent efforts to dredge portions of the lake have been hampered by lack of funds. Repair to the dam was ordered by the Wisconsin DNR in 1997 and the impoundment was drained. Repair to the structure enabled the lake to be filled again in 1998.

Angelo Pond impounds the La Crosse River where Silver Creek enters the river. Both streams traverse Fort McCoy for a significant amount of their length. The La Crosse River contains a sand bottom, which is slowly filling in Angelo Pond. This impoundment also slows the river's current down enough to allow fine sediments to settle out. These fine sediments in Angelo Pond contain a robust aquatic plant community. Since no water quality data has been collected on Angelo Pond, the WDNR should seek a self-help volunteer monitor to gather such information. Angelo Pond is considered a high priority to receive a lakes planning grant to assess the impacts of nonpoint source pollution to the lake.

Angelo Pond has been regularly stocked with largemouth bass and rainbow trout since 1984. A fish advisory exists for mercury in largemouth bass found in Angelo Pond. Due to this listing in the Wisconsin fish advisory, Angelo Pond is listed as an impaired water (see discussion of Wisconsin Impaired Waters List in Chapter 3 or at *www.dnr.state.wi.us/org/water/wm/wqs/303d/*. Mercury advisories in impoundments are common in Wisconsin. An upstream source is possible; however, a combination of atmospheric deposition, water chemistry, and underlying bedrock has been determined to cause nearly all mercury advisories in Wisconsin.

Important Health Information for People Eating Fish from Wisconsin Waters is a updated yearly by the Wisconsin DNR. This publication explains the suggested precautions when deciding which fish to eat from specific lakes and streams. This document can be found on the Wisconsin DNR website *[www.dnr.state.wi.us]* or at any Wisconsin DNR service center.

La Crosse River – between Angelo Pond and Perch Lake

The two miles of La Crosse River between Angelo Pond and Perch Lake is considered Class III trout water. This stretch of river is no longer stocked with trout and was last surveyed in 1959. A fish and habitat survey should be conducted of the La Crosse River between Angelo Pond and Perch Lake to document the fishery status of this portion of the La Crosse River. The streambanks in this section of river are vegetated and stable. Sand dominates the stream bottom and large holes provide fish cover below woody debris and on outside bends of the river.

Perch Lake

Approximately two miles downstream of the Angelo Pond dam is Perch Lake. This lake was created by a dam built in 1865 and is currently owned by the City of Sparta. The city leases the dam to a private company for the production of hydroelectric power. Similar to the Angelo Pond dam, water levels at this dam are managed as run of river. This dam creates a 33 acre impoundment that is surrounded by a public golf course and a city park. A boat ramp is located in the city park. The lake was hydraulically dredged in the early 1980's which increased the average depth to between six and nine feet. However, the benefits of the lake dredging were short lived. By 1992, the community began assessing lake management tools to reduce the nuisance aquatic plants and shallow depths. The lake was drawn down in the winter of 1999 to prepare for mechanical dredging in 2000. The lake could not be drawn down low enough to allow sufficient drying of the sediments to support large equipment. Consequently, the lake was filled in 2000 and hydraulic dredging was then undertaken. Sediment removed from the lake was placed in certain areas of the adjacent golf course. Due to the drawdown in 1999, stocking of Perch Lake will take place over the next few years with northern pike, largemouth bass and assorted panfish.

Part of the recent dredging project included the excavation of a sediment trap in the La Crosse River immediately upstream of Perch Lake. The City of Sparta must monitor this trap for sedimentation and dredge it on a regular basis in order to reduce the frequency of expensive lake dredging. A self-help volunteer monitor would be beneficial in determining water quality of Perch Lake. Involving local citizens in monitoring and understanding the issues affecting Perch Lake would be beneficial to all involved. A local school may be interested in conducting both the sediment trap and water quality monitoring as part of a long term curriculum. Perch Lake is considered a high priority to receive a lakes planning grant to assess nonpoint source pollution affecting the lake.

La Crosse River – between Perch Lake and Lake Neshonoc

Below Perch Lake, the La Crosse River meanders downstream for approximately 23 miles before reaching Lake Neshonoc. Much of the stream corridor between Perch Lake and Lake Neshonoc consists of large trees, some pasture land and large expanses of wetland. Purple loostrife and reed canary grass, both invasive exotic plant species, are also common along the banks. These plant species crowd out most other wetland plants, rendering the wetlands unable to support a diversity of plant and animal life.

A fishery survey conducted in 1994 between Perch Lake and Lake Neshonoc documented brown trout, brook trout, channel catfish, northern pike, walleye, carp, white sucker, pumpkinseed and numerous forage species. Deep pools and downed trees (snags) provide enough in-stream cover for a variety of fish species to thrive in this middle section of the La Crosse River. From the Perch Lake dam downstream to Rockland, the La Crosse River is classified as a Class II trout stream.

The communities of Sparta, Rockland, Bangor, and Webster Wood Preserving all discharge treated wastewater to the La Crosse River and possess discharge permits issued by Wisconsin DNR that contain water quality effluent limits. Canoe landings exist at the HWY 162 bridge north of Bangor, CTH J in Rockland, and Hammer Road near Sparta.

Lake Neshonoc

As the La Crosse River approaches Lake Neshonoc in West Salem, the flow disperses among numerous channels. Wetland plant species dominate the eastern area of the lake. This extremely

shallow portion of Lake Neshonoc consists of a sand bottom, which is the bedload of the La Crosse River. Much of the rest of the lake has a soft sediment bottom because the flow of the La Crosse River slows and is able to drop its suspended silt load. It is estimated that approximately 15,000 cubic yards of sediment accumulates annually in Lake Neshonoc. This is equivalent to a football field covered nine feet high in sediment. The lake receives water from nearly 375 square miles of land consisting of 40% agriculture, 40% wooded, 15% pasture/grassland, and 3% urban land uses.

Lake Neshonoc, at 600 acres, is the largest of the five impoundments on the La Crosse River. The average depth is 4 feet with a maximum depth of 9 feet. The dam was built in 1851 for a saw and grist mill. The dam was replaced in 1940 and currently is owned and operated by a private company that generates hydroelectric power. The land immediately surrounding the lake consists of a private campground, public park with boat landing, agricultural lands, wetlands, and residential and commercial developments within the Village of West Salem. Swarthout Park, located along HWY 16, contains a boat landing with pier and other park amenities.

The Lake Neshonoc Protection and Rehabilitation District undertook a fundraising effort to dredge portions of the lake. Hydraulic dredging began in 2000 and will continue through 2001 until approximately 1 million cubic yards of sediment are removed. Boating channels with small areas of deep water for fish refuge will be dredged along the north and south shores as well as east and west through the center portion of the lake. A sediment trap will be excavated to a depth of 15 feet where the La Crosse River enters the lake. Sediment accumulated in this trap will be removed regularly to prolong the life of the dredged channels within the lake. Regular monitoring of this sediment trap is necessary to determine when dredging is necessary. The Lake Neshonoc Protection and Rehabilitation District may want to work cooperatively with a local school to develop a long term monitoring program of the sediment trap. A self-help volunteer monitor collected water quality data from 1986 - 1989 and again from 1993 - 1997. The WDNR should seek a new self-help volunteer monitor for water quality data collection.

Nutrients entering Lake Neshonoc have contributed to nuisance algae blooms resulting in pH levels above 9, which exceeds the water quality standard for pH. Consequently, Lake Neshonoc is classified as an impaired water. (see discussion of Wisconsin Impaired Waters in Chapter 3 and at *www.dnr.state.wi.us/org/water/wm/wqs/303d/*). The La Crosse County Health Laboratory monitors bacteria levels in the lake due to the presence of public swimming areas. Exceedence of safe bacteria levels has occurred regularly after rainfalls, resulting in beach closings until safe levels are documented. Since a large percentage of the watershed draining to Lake Neshonoc contains agricultural activity, the source of bacteria likely originates from animal waste. Failing septic systems in the watershed and along the lakeshore are also likely contributors to this health threat.

In recent years the Wisconsin DNR, University of Wisconsin-Stevens Point fisheries students and the Lake Neshonoc Protection and Rehabilitation District conducted several fishery surveys in Lake Neshonoc. These studies indicate that black crappie and bluegill are the dominant fish species in the lake. Largemouth bass, white bass, northern pike, smallmouth bass, walleye, yellow perch, white crappie and catfish also make up the game fish population in smaller numbers. Size and growth calculations of bluegill and black crappie populations indicate that rates are average for Wisconsin. In 2000, Lake Neshonoc was stocked with over 36,000 largemouth bass fingerlings and nearly 40,000 walleye fingerlings. Carp populations created water clarity problems in the past and even with diligent removal efforts, they remain a problem in the lake. In 1986, carp made up 80 percent of the fish biomass of the lake. Between 1988 to 1997, nearly 400,000 pounds of carp were removed from the lake. Since these carp removals began, the

number of large black crappie and bluegill have increased. Therefore carp removal efforts by the Lake Neshonoc Protection and Rehabilitation District should continue. In 1994, an aquatic vegetation study documented 21 species of aquatic plants in the lake; however, total aquatic vegetation was sparse. If water clarity improves, the diverse aquatic vegetation in the lake may increase. The diversity of plant species documented in Lake Neshonoc indicates a variety of habitats are available to the aquatic species of the lake. Aquatic plant beds are an important habitat for amphibian and fish spawning, as well as cover for young fish.

La Crosse River – Lake Neshonoc to Mississippi River

Mature trees, pasture, wetland, and some residential properties are characteristic of the riparian land along the 18 miles between Lake Neshococ and the Mississippi River. Because of the extensive wetland and marsh areas within the City of La Crosse, the view from the river is unexpectedly natural for an urban setting. Waterfowl, birds of prey, songbirds, wading birds, furbearers and deer are common sights along the river corridor.

The Lake Neshonoc dam is managed by a private company to maximize the generation of hydroelectric power, which can change water levels below the dam. In order to protect the aquatic species and their in-stream habitat needs below the dam, the flow of the river below the dam cannot be less than 170 cubic feet per second (cfs) without permission from both the Wisconsin DNR and the U.S. Fish and Wildlife Service.

Fishery surveys conducted between 1988 and 1998 from the Lake Neshonoc dam down to the Mississippi River documented 64 fish species, as well as crayfish, snapping, wood and softshelled turtles. Channel catfish are by far the most numerous gamefish in the lower La Crosse River. Much smaller numbers of flathead catfish, walleye, sauger, largemouth bass, smallmouth bass, and bluegill have also been documented. Northern pike were observed using the La Crosse River marsh within the City of La Crosse as a spawning area when high water levels allowed access. However, stranding of adult post-spawn fish and northern pike fry has occurred due to receding water levels resulting in isolation from the river. Loss of spawning habitat has been cited as the primary cause of northern pike decline in many Wisconsin waterways. Hydraulic modifications to provide more reliable access to and from spawning areas for northern pike should be initiated. Non-game species are abundant consisting of large numbers of shorthead redhorse, mooneye, carp and gizzard shad, as well as numerous forage fish species (minnows). This lower portion of the La Crosse River is appropriately classified as warm water sport fish (WWSF). Five rare and threatened fish species have been documented in the lower La Crosse River: speckled chub (threatened), American eel (threatened), blue sucker (threatened), western sand darter (special concern), and river redhorse (special concern).

In-stream habitat consists of deep pools and woody debris. The river bottom consists mostly of sand and silt with isolated areas of boulders. It may be feasible to add more permanent in-stream habitat in the form of boulders and overhead cover (i.e. LUNKER structures). Aquatic plants are scarce due to the turbidity of the water.

The Village of West Salem discharges treated wastewater to the La Crosse River below Lake Neshonoc. The village constructed a new wastewater treatment in 1999 which is now able to remove phosphorus. The Cities of La Crosse and Onalaska storm sewer systems include numerous discharge points to the La Crosse River and associated marsh. Communities within the La Crosse urbanizing area will receive a Wisconsin DNR stormwater discharge permit in 2002. The purpose of the permit is to improve the water quality of stormwater reaching the state's wetlands, rivers, streams, and groundwater.

The lower La Crosse River could tolerate increased fishing pressure and other recreational activities without being excessively detrimental to the river corridor. One reason for the low use is the lack of access to the river. A La Crosse River boat landing exists immediately downstream of the Lake Neshonoc dam and at Veteran's Memorial Park in West Salem. Both landings are small and unimproved. Another location for a canoe launch is at the Mathy's Construction plant just west of HWY 16 off of Conoco Road. The next boat landing is at Riverside Park on the Mississippi River. An additional La Crosse River boat access should be developed somewhere between West Salem and Riverside Park in La Crosse.

When canoeing the La Crosse River below Lake Neshonoc, take note of an old dam structure just downstream of the CTH M bridge. The water here is swift with underwater debris consisting of concrete and reinforcing bar. In areas where the river narrows, downed trees have completely obstructed the river at times, making canoe travel hazardous.

References - La Crosse River

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Lower La Crosse River Watershed (BL04)

The Lower La Crosse River watershed contains the major population center of the Bad Axe - La Crosse River basin. The population radiates from the cities of La Crosse and Onalaska, which are located on the western edge of the watershed. This 126 square mile watershed contains all streams draining to the La Crosse River below the Lake Neshonoc dam, as well as Pammel Creek, which drains directly to the Mississippi River. Steep bluffs with exposed sandstone cliffs tower 700 feet or more over the City of La Crosse. East of the bluffs, the hills are farmed using contour strips while forests are found on the steepest slopes in the watershed. Most streams in the watershed flow through agriculturally dominant areas. Stormwater from the urban areas drain to Pammel Creek, La Crosse River, Mississippi River, or the La Crosse River marsh. The water quality of stormwater from both agricultural lands and urban areas can degrade in-stream habitat, water quality, and water temperature of streams in the Lower La Crosse River watershed. To address this concern, stormwater permits will be issued by the Wisconsin DNR to communities in the La Crosse urbanizing area in 2002. The La Crosse County Land Conservation Department enforces the La Crosse County animal waste ordinance designed to minimize water quality problems associated with agricultural stormwater.

Table 10. Lower La Crosse River Watershed at a Glance	
Drainage Area (square miles)	126
Total Stream Miles	100.5
Total Trout Stream Miles	31.6 Class I = 8.5 Class II = 15.0 Class III = 8.1
Total ORW Miles ***Total ERW Miles***	0 13.2
Total Impaired Stream Miles/Lakes	5 (Gills Coulee Creek)
Total Wetland Acres	5,645 (includes Mississippi R. wetlands)
Best Water Quality	Larson Coulee Creek
Lakes	None
Municipalities	La Crosse, Onalaska, West Salem
Total Permitted Wastewater Discharges	7
Major Public Lands	➢Coulee Experimental Forest ➢La Crosse River State Trail ➢Great River State Trail ➢Goose Island County Park ➢Hixon Forest ➢Upper Mississippi River Fish and Wildlife Refuge
Concerns and Issues	➢Urban Sprawl ➢Stormwater quality and volume ➢Agricultural and urban non-point source pollution ➢Encroachment of La Crosse River marsh by development
Initiatives and Projects	➢Comprehensive stream surveys ➢Baseflow water chemistry sampling ➢La Crosse Marsh Natural Resource Area ➢La Crosse River Conservancy Area ➢Stormwater Permit for La Crosse Urban Area

Recommendations

1. WDNR should conduct fishery and habitat surveys of **Bostwick Creek, Eggens Coulee Creek, Larson Coulee Creek, Pleasant Valley Creek** and **Smith Valley Creek.**

2. WDNR should conduct fishery and habitat surveys of **Gills Coulee Creek** after the La Crosse County Land Conservation Department has implemented best management practices on farms that drain toward the creek.

3. WDNR should install additional in-stream habitat in **Bostwick Creek** to benefit the trout fishery.

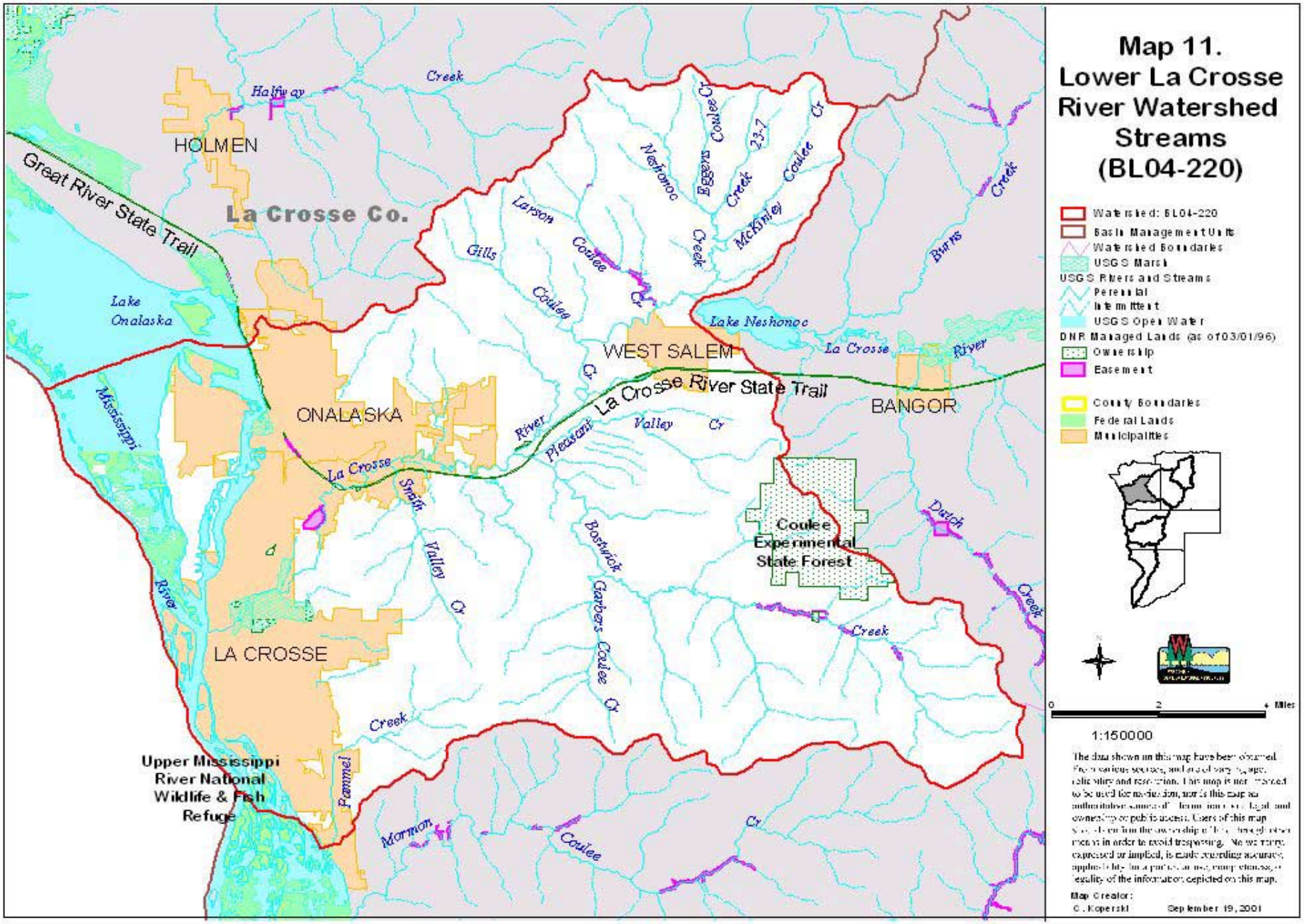
The map that accompanies this chapter indicates DNR easements along streambanks as well as DNR owned lands as of March 1, 1996. Additional easements and land may have been purchased in the area since 1996 that are not indicated on the map. The DNR installs signs where access is allowed onto private lands with DNR easements along streambanks. The easement allows for access to the stream for fishing and nature observation. The land is still privately owned and landowner rights should be respected.

Bostwick Creek

Bostwick Creek, also known as Irish Coulee Creek, is located in central La Crosse County. This stream flows in a northwesterly direction for approximately 13.6 miles, before reaching the La Crosse River. It has a moderate gradient of 38 feet per mile and drains forested hills and agricultural valley land. Bostwick Creek is a Class III trout stream from its mouth upstream to Barre Mills, then Class II upstream to CTH "M", and finally Class I upstream to its headwaters.

A fishery survey conducted in 1965 suggested that Bostwick Creek should not be classified as a trout stream. However, a 1986 fishery survey confirmed natural reproduction of brown trout. The trout population improvement is credited to a combination of consistent stocking and adequate habitat in the upper portions of the stream that allows for natural reproduction and good winter survival. The lower portion of Bostwick Creek contains limited in-stream cover for adult fish. Fishery and habitat surveys should be conducted on Bostwick Creek to determine the current status of the stream. Additional in-stream habitat development in Bostwick Creek would benefit the trout fishery. Bostwick Creek was last stocked in 2001 with wild brown trout. Access to Bostwick Creek is from WDNR owned easements and seven road crossings.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times


Map 11.
Lower La Crosse River Watershed Streams (BL04-220)
Watershed: BL04-220
Basin Management Units
Watershed Boundaries
USGS Marsh
USGS Rivers and Streams
Perennial
Intermittent
USGS Open Water
DNR Managed Lands (as of 03/01/96)
Ownership
Easement
County Boundaries
Federal Lands
Municipalities
0
2
4 Miles
1:150000
Map Creator:
C. Koperski
September 19, 2001
HOLMEN
La Crosse Co.
Great River State Trail
Halfway
Creek
Lake Onalaska
Mississippi
River
ONALASKA
LA CROSSE
WEST SALEM
BANGOR
La Crosse River State Trail
Lake Neshonoc
La Crosse
River
Coulee Experimental State Forest
Upper Mississippi River National Wildlife & Fish Refuge
Larson
Gills
Coulee
Cr
Neshonoc
Eggers
Coulee
Cr
Creek
23-1
McKinley
Coulee
Cr
Burns
Creek
Pleasant
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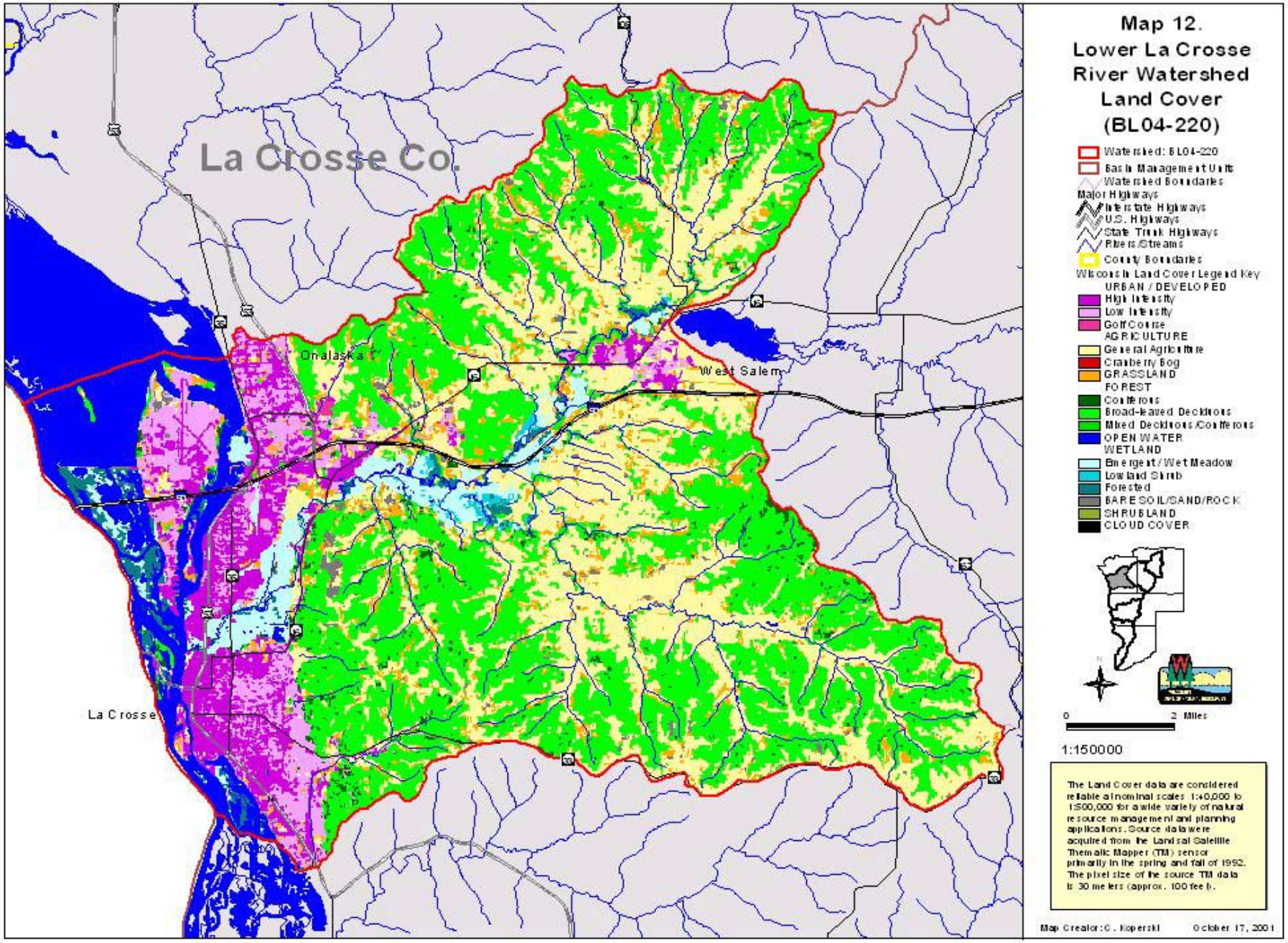
Map 12.
Lower La Crosse River Watershed Land Cover (BL04-220)
La Crosse Co.
Onalaska
West Salem
La Crosse
Watershed: BL04-220
Basin Management Units
Watershed Boundaries
Major Highways
Interstate Highways
U.S. Highways
State Trunk Highways
Rivers/Streams
County Boundaries
Wisconsin Land Cover Legend Key
URBAN / DEVELOPED
High Intensity
Low Intensity
Golf Course
AGRICULTURE
General Agriculture
Cranberry Bog
GRASSLAND
FOREST
Conifers
Broad-leaved Deciduous
Mixed Deciduous/Conifers
OPEN WATER
WETLAND
Emergent / Wet Meadow
Lowland Shrub
Forested
BARE SOIL/SAND/ROCK
SHRUBLAND
CLOUD COVER
0
2 Miles
1:150000
The Land Cover data are considered reliable at nominal scales 1:40,000 to 1:500,000 for a wide variety of natural resource management and planning applications. Source data were acquired from the Landsat Satellite Thematic Mapper (TM) sensor primarily in the spring and fall of 1992. The pixel size of the source TM data is 30 meters (approx. 100 feet).
Map Creator: C. Koperski
October 17, 2001

annually when no rainfall or snowmelt has occurred during the previous 72 hours. Bostwick Creek is sampled at two different locations: near the mouth and approximately six miles upstream from the mouth. Between 1998 and 2001at the middle sampling location, Bostwick Creek met the county phosphorus goal in just over 40% and the county fecal coliform bacteria goal in nearly 50% of the samples taken. At the lower sampling location, Bostwick Creek never met the county phosphorus goal and met the county fecal coliform bacteria goal in only 33% of the samples taken. These data point to a nutrient load that is likely also contributing to high bacterial counts. Data also indicate significant sources of nutrients along the lower six miles of Bostwick Creek. The county ranks Bostwick Creek in the top 50% of county streams on which to expend effort to reduce phosphorus and bacterial contamination. La Crosse County should continue baseflow sampling of Bostwick Creek to determine water quality trends.

Creek 23-7 (Hoyer Valley)

Unnamed Creek 23-7, located in central La Crosse County, flows for approximately two miles in a southwesterly direction before reaching Neshonoc Creek. It has a gradient of 53 feet per mile and drains agricultural valley land and forested hillsides. Creek 23-7 is a Class I trout stream for its entire length.

The most recent survey, conducted in 1978, documented a cold, spring-fed stream with good trout spawning habitat. Brook trout and a variety of forage fish species were present. An updated fish and habitat survey should be conducted to document current conditions of Creek 23-7. Brook trout were last stocked by WDNR in 1989. Access to Creek 23-7 is from one road crossing.

Eggens Coulee Creek

Eggens Coulee Creek, located in central La Crosse County, flows for approximately 1.4 miles in a southerly direction before reaching Neshonoc Creek. It has a moderate gradient of 50 feet per mile and drains steep forested hills and agricultural valley land. Eggens Coulee Creek is a Class II trout stream for its entire length.

A 1971 fishery survey documented brown trout, spottail shiner, sand shiner and Johnny darter. The stream bottom was largely comprised of sand with lesser amounts of silt and gravel. An updated fish and habitat survey of Eggens Coulee Creek is necessary to determine its current status. This stream has not been stocked by WDNR since the early 1960s. Access to Eggens Coulee Creek is from two road crossings.

Gills Coulee Creek

Gills Coulee Creek, located in central La Crosse County, flows for approximately three miles in a southerly direction before reaching the La Crosse River. It has a gradient of 44 feet per mile and drains agricultural valley land with some steep wooded hills. Gills Coulee Creek is a Class III trout stream from the mouth upstream for one mile, then Class two for the remaining upstream miles.

Only forage fish, green sunfish, and northern pike were documented in a 1993 fish survey. Heavy bank erosion due to cattle access, lack of in-stream cover, and a predominantly silt and sand bottom are largely contributing to problems seen in this stream. Consequently, Gills Coulee Creek is listed as an impaired water of the state. (see discussion on Wisconsin impaired waters in Chapter 3 or at *www.dnr.state.wi.us/org/water/wm/wqs/303d/*) The stream was stocked with brook trout by the WDNR until 1996. Access to Gills Coulee Creek is from six bridge crossings.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Between 1998 and 2001, Gills Coulee Creek never met the county phosphorus goal and met the county fecal coliform bacteria goal in only 20% of the samples taken. These data indicate a nutrient load that is likely also contributing to high bacterial counts. The county ranks Gills Coulee Creek the second highest priority stream on which to expend effort to reduce phosphorus and bacterial contamination. La Crosse County should continue baseflow sampling of Gills Coulee Creek to determine water quality trends. If the La Crosse County Land Conservation Department installs streambank stabilization and/or barnyard runoff control measures along Gills Coulee Creek, a fish and habitat survey should be conducted to determine if the stream has improved.

La Crosse River

The La Crosse River flows for approximately 18 miles through the Lower La Crosse River Watershed. For more detailed information, see the La Crosse River narrative located on page 99.

Larson Coulee Creek

Larson Coulee Creek, located in central La Crosse County, flows for approximately 3.5 miles in a southerly direction before reaching the La Crosse River near West Salem. It has a moderate gradient of 40 feet per mile and drains agricultural valley land and steep wooded hills. Larson Coulee Creek is a class Class I trout stream above CTH M for about 0.5 miles and Class II for approximately 3 miles below CTH M.

A 1971 fish survey documented abundant spring flow in the headwaters of Larson Coulee Creek where watercress provided cover for young brook trout. The lower portion of the creek contains very little cover for fish. Approximately 60% of the shoreline was in agricultural use and 40% was considered wild or wooded. The addition of in-stream habitat may sufficiently improve Larson Coulee Creek to a Class I brook trout stream. Streambank pasturing and barnyard runoff contribute to problems seen in Larson Coulee Creek. Since the most recent fishery survey of Larson Coulee Creek was conducted in 1971, an updated survey should be conducted to determine the current status of the stream. Larson Coulee Creek has been stocked regularly with brook trout by the WDNR since 1960. Access to Larson Coulee Creek is from WDNR owned easements and five road crossings.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Between 1998 and 2001, Larson Coulee Creek met the county phosphorus goal in approximately 20% and the county fecal coliform bacteria goal in nearly 50% of the samples taken. These data indicate a nutrient load that is likely also contributing to high bacterial counts. The county ranks Larson Coulee Creek fairly low in priority compared to other streams for efforts to reduce phosphorus and bacterial contamination. La Crosse County should continue baseflow sampling of Larson Coulee Creek to determine water quality trends.

McKinley Coulee Creek

McKinley Coulee Creek, also known as Creek 23-12, is located in central La Crosse County. This stream flows for approximately three miles in a southwesterly direction before reaching Neshonoc Creek. It has a moderate gradient of 43 feet per mile and drains agricultural valley land and steep forested hills. McKinley Coulee Creek is a Class III trout stream from its mouth upstream 0.5 miles then Class II an additional 2.3 miles upstream.

The most recent survey, conducted in 1993, documented a small, spring-fed stream which supports brook trout with some natural reproduction. In-stream cover consisted of log tangles, undercut banks and scattered beds of watercress. Streambank pasturing is threatening the fishery of this stream. WDNR has stocked this stream with brook trout since 1960. Access to McKinley Coulee Creek is from four road crossings.

Neshonoc Creek

Neshonoc Creek, also known as Scotch Coulee Creek, is located in central La Crosse County. This stream flows for approximately five miles in a southwesterly direction before reaching the La Crosse River near West Salem. It has a moderate gradient of 29 feet per mile and drains roughly six square miles of agricultural land and steep forested hillsides. The lower 2.4 miles of Neshonoc Creek are Class III trout and the upper 2.4 miles are Class II.

A 1993 fishery survey documented a healthy reproducing brook trout population in the upper portions of Neshonoc Creek. The data collected during this survey suggest that Neshonoc Creek should be upgraded to Class I in the upper 2.4 miles and Class II in the lower 2.4 miles. Neshonoc Creek has been stocked regularly with brook trout by the WDNR since 1960. Access to this stream is from four road crossings.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Between 1998 and 2001, Neshonoc Creek never met the county phosphorus goal and met the county fecal coliform bacteria goal in nearly 50% of the samples taken. These data indicate a nutrient load that is likely also contributing to high bacterial counts. The county ranks Neshonoc Creek fairly high in priority compared to other streams for efforts to reduce phosphorus and bacterial contamination. La Crosse County should continue baseflow sampling of Neshonoc Creek to determine water quality trends.

Pammel Creek

Figure 25. Pammel Creek concrete ditch in the City of La Crosse.

Pammel Creek, located in southwest La Crosse County, flows for five miles in a westerly direction before reaching the Mississippi River on the south side of La Crosse. This stream has a gradient of 22 feet per mile. Pammel Creek is not a classified trout stream. Pammel Creek flows through some agricultural areas, an

expanding rural home setting, a mobile home park, then through the southern portion of the City of La Crosse. Several subdivisions located on nearby hillsides drain their stormwater to Pammel Creek. Frequent flooding of homes adjacent to the creek precipitated a flood control project that resulted in a two mile long concrete lined ditch built in the late 1980's. Above and below the concrete channel, the stream bottom is comprised mainly of sand with small areas of gravel. Once the stream enters the concrete channel, the flow disperses across 15 feet of concrete to a maximum depth of a few inches during normal flow. Any accumulation of sediment in the concrete channel is regularly removed by the City of La Crosse. Due to the lack of habitat and shallow water in the channel, no fish are present. However, a forage fishery likely exists in the stream above the concrete channel and Mississippi River fish frequent the portion of Pammel Creek below the flood control channel.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Between 1998 and 2001, Pammel Creek met the county phosphorus goal in nearly 80% and the county fecal coliform bacteria goal in nearly 75% of the samples taken. These data indicate relatively good water quality in Pammel Creek. The county ranks Pammel Creek very low in priority compared to other streams for efforts in reducing phosphorus and bacterial contamination. La Crosse County should continue baseflow sampling of Pammel Creek to determine water quality trends.

Pleasant Valley Creek (Creek 18-2)

Pleasant Valley Creek, also known as Creek 18-2, is located in central La Crosse County. This stream flows in a westerly direction for approximately six miles before reaching the La Crosse River. It has a gradient of 30 feet per mile and flows through agricultural land with heavy pasturing, rural housing, and a golf course. Pleasant Valley Creek has been channelized as it runs parallel to I-90. After flowing through culverts under I-90 and railroad tracks, then through wetlands, the stream ultimately reaches the La Crosse River. Pleasant Valley Creek is not a classified trout stream.

A 1988 stream survey of Pleasant Valley Creek documented only forage fish species. Streambank erosion due to livestock was causing degradation of in-stream fish habitat. An updated fish and habitat survey should be conducted on Pleasant Valley Creek to determine its current condition.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Between 1998 and 2001, Pleasant Valley Creek met the county phosphorus goal in only 7% and the county fecal coliform bacteria goal in approximately 50% of the samples taken. These data indicate a nutrient load that is likely also contributing to high bacterial counts. The county ranks Pleasant Valley Creek in the top 25% in priority compared to other streams for efforts to reduce phosphorus and bacterial contamination. La Crosse County should continue baseflow sampling of Pleasant Valley Creek to determine water quality trends.

Smith Valley Creek

Smith Valley Creek, located in central La Crosse County, flows for approximately four miles in a northerly direction before reaching the La Crosse River. It has a gradient of 46 feet per mile and

drains a rural subdivision and some agricultural land. Smith Valley Creek is not a classified trout stream.

The configuration of Smith Valley, the road, stream, and development patterns have required the installation of many culverts and bridges over the creek. If these stream crossings are not designed and constructed properly, damage to the fishery, in-stream habitat, and upstream property can result. Streambank pasturing is also a problem on Smith Valley Creek. Since the most recent fishery survey of Smith Valley Creek was conducted in 1977, an updated survey should be conducted to determine the current status of the stream. Smith Valley Creek was last stocked in 1994 with brook trout. Access to the stream is from four road crossings.

Water chemistry testing of streams throughout La Crosse County was initiated by the La Crosse County Land Conservation Department in 1998. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Sampling takes place four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Between 1998 and 2001, Smith Valley Creek met the county phosphorus goal in 50% of the samples and the county fecal coliform bacteria goal in nearly 75% of the samples taken. The county ranks Smith Valley Creek in the bottom 25% in priority compared to other streams for efforts to reduce phosphorus and bacterial contamination. La Crosse County should continue baseflow sampling of Smith Valley Creek to determine water quality trends.

Species of Concern in the Lower La Crosse River Watershed

The Wisconsin DNR Bureau of Endangered Resources is responsible for tracking natural communities, plant, animal and insect species that are of concern due to their low or declining acreage or numbers. The Natural Heritage Inventory is a list of plant, animal, insect, and natural communities in the State of Wisconsin each of which are categorized as endangered, threatened or of special concern.

Definitions

Wisconsin Endangered Species: Any species whose continued existence as a viable component of this state's wild animal or plant community is determined by WDNR to be in jeopardy on the basis of scientific evidence.

Wisconsin Threatened Species: Any species which appears likely to become endangered within the foreseeable future based on scientific evidence.

Wisconsin Special Concern Species: Any species about which some problem of abundance or distribution is suspected in Wisconsin, but not yet proven. The purpose of this category is to focus attention on certain species before they become threatened or endangered.

This information is used to identify critical habitat for these species to prevent further degradation and thus help protect the endangered community. Protection of threatened and endangered species in a watershed requires cooperation between bureaus within WDNR, private landowners, University personnel, sporting groups, industry and municipalities in the search of solutions for protecting critical habitat.

Table 11. Lower La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Beetle			
American Burying Beetle	Nicrophorus americanus	Endangered	The American burying beetle prefers undisturbed forest edges, scrubland, and grassland.
Bird			
Bald Eagle	Haliaeetus leucocephalus	Special Concern	The bald eagle prefers large trees in isolated areas in proximity to large areas of surface water, large complexes of deciduous forest, coniferous forest, wetland, and shrub communities.
Bell's Vireo	Vireo bellii	Threatened	The bell's vireo prefers dense shrubby areas within an open prairie landscape.
Kentucky Warbler	Oporornis formosus	Threatened	The Kentucky warbler prefers woodlands on hillsides and in brush floodplains, especially near white oak swamps. Found particularly in areas with a dense understory near the base of surrounding bluffs. Occur along major rivers and in ravines and hillsides of streams that feed into rivers. Prefers moist ravines and bottom lands.
Fish			
American Eel	Anguilla rostrata	Special Concern	The american eel prefers large streams and lakes, seeking muddy bottoms and still waters. To reach these waters the eel has to traverse swift-flowing, medium sized streams over a wide variety of bottoms.
Blue Sucker	Cycleptus elongatus	Threatened	The blue sucker prefers large, deep rivers with moderate currents over substrates of rubble, gravel, or sand.
Mud Darter	Etheostoma asprigene	Special Concern	The mud darter prefers moderate currents in sloughs, overflow areas, sluggish riffles, and pools of large, low-gradient rivers over bottoms of mud, sand, gravel, clay, or bedrock.
Silver Chub	Macrhybopsis storeriana	Special Concern	The silver chub prefers sand substrate in large low gradient rivers. Can be found in a variety of habitats from riffles to deep pools.
Weed Shiner	Notropis texanus	Special Concern	The weed shiner prefers sloughs, lakes, and quiet sections of medium/large streams or rivers over substrates of sand or mud.

Table 11. Lower La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Natural Community			
Alder Thicket	Alder thicket		These wetlands are dominated by thick growths of tall shrubs, especially speckled alder. Among the common herbaceous species are Canada bluejoint grass, orange jewelweed, several asters, boneset, rough bedstraw, marsh fern, arrow-leaved tearthumb, and sensitive fern.
Dry Prairie	Dry prairie		This grassland community occurs on dry, often loess-derived soils, usually on steep south or west facing slopes or at the summits of river bluffs with sandstone or dolomite near the surface. Little bluestem, side-oats grama, hairy grama, and prairie dropseed are dominant prairie grasses. Common shrubs and forbs include lead plant, silky aster, flowering spurge, purple prairie-clover, cylindrical blazing-star, and gray goldenrod.
Emergent Aquatic	Emergent aquatic		These open, marsh, lake, riverine and estuarine communities with permanent standing water are dominated by robust emergent macrophytes, in pure stands of single species or in various mixtures. Dominants include cat-tails, bulrushes, bur-reeds, giant reed, pickerel-weed, water-plantains, arrowheads, and the larger species of spikerush.
Floodplain Forest	Floodplain forest		This is a lowland hardwood forest community that occurs along large rivers, usually stream order 3 or higher, that flood periodically. Canopy dominants may include silver maple, river birch, green ash, hackberry, swamp white oak, and cottonwood. Buttonbush is a locally dominant shrub and may form dense thickets on the margins of oxbow lakes, sloughs and ponds within the forest. Nettles, sedges, ostrich fern and green-headed or tall coneflower are important understory herbs, and lianas such as Virginia creepers, grapes, Canada moonseed, and poison-ivy are often common. Characteristic herbs of this community are cardinal flower and green dragon.
Northern Wet Forest	Northern wet forest		Black spruce and tamarack dominate these weakly minerotrophic conifer swamps. Jack pine may be a significant canopy component. Understories are composed mostly of sphagnum mosses and ericaceous shrubs such as leatherleaf, Labrador-tea, small cranberry, and sedges.
Shrub-Carr	Shrub-carr		Tall shrubs such as red-osier dogwood, meadow-sweet and various willows dominate this wetland community. Canada bluejoint grass is often very common. Associates are similar to those found in Alder Thickets and tussock-type Sedge Meadows.

Table 11. Lower La Crosse River Watershed Species of Concern			
Common Name	**Scientific Name**	**Status**	**Habitat**
Southern Dry Forest	Southern dry forest		Oaks are the dominant species in this upland forest community of dry sites. White oak and black oak are dominant, often with admixtures of red and bur oaks and black cherry. In the well developed shrub layer, brambles, gray dogwood, and American hazelnut are common. Frequent herbaceous species are wild geranium, false Solomon's-seal, hog-peanut, and woodland sunflower.
Southern Dry-Mesic Forest	Southern dry-mesic forest		Red oak is a common dominant tree of this upland forest community type. White oak, basswood, sugar and red maples, and white ash are also important. The herbaceous understory flora is diverse and includes wild geranium, false Solomon's seal, hog peanut, woodland sunflower, jack-in-the-pulpit, enchanter's-nightshade, large-flowered bellwort, interrupted fern, lady fern, and tick-trefoils.
Southern Sedge Meadow	Southern sedge meadow		This upland forest community occurs on rich, well-drained soils. The dominant tree species is sugar maple, but basswood and beech may be co-dominant. Many other trees are found, including those of the walnut family. The understory is typically open and supports fine spring ephemeral displays. Characteristic herbs are spring-beauty, trout-lilies, trilliums, violets, bloodroot, blue cohosh, mayapple and Virginia waterleaf.
Plant			
Carolina Anemone	Anemone caroliniana	Endangered	Carolina anemone prefers dry prairies and barrens.
Clustered Poppy-Mallow	Callirhoe triangulata	Special Concern	Clustered poppy-mallow prefers sandy prairies, old fields, railroad rights-of-ways, and the valleys of the Mississippi and Wisconsin Rivers.
Great Indian-Plantain	Cacalia muehlenbergii	Special Concern	Great Indian-Plantain prefers southern woodlands and sometimes disturbed habitats such as old pastures.
Marsh Horsetail	Equisetum palustre	Special Concern	Marsh horsetail prefers shores of rivers and lakes.
Marsh Willow-Herb	Epilobium palustre	Special Concern	Marsh willow-herb prefers wet conifer woods and bogs.
Oregon Woodsia (Tetraploid)	Woodsia oregana var cathcartiana	Special Concern	Oregon woodsia prefers limestone, sandstone and basalt cliffs, dry or damp.
Prairie False-Dandelion	Nothocalais cuspidata	Special Concern	Prairie false-dandelion prefers dry and dry sand prairies.

Table 11. Lower La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Prairie Sagebrush	Artemisia frigida	Special Concern	Prairie sagebrush prefers rocky bluff prairies or sand prairies with open sandy soil.
Rock Clubmoss	Lycopodium porophilum	Special Concern	Rock clubmoss is restricted to rocky cliffs and ledges.
Showy Lady's-Slipper	Cypripedium reginae	Special Concern	Showy lady's-slipper prefers northern wet and wet-mesic forest communities.
Silky Prairie-Clover	Dalea villosa	Special Concern	Silky prairie-clover prefers dry sand prairies and barrens.
Snowy Campion	Silene nivea	Threatened	Snowy campion prefers rich mesic or lowland woods.
Snail			
Smooth Coil	Helicodiscus singleyanus	Special Concern	The smooth coil is found on hill prairie settings. Need some protection via vegetation detritus, but survive well in well drained habitats.
Wing Snaggletooth	Gastrocopta procera	Threatened	The wing snaggletooth occurs on hill or "goat" prairies with southern or western exposures in western Wisconsin and prefers to live under organic debris.
Snake			
Timber Rattlesnake	Crotalus horridus	Special Concern	The timber rattlesnake prefers deciduous forests and croplands during the summer and steep, rugged bluffs and rocky outcrops during the spring and fall.

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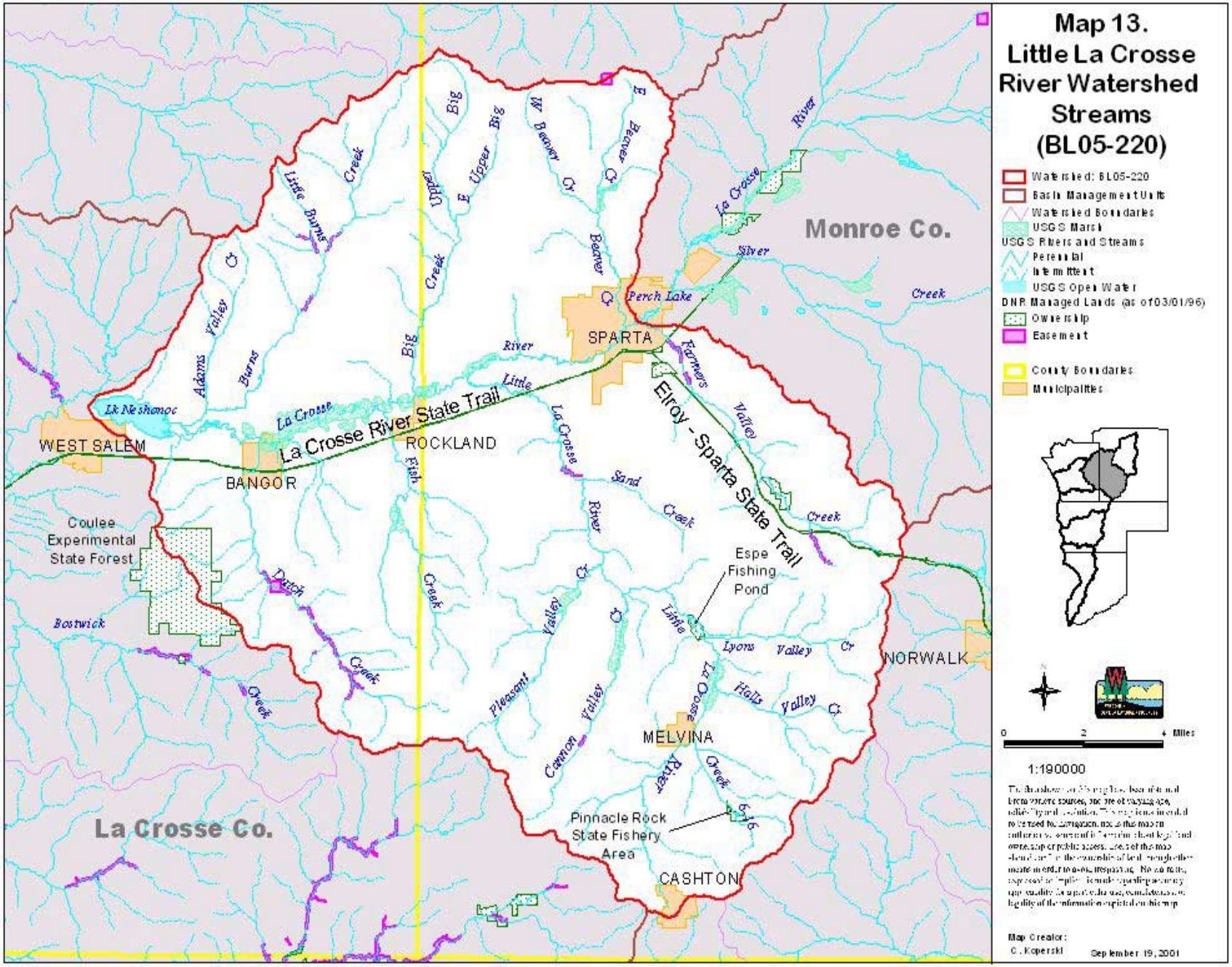
Little La Crosse River Watershed (BL05)

The Little La Crosse River Watershed is the largest in the La Crosse River basin covering 240 square miles. Approximately one third of the watershed lies in La Crosse County with the balance in Monroe County. It includes all streams draining to the La Crosse River between the Lake Neshonoc dam in West Salem and the Perch Lake dam in Sparta. Major tributaries are Dutch, Burns, Big, Fish, Farmers Valley and Beaver Creeks, as well as the Little La Crosse River. Approximately 30 miles of Class I, 54 miles of Class II and 22 miles of Class III trout water, including the La Crosse River between Rockland and Sparta exist in the Little La Crosse River Watershed. This watershed contains approximately the same amount of wooded hillsides as agricultural fields, with some wetlands located adjacent to the La Crosse River. Agricultural land is found both in the valleys and ridgetops in the Little La Crosse River watershed. However, due to the steep hills and narrow valleys, many valley farms contain limited tillable acreage. Consequently, riparian corridors of many streams in the watershed contain cultivated fields and barnyards. Stormwater runoff from these fields and barnyards can contribute sediment, nutrients, and bacteria to streams, all of which eventually reach Lake Neshonoc.

Table 12. Little La Crosse River Watershed at a Glance	
Drainage Area (square miles)	241
Total Stream Miles	172.8
Total Trout Stream Miles	110.1 Class I = 34.7 Class II = 53.6 Class III = 21.8
Total ORW Miles ***Total ERW Miles***	0 43.8
Total Impaired Stream Miles/Lakes	2.5 (Adams Valley Creek) / Lake Neshonoc
Total Wetland Acres	5,437
Best Water Quality	Farmers Valley Creek
Lakes	Lake Neshonoc
Municipalities	Bangor, Cashton, Sparta
Total Permitted Wastewater Discharges	8
Major Public Lands	➢Coulee Experimental Forest ➢La Crosse River State Trail ➢Elroy-Sparta State Trail
Concerns and Issues	➢Agricultural non-point source pollution ➢Sedimentation, nutrient enrichment, and bacterial contamination of Lake Neshonoc
Initiatives and Projects	➢Comprehensive stream surveys ➢Baseflow water chemistry sampling ➢Installation of in-stream habitat ➢ Eradication of purple loosestrife ➢Adams and Burns Creek Targeted Runoff Management (TRM) Project ➢Dutch Creek Water Quality Monitoring ➢Continuous Water Temperature Monitoring


Map 13.
Little La Crosse River Watershed Streams (BL05-220)
Watershed: BL05-220
Basin Management Units
Watershed Boundaries
USGS Marsh
USGS Rivers and Streams
Perennial
Intermittent
USGS Open Water
DNR Managed Lands (as of 03/01/96)
Ownership
Easement
County Boundaries
Municipalities
Monroe Co.
La Crosse Co.
SPARTA
ROCKLAND
BANGOR
WEST SALEM
NORWALK
MELVINA
CASHTON
La Crosse River State Trail
Elroy - Sparta State Trail
Perch Lake
Lk Neshonoc
Coulee Experimental State Forest
Espe Fishing Pond
Pinnacle Rock State Fishery Area
Big La Crosse River
Little La Crosse River
Silver Creek
Farmers Valley
Sand Creek
Lyons Valley Cr
Halls Valley Cr
Canton Valley Cr
Pleasant Valley Cr
Fish Creek
Dutch Creek
Bostwick Creek
Adams Valley Cr
Burns Creek
Little Burns Creek
Upper Big Creek
E Upper Big Creek
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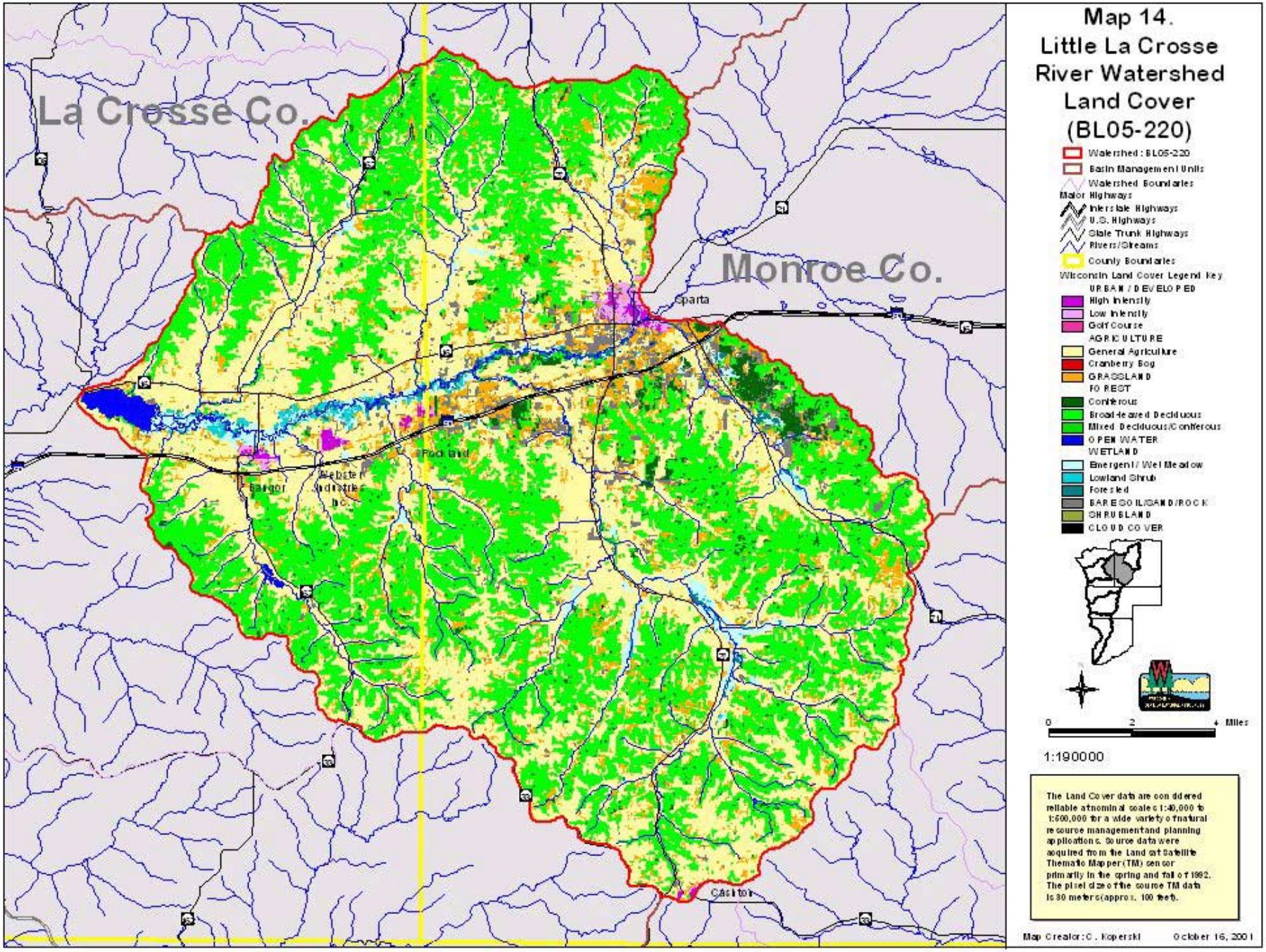
Map Creator:
C. Koperski
September 19, 2001


Map 14.
Little La Crosse River Watershed Land Cover (BL05-220)
La Crosse Co.
Monroe Co.
Sparta
Portland
Bangor
Webster Industries Inc.
Cashton
Watershed: BL05-220
Basin Management Units
Watershed Boundaries
Major Highways
Interstate Highways
U.S. Highways
State Trunk Highways
Rivers/Streams
County Boundaries
Wisconsin Land Cover Legend Key
URBAN / DEVELOPED
High Intensity
Low Intensity
Golf Course
AGRICULTURE
General Agriculture
Cranberry Bog
GRASSLAND
FOREST
Coniferous
Broad-leaved Deciduous
Mixed Deciduous/Coniferous
OPEN WATER
WETLAND
Emergent / Wet Meadow
Lowland Shrub
Forested
BAREGOIL/SAND/ROCK
SHRUBLAND
CLOUD COVER
0
2
4 Miles
1:190000
The Land Cover data are considered reliable at nominal scales 1:40,000 to 1:500,000 for a wide variety of natural resource management and planning applications. Source data were acquired from the Landsat Satellite Thematic Mapper (TM) sensor primarily in the spring and fall of 1992. The pixel size of the source TM data is 30 meters (approx. 100 feet).
Map Creator: C. Koperski
October 16, 2001

Recommendations

1. The La Crosse County Land Conservation Department should continue baseflow water chemistry sampling of La Crosse County streams in the Little La Crosse Watershed to determine trends in water quality.

2. The WDNR should survey **Adams Valley Creek** and **Burns Creek** after completion of the La Crosse County LCD project to reduce non-point source runoff to document any fish or habitat changes.

3. WDNR should conduct fish and habitat surveys of **Beaver Creek, Cannon Valley Creek (24-7), Dutch Creek, East Beaver Creek, Farmers Valley Creek, Fish Creek, Halls Valley Creek (32-9), Little Burns Creek, Lyons Valley Creek (29-9), Pleasant Valley Creek (14-15), Sand Creek, Unnamed Creek 6-16, and West Beaver Creek** to document their current status.

4. The fishery of **Burns Creek, Farmers Valley Creek, Halls Valley Creek (32-9) Little Burns Creek, Little La Crosse River, Lyons Valley Creek (29-9), Pleasant Valley Creek, Sand Creek, and Unnamed Creek 6-16** would benefit from the addition of in-stream habitat.

5. The fishery of **East Upper Big Creek and Upper Big Creek** would benefit from the reduction of streambank erosion.

6. The La Crosse County Land Conservation Department should continue to monitor the flow and water chemistry of **Dutch Creek**.

The map that accompanies this chapter indicates DNR easements along streambanks as well as DNR owned lands as of March 1, 1996. Additional easements and land may have been purchased in the area since 1996 that are not indicated on the map. The DNR installs signs where access is allowed onto private lands with DNR easements along streambanks. The easement allows for access to the stream for fishing and nature observation. The land is still privately owned and landowner rights should be respected.

Adams Valley Creek

Adams Valley Creek is a spring-fed tributary to Burns Creek in eastern La Crosse County. It flows in a southwesterly direction for 2.5 miles before reaching Burns Creek. This stream has a slight gradient of 21 feet per mile and drains lowland farms and adjacent wooded hillsides. Adams Valley Creek is a Class II trout stream for the upper one mile and Class III for the lower 1.5 miles.

The most recent fish and habitat survey, completed in 2000, documented a stream bottom comprised mainly of sand with lesser amounts of clay, gravel and detritus. The riparian land use

was largely meadow and pasture, however streambank erosion due to grazing was noted. In order of abundance, in-stream cover consisted of woody debris, overhanging vegetation, submergent vegetation and undercut banks. Both brook and brown trout as well as a variety of forage fish species and aquatic insects were documented. This stream was sporadically stocked from 1962 to 1994 with brook trout. Access is possible from two road crossings. Heavy bank erosion due to cattle access, lack of in-stream cover, and a predominantly silt and sand bottom are largely contributing to the problems seen in this stream. Consequently, Adams Valley Creek is listed as an impaired water of the state. (see discussion on Wisconsin impaired waters in Chapter 3 or at *www.dnr.state.wi.us/org/water/wm/wqs/303d/*)

In 1998, the La Crosse County Land Conservation Department initiated water chemistry testing of streams throughout La Crosse County. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Land Conservation staff sample streams four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Between 1998 and 2001, Adams Valley Creek never met the county phosphorus goal nor the county fecal coliform bacteria goal any sample taken. These data indicate a significant nutrient load that is likely also contributing to high bacterial counts. The county ranks Adams Valley Creek as the highest priority stream in the county on which to expend effort to reduce phosphorus and bacterial contamination.

To that end, the La Crosse County Land Conservation Department is currently working with landowners adjacent to Adams Valley Creek to reduce nutrients, sediment, and bacteria entering the stream from animal waste, adjacent cropland, and streambank erosion. Barnyard runoff management systems, livestock stream crossings, and streambank restoration are among some of the practices the county will install for minimal or no cost to landowners. The project period only lasts through December 2002.

La Crosse County should continue baseflow water chemistry monitoring of Adams Valley Creek to determine water quality trends after completion of work with landowners adjacent to Adams Valley Creek. The DNR should survey Adams Valley Creek after completion of the La Crosse County LCD project to document any fish or habitat changes.

Beaver Creek

Beaver Creek is a medium size spring-fed tributary of the La Crosse River near Sparta in west central Monroe County. Both East Beaver and West Beaver Creeks merge to become Beaver Creek, which flows in a southeasterly direction for approximately 3.5 miles. It has a slight gradient of 12 feet per mile and drains forested hills and agricultural land. Beaver Creek is a Class II trout stream for its entire length.

The most recent survey, completed in 1974, documented cool, clear water with a bottom comprised predominantly of sand with lesser amounts of silt, gravel, detritus and rubble. Bank cover consisted mainly of pasture with lesser amounts of upland hardwoods. Undercut banks and deep pools provided the majority of in-stream cover. Brown and rainbow trout, northern pike, largemouth bass, and a variety of forage fish species were documented during the 1974 survey. A fish and habitat survey should be conducted of Beaver Creek to update the 1974 information. This stream was stocked with brown trout between 1960 and 1978. Access is possible from several road crossings.

Big Creek

Big Creek flows for approximately 5.9 miles in a southerly direction toward the La Crosse River near Rockland. Upper Big Creek and East Upper Big Creek merge to form Big Creek in Monroe County. Big Creek has an average gradient of 18 feet per mile and drains lowland farms and wooded hillsides in both La Crosse and Monroe Counties. Big Creek is a Class II trout stream upstream of Hamilton Ave. and Class III downstream of Hamilton Ave. in Monroe County to STH 16.

A 1995 survey of Big Creek documented a stream bottom comprised mainly of sand and silt with some gravel. Streambank erosion was common in Big Creek due to unlimited livestock access. Undercut banks and overhanging vegetation provided cover for fish. Brown trout inhabited the lower portion of Big Creek, whereas brook trout were found further upstream where spring flow was evident. Several forage fish species as well as northern brook lamprey were also documented. Brook trout have been stocked in Big Creek since 1993. Access to Big Creek is from three road crossings.

In 1998, the La Crosse County Land Conservation Department initiated water chemistry testing of streams throughout La Crosse County. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Land Conservation staff sample streams four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Between 1998 and 2001, Big Creek never met the county phosphorus goal and met the county fecal coliform bacteria goal in only 27% of the samples taken. These data indicate a significant nutrient load that is likely also contributing to high bacterial counts. The county ranks Big Creek among the top 50% of streams in the county on which to expend effort to reduce phosphorus and bacterial contamination. La Crosse County should continue baseflow sampling of Big Creek to determine water quality trends.

Burns Creek

Burns Creek is a spring-fed stream located in eastern La Crosse County. It flows in a southwesterly direction for approximately 12 miles before reaching the La Crosse River just upstream of Lake Neshonoc. This stream has a gradient of 29 feet per mile and drains rolling agricultural land and forested hillsides. Burns Creek is a Class I trout stream upstream of the dam located in T17N R5W S21 and Class II below the dam. The dam acts as a barrier for migration of brown trout into the upper five miles of Burns Creek, enabling the successful introduction of native brook trout into the upper half of the creek with minimal competition from brown trout.

The most recent stream survey, completed in 1999, documented a stream bottom consisting mainly of sand with some clay, silt and gravel. Riparian land use was primarily wooded with some meadow, cropland, and pasture. Fish cover consisted of woody debris, overhanging vegetation and undercut banks. Both brook and brown trout were found during this survey, along with a wide variety of aquatic invertebrates and forage fish species. From 1960 to 1975, the stream was stocked with brown trout. In 1976, the introduction of brook trout into the upper half began and has continued with occasional stocking of browns below the dam. Access is possible from several road crossings and DNR owned easements.

In 1998, the La Crosse County Land Conservation Department initiated water chemistry testing of streams throughout La Crosse County. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Land Conservation staff sample streams four times annually when no rainfall or snowmelt has occurred during the previous 72 hours.

Burns Creek is sampled in two different locations: near the mouth and approximately five miles upstream from its mouth. Between 1998 and 2001 at the middle sample location, Burns Creek met the county phosphorus goal in only 7% and met the county fecal coliform bacteria goal in 80% of the samples taken. At the lower sample location, Burns Creek never met the county phosphorus goal and met the county fecal coliform bacteria goal in approximatley 50% of the samples taken. These data indicate a nutrient load that is likely also contributing to high bacterial counts. The county ranks Burns Creek as one of the highest priority streams in the county on which to expend effort to reduce phosphorus and bacterial contamination.

To that end, the La Crosse County Land Conservation Department is currently working with landowners adjacent to Burns Creek to reduce nutrients, sediment, and bacteria entering the stream from animal waste, adjacent cropland, and streambank erosion. Barnyard runoff management systems, livestock stream crossings, and streambank restoration are among some of the practices that the county will install for minimal to no cost to landowners. The project period only lasts through December 2002.

La Crosse County should continue baseflow water chemistry monitoring of Burns Creek to determine water quality trends after completion of work with landowners adjacent to Burns Creek. The WDNR should survey Burns Creek after completion of the La Crosse County LCD project to document any fish or habitat changes.

Cannon Valley Creek (Creek 24-7)

Cannon Valley Creek, also known as Creek 24-7, is located in southwestern Monroe County. It flows in a northeasterly direction for approximately six miles before reaching the Little La Crosse River south of Leon. It has a gradient of 56 feet per mile and drains steep forested hillsides and valley croplands. Cannon Valley Creek is a Class III trout stream for 2.5 miles from the mouth upstream to the CTH X crossing in T16N R4W Section 35.

The most recent survey, completed in 1974, documented cool, clear water with a stream bottom comprised of nearly equal amounts of rubble, sand and silt, as well as small amounts of gravel and detritus. Undercut banks made up the majority of in-stream fish cover. Logs, trees and aquatic vegetation were all scarce. Both brown and rainbow trout were found as well as a number of forage fish species. Cannon Valley Creek would benefit from the control of streambank erosion due to unlimited livestock grazing. A fish and habitat survey should be conducted to update the information available for Cannon Valley Creek. There are no DNR stocking records for Cannon Valley Creek. Several road crossings and a DNR owned easement allow access to the stream.

Creek 6-16

Unnamed Creek 6-16 is a small spring-fed stream located in southwestern Monroe County. It flows in a northwesterly direction for approximately three miles before reaching the Little La Crosse River at Melvina. It has a steep gradient of 92 feet per mile and drains steep forested hills and agricultural valley land. Creek 6-16 is a Class I trout stream for its entire length.

The most recent survey, completed in 1974, documented cool, clear water with a stream bottom comprised predominately of rubble with lesser amounts of sand, silt, gravel and boulder. Bank cover consisted of pasture with some shrub marsh and upland hardwood. Boulders were the most abundant in-stream cover, while undercut banks, trees and aquatic vegetation were generally scarce. Both brook trout and brown trout were captured in more than one year class suggesting

natural reproduction. Creek 6-16 would benefit from the addition of in-stream habitat structures and reduced streambank erosion. A fish and habitat survey should be conducted to update the biological information available for Creek 6-16. There are no DNR stocking records for Creek 6-16. Access is possible from four road crossings, DNR owned easements and at the Pinnacle Rock State Fishery Area.

Dutch Creek

Dutch Creek is a spring-fed stream located in east central La Crosse County. It flows in a northwesterly direction for approximately 9.4 miles before reaching the La Crosse River at Bangor. Dutch Creek has a gradient of approximately 30 feet per mile and drains steep forested hillsides and valley agricultural land. Dutch Creek is a Class II trout stream for its entire length.

The most recent habitat survey, completed in 1976, documented cool, clear water with a bottom consisting mainly of sand, rubble and gravel, with lesser amounts of silt, marl, boulder and detritus. Riparian land consisted of swamp hardwoods, shrub marsh and pasture. Heavy bank erosion was evident due to high water and overgrazing. In the lower half of Dutch Creek, in-stream cover was scarce consisting of scattered log tangles and over-hanging grasses. Upstream of STH 162, in-stream cover consisted mainly of undercut banks, log and brush tangles and scattered beds of aquatic vegetation. A fish and habitat survey of Dutch Creek should be conducted to update the 1976 survey information

Figure 26. Dutch Creek with barnyard adjacent to streambank.

The La Crosse County Land Conservation Department has operated a continuous water quality monitoring station since 1995 in Dutch Creek. The purpose was to monitor changes in the water chemistry of Dutch Creek in response to the installation of best management practices on farms upstream of this monitoring station. The goal of the project was to reduce sediment and nutrient loads to the La Crosse River and ultimately Lake Neshonoc. La Crosse County plans to continue operation of the monitoring station to assess the success of the Dutch Creek project and serve as a water quality baseline representative of similar sized La Crosse County streams.

In 1998, the La Crosse County Land Conservation Department initiated water chemistry testing of streams throughout La Crosse County. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Land Conservation staff sample streams four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Dutch Creek is sampled in two different locations: near the mouth and approximately five miles upstream from its mouth. Between 1998 and 2001 at the middle sample location, Dutch Creek met the county phosphorus goal in nearly 60% and met the county fecal coliform bacteria goal in 60% of the samples taken. At the lower sample location, Dutch Creek met the county phosphorus

goal in nearly 40% and the county fecal coliform bacteria goal in approximatley 50% of the samples taken. These data indicate a nutrient load that is likely also contributing to high bacterial counts. The county ranks Dutch Creek among the top 50% of priority streams in the county on which to expend effort to reduce phosphorus and bacterial contamination.

From 1960 to 1983, Dutch Creek was strictly stocked with brown trout; however, since 1983 a combination of brook, brown and occasionally rainbow trout have been stocked. Access is possible from several road crossings and DNR owned easements.

East Beaver Creek

East Beaver Creek is a small, spring-fed tributary of Beaver Creek in west central Monroe County. It flows in a southerly direction for two miles, then joins West Beaver Creek to form Beaver Creek. This stream has a gradient of less than 20 feet per mile and drains wooded hills and agricultural land. East Beaver Creek is a Class I trout stream for its entire length.

The most recent survey, conducted in 1987, documented cool, clear water with a stream bottom comprised predominantly of sand and silt, with small amounts of gravel. In-stream cover consisted of undercut banks, logs, overhanging brush, and several deep pools. The brook trout population documented in 1987 improved significantly since a 1974 stream survey. A reduction in streambank grazing from 1974 to 1987 was also observed. The purchase of easements coupled with in-stream habitat improvement would benefit the fishery of East Beaver Creek. A fish and habitat survey of East Beaver Creek should be conducted to update available biological information. There are no DNR stocking records for East Beaver Creek. Access is possible from three road crossings.

East Upper Big Creek

East Upper Big Creek, located in western Monroe County, flows for approximately 1.7 miles before meeting Upper Big Creek to form Big Creek. It has a gradient of 42 feet per mile and drains agricultural lands. East Upper Big Creek is a Class III trout stream for the entire length.

A 1995 survey documented numerous springs, brook trout, northern brook lamprey, and erosion from livestock grazing. Sand was the predominant bottom type, with lesser amounts of gravel present also. Reduction of streambank erosion may improve the classification of this stream. No DNR stocking records exist for this stream. Access is possible from four road crossings.

Farmers Valley Creek

Farmers Valley Creek, located in west central Monroe County, flows in a northwesterly direction for approximately 11.5 miles before reaching the La Crosse River immediately downstream of Perch Lake in Sparta. The stream has a moderate gradient of 44 feet per mile and drains gently rolling agricultural and forested land. Several large springs in the upper reaches of the creek contribute cool water temperatures ideally suited for successful trout spawning. Farmers Valley Creek is a Class I trout stream for the 10.4 miles above STH 71 and Class II for the 1.0 mile below STH 71.

The most recent fish and habitat survey, conducted in 1981, documented cool, clear water with a bottom comprised mostly of sand and silt with lesser amounts of gravel and rubble. Moderate to severe bank erosion was noted in the lower and middle sections of this stream due to high water

and excessive livestock grazing. In-stream cover was limited to log and brush tangles, undercut banks, and overhanging grasses. Many long deep pools found throughout the stream also provided cover for fish. The 1981 fish survey documented self-sustaining populations of brown trout and brook trout. Rock bass and some forage fish species were also documented. Land acquisition and in-stream habitat improvements are recommended for the entire stream system. A fish and habitat survey of Farmers Valley Creek should be conducted to document the current status of the stream. The creek hasn't been stocked since 1978 when browns were planted. Access is possible from several road crossings, DNR owned land adjacent to Farmers Valley Creek off CTH AA and DNR owned easements. The Elroy-Sparta Bike Trail crosses the upper end of the stream, then runs parallel to it until Sparta.

Fish Creek

Fish Creek is a spring-fed coulee stream located in east central La Crosse County and west central Monroe County. It flows in a northerly direction for a total of nearly seven miles. Fish Creek begins in Monroe County and flows for approximately 1.7 miles with a steep gradient of 100 feet per mile and then through La Crosse County for 5.2 miles with a more moderate gradient of 35 feet per mile before reaching the La Crosse River near Rockland. This stream drains steep forested hillsides and agriculture valley land. Fish Creek is not a classified trout stream in Monroe County but is a Class III trout stream for the entire length in La Crosse County.

The most recent survey, completed in 1968, documented a stream bottom consisting mainly of sand with some gravel areas. Silt deposits were prevalent near heavily eroded banks. Riparian land consisted of cultivated crops and pasture. The shifting sand bottom prevented growth of aquatic vegetation and in-stream cover was limited to undercut banks, logs and woody debris. Brown and brook trout were collected during the survey, along with rock bass and a variety of forage fish species. A fish and habitat survey should be conducted of Fish Creek to document the current status of Fish Creek. Between 1960 and 1991, Fish Creek was stocked with brown trout. From 1992 to 1999, brook trout were introduced to the stream. Access is possible from six road crossings.

In 1998, the La Crosse County Land Conservation Department initiated water chemistry testing of streams throughout La Crosse County. Baseflow conditions were targeted for testing as the most likely to show normal water quality conditions. Land Conservation staff sample streams four times annually when no rainfall or snowmelt has occurred during the previous 72 hours. Between 1998 and 2001, Fish Creek met the county phosphorus goal in only 7% and the county fecal coliform bacteria goal in 40% of the samples taken. These data indicate a nutrient load that is likely also contributing to high bacterial counts. The county ranks Fish Creek among the lower half of streams in the county on which to expend effort to reduce phosphorus and bacterial contamination. La Crosse County should continue baseflow water chemistry monitoring of Fish Creek to determine water quality trends over time.

Halls Valley Creek (Creek 32-9)

Halls Valley Creek, also known as Creek 32-9, is a small spring-fed stream located in southwestern Monroe County. It flows in an easterly direction for approximately four miles before reaching the Little La Crosse River north of Melvina. Halls Valley Creek has a gradient of 71 feet per mile and drains moderately steep agriculture land and wooded hillsides. Halls Valley Creek is a Class I trout stream for its entire length.

The most recent survey, completed in 1974, documented cool, clear water with a stream bottom consisting predominately of rubble with lesser amounts of sand, silt, gravel, and boulder. The most abundant in-stream cover for fish was boulders, while undercut banks, logs and trees, and aquatic vegetation were generally scarce. Riparian land consisted of mainly upland hardwoods with lesser amounts of cultivated land, pasture and open marsh. Brook trout, brown trout and several forage fish species were collected. The presence of brook and brown trout fingerlings suggest the occurrence of natural reproduction. The Halls Valley Creek fishery would benefit from additional in-stream cover. A fish and habitat survey of Halls Valley Creek should be conducted to document the current status of the stream. There are no DNR stocking records for Halls Valley Creek. Access to this stream is available from one bridge crossing and DNR owned easements.

La Crosse River

Approximately 23 miles of the La Crosse River flows through the heart of the Little La Crosse River Watershed. All streams in the Little La Crosse River Watershed ultimately drain to this middle portion of the La Crosse River. Many acres of wetland are found adjacent to the La Crosse River within this watershed. For additional information about the La Crosse River see page 99.

Lake Neshonoc

All of the Little La Crosse River Watershed ultimately drains to Lake Neshonoc via the La Crosse River. High bacterial counts, nuisance algal blooms, and sedimentation of the lake are all due to the runoff of soil, nutrients, and bacteria from the land in this watershed and the Upper La Crosse River Watershed above Perch Lake. The La Crosse County Health Department has closed the Lake Neshonoc swimming beaches on a regular basis due to harmful bacteria levels. Additionally, sediment is currently being dredged from Lake Neshonoc at great expense. See additional discussion of Lake Neshonoc on page 102 of this report.

Little Burns Creek

Little Burns Creek, located in north east La Crosse County, flows in a southeasterly direction for approximately 1.3 miles before reaching Burns Creek. It has a steep gradient of 80 feet per mile and drains rolling agricultural and forested land. Little Burns Creek is a Class I trout stream for its entire length.

The most recent survey, conducted in 1977, documented cool, clear water and a stream bottom which consisted of sand, gravel and silt. Riparian land use was primarily pasture and wetland, with some bank erosion due to excessive livestock grazing. Many brook trout and one forage fish species were found during this survey. The fishery of Little Burns Creek would benefit from the addition of in-stream habitat. To update information on the status of Little Burns Creek, a fish and habitat survey should be conducted. No DNR stocking records exist for this stream. Access is possible from two road crossings and DNR owned easements.

Little La Crosse River

The Little La Crosse River, also known as Leon Creek, is a large, spring-fed stream located in southwestern Monroe County. It flows in a northwesterly direction for nearly 18 miles before reaching the La Crosse River between Rockland and Sparta. The Little La Crosse River has a gradient of 21 feet per mile and drains steep forested hillsides and valley agricultural land. The Little La Crosse River is a Class II trout stream for its entire length.

The Village of Cashton discharges their treated wastewater to the extreme upper end of the Little La Crosse River. The discharge actually does not reach the perennially flowing portion of the river during normal conditions. The discharge only reaches the Little La Crosse River if enough runoff fills the channel to carry the flow down to the perennially flowing portion of the river.

The most recent survey, completed in 1999, documented cool, clear water with a stream bottom consisting mainly of sand with some gravel, silt, rubble, clay, boulder and detritus. Riparian land use was woodland, meadow, pasture, shrub and cropland. In-stream cover consisted of woody debris, overhanging vegetation, undercut banks, submerged vegetation and LUNKER structures. Both brook trout and brown trout were captured as well as a variety of forage fish species.

The 1999 survey report recommended land acquisition from willing landowners, habitat restoration, a change in stocking from domestic to wild brown trout fingerlings, encouragement of local Rod and Gun Clubs to raise wild brown trout, and to re-survey the stream in five years. The Little La Crosse River has been stocked with brown trout since 1960. Brook and rainbow trout have also been stocked sporadically. Access is possible from many road crossings, the DNR Espe Pond Fishing Area along STH 27, DNR owned land along the La Crosse River Bike Trail near the mouth of the river, and DNR owned easements.

Lyons Valley Creek (Creek 29-9)

Lyons Valley Creek, also known as Creek 29-9, is a small spring-fed stream located in southwestern Monroe County. It flows in a westerly direction for five miles before reaching the Little La Crosse River north of Melvina. It has a gradient of 76 feet per mile and drains forested hills and agricultural valley land. Lyons Valley Creek is a Class I trout stream for its entire length.

The most recent survey, completed in 1974, documented a stream bottom comprised predominately of rubble with lesser amounts of sand, silt, and gravel. Riparian land consisted mainly of upland hardwoods with lesser amounts of cultivated fields and pasture. Undercut banks provided most of the in-stream cover for fish, with pools, logs, and aquatic vegetation present, but generally scarce. Brown trout and several forage fish species were found. The Lyons Valley Creek fishery would benefit from additional in-stream habitat. A fish and habitat survey should be conducted of Lyons Valley Creek to document the current status of the stream. There are no DNR stocking records for this stream. Access is possible from two road crossings and DNR owned easements.

Pleasant Valley Creek (Creek 14-15)

Pleasant Valley Creek, also known as Creek 14-15, is a medium sized spring-fed stream located in southwestern Monroe County. It flows in a northeasterly direction for nearly six miles before reaching the Little La Crosse River south of Leon. It has a gradient of 52 feet per mile and drains steep forested hills and agricultural valley land. Pleasant Valley Creek is a Class III trout stream for its entire length.

The most recent survey, completed in 1974, documented cool, clear water and a bottom comprised predominately of rubble in the upstream portion and silt in the downstream portion of the stream. Small amounts of sand, gravel and boulder were present throughout. Riparian land consisted of pasture and hardwoods. Little in-stream cover for fish was documented throughout the stream with rock and boulder being the primary habitat. Brown trout and several forage fish

species were collected. Brown trout fingerlings collected during the survey suggest some natural reproduction was taking place. The Pleasant Valley Creek fishery would benefit from the purchase of streambank easements, reduced erosion, and in-stream habitat restoration. A fish and habitat survey should be conducted of Pleasant Valley Creek to document the current status of the stream. There are no DNR stocking records for Pleasant Valley Creek. Access is possible from five road crossings.

Sand Creek

Sand Creek is a small spring-fed stream located in southwestern Monroe County. It flows in a northwesterly direction for approximately 1.4 miles before reaching the Little La Crosse River near Leon. This stream drains moderately steep forested hills and agricultural lands and has a gradient of 28 feet per mile. Sand Creek is a Class III trout stream for its entire length.

The most recent survey, completed in 1973, documented cool, clear water with a stream bottom comprised predominantly of sand with small amounts of silt, gravel, rubble and detritus. Bank cover consisted mainly of upland hardwoods with lesser amounts of swamp hardwoods; however, excessive livestock grazing of streambanks was contributing sediment to Sand Creek. In-stream cover for fish was scarce. Brook trout and several forage fish species were present but in low abundance. The Sand Creek fishery would benefit from stable streambanks and the addition of in-stream habitat structures. A fish and habitat survey of Sand Creek should be conducted to document its current status. There are no DNR stocking records for Sand Creek. Access is possible from one road crossing.

Upper Big Creek

Upper Big Creek, located in western Monroe County, flows for approximately 2.1 miles before meeting East Upper Big Creek to form Big Creek. It has a gradient of approximately 21 feet per mile and drains agricultural lands and adjoining wetland. Upper Big Creek is a Class II trout stream for its entire length.

A 1995 stream survey documented a stream bottom comprised of sand, gravel, and rubble. Cover for fish consisted of undercut banks and overhanging vegetation; however, erosion from excessive streambank grazing of livestock reduced available fish habitat. Brook trout and two forage fish species were documented during the survey. The reduction of streambank erosion would likely improve the fishery of Upper Big Creek. There are no DNR stocking recoreds for Upper Big Creek. Access is possible from four road crossings.

West Beaver Creek

West Beaver Creek is a small, spring-fed tributary stream to Beaver Creek in west central Monroe County. It flows in a southeasterly direction for about 1.2 miles before joining East Beaver Creek to form Beaver Creek. This stream has a gradient of 16 feet per mile and drains forested hills and agricultural land. West Beaver Creek is a Class II trout stream for its entire length.

The most recent survey, completed in 1974, documented cool, clear water with a stream bottom comprised predominantly of silt and sand with lesser amounts of rubble and gravel. Riparian land was predominantly pasture and cultivated land. All types of in-stream cover for fish were scarce and physical alterations of the stream channel (ditching) was observed. Both brown trout and brook trout were found along with several forage fish species. A fish and habitat survey of West

Beaver Creek should be conducted to document its current status. There are no DNR stocking records for West Beaver Creek. Access is possible from three road crossings.

Species of Concern in the Little La Crosse River Watershed

The Wisconsin DNR Bureau of Endangered Resources is responsible for tracking natural communities, plant, animal and insect species that are of concern due to their low or declining acreage or numbers. The Natural Heritage Inventory is a list of plant, animal, insect, and natural communities in the State of Wisconsin each of which are categorized as endangered, threatened or of special concern.

Definitions

Wisconsin Endangered Species: Any species whose continued existence as a viable component of this state's wild animal or plant community is determined by WDNR to be in jeopardy on the basis of scientific evidence.

Wisconsin Threatened Species: Any species which appears likely to become endangered within the foreseeable future based on scientific evidence.

Wisconsin Special Concern Species: Any species about which some problem of abundance or distribution is suspected in Wisconsin, but not yet proven. The purpose of this category is to focus attention on certain species before they become threatened or endangered.

This information is used to identify critical habitat for these species to prevent further degradation and thus help protect the endangered community. Protection of threatened and endangered species in a watershed requires cooperation between bureaus within WDNR, private landowners, University personnel, sporting groups, industry and municipalities in the search of solutions for protecting critical habitat.

Table 13. Little La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Bird			
Dickcissel	Spiza americana	Special Concern	The dickcissel prefers open areas such as grasslands and prairies.
Grasshopper Sparrow	Ammodramus savannarum	Special Concern	The grasshopper sparrow prefers prairies, retired cropland, unmowed highway right-of-ways, pastures (Kentucky bluegrass and timothy), shrub-carr wetlands, northern sedge meadows, and managed grasslands maintained for duck production.
Loggerhead Shrike	Lanius ludovicianus	Endangered	The loggerhead shrike prefers open grassy country with scattered shrubs or small trees.
Butterfly			
Karner Blue Butterfly	Lycaeides melissa samuelis	Special Concern	The karner blue prefers semi-open oak openings, pine barrens, and oak-pine barrens supporting wild lupine, its only larval food plant.
Fish			
American Eel	Anguilla rostrata	Special Concern	The american eel prefers large streams and lakes, seeking muddy bottoms and still waters. To reach these waters the eel has to traverse swift-flowing, medium sized streams over a wide variety of bottoms.
Natural Community			
Dry Cliff	Dry cliff		These dry vertical bedrock exposures occur on many different rock types. Scattered pines, oaks, or shrubs often occur. However, the most characteristic plants are often ferns, common polypody and rusty woodsia, along with columbine, harebell, pale corydalis, juneberry, bush-honeysuckle, and rock spikemoss.
Dry Prairie	Dry prairie		This grassland community occurs on dry, often loess-derived soils, usually on steep south or west facing slopes or at the summits of river bluffs with sandstone or dolomite near the surface. Little bluestem, side-oats grama, hairy grama, and prairie dropseed are dominant prairie grasses. Common shrubs and forbs include lead plant, silky aster, flowering spurge, purple prairie-clover, cylindrical blazing-star, and gray goldenrod.
Dry-Mesic Prairie	Dry-mesic prairie		This grassland community occurs on slightly less droughty sites than Dry Prairie and has many of the same grasses, but taller species such as big bluestem and Indian-grass dominate. Needle grass may also be present. The herb component is more diverse than in Dry Prairies.

Table 13. Little La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Emergent Aquatic	Emergent Aquatic		These open, marsh, lake, riverine and estuarine communities with permanent standing water are dominated by robust emergent macrophytes, in pure stands of single species or in various mixtures. Dominants include cat-tails, bulrushes, bur-reeds, giant reed, pickerel-weed, water-plantains, arrowheads, and the larger species of spikerush.
Moist Cliff	Moist cliff		This "micro-community" occurs on shaded (by trees or the cliff itself because of aspect), moist to seeping mossy, vertical exposures of various rock types, most commonly sandstone and dolomite. Common species are columbine, fragile ferns, wood ferns, rattlesanke-root, and wild sarsaparilla. Driftless Area cliffs might have northern monkshood.
Sand Barrens	Sand barrens		Herbaceous upland communities that develop on unstable or semi-stabilized alluvial sands along major rivers such as the Mississippi and Wisconsin. Species include false-heather, bearberry, sedges, sand cress, three-awn grasses, rock spikemoss, and the earthstar fungi.
Shrub-Carr	Shrub-carr		Tall shrubs such as red-osier dogwood, meadow-sweet and various willows dominate this wetland community. Canada bluejoint grass is often very common. Associates are similar to those found in Alder Thickets and tussock-type Sedge Meadows.
Southern Dry Forest	Southern dry forest		Oaks are the dominant species in this upland forest community of dry sites. White oak and black oak are dominant, often with admixtures of red and bur oaks and black cherry. In the well developed shrub layer, brambles, gray dogwood, and American hazelnut are common. Frequent herbaceous species are wild geranium, false Solomon's-seal, hog-peanut, and woodland sunflower.
Southern Dry-Mesic Forest	Southern dry-mesic forest		Red oak is a common dominant tree of this upland forest community type. White oak, basswood, sugar and red maples, and white ash are also important. The herbaceous understory flora is diverse and includes wild geranium, false Solomon's seal, hog peanut, woodland sunflower, jack-in-the-pulpit, enchanter's-nightshade, large-flowered bellwort, interrupted fern, lady fern, and tick-trefoils.
Southern Sedge Meadow	Southern sedge meadow		This open wetland community is most typically dominated by tussock sedge and Canada bluejoint grass. Common associates are water-horehound, panicled aster, blue flag, Canada goldenrod, spotted joe-pye-weed, broad-leaved cat-tail, and swamp milkweed. Reed canary grass may be dominant in grazed and/or ditched stands.
Plant			
Brittle Prickly-Pear	Opuntia fragilis	Threatened	Brittle prickly-pear is found in portions of the western and southern half of the state, where it grows in crevices and soil pockets of rock (especially rhyolite) outcrops and on dry sand prairies and barrens.

Table 13. Little La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Glade Mallow	Napaea dioica	Special Concern	Glade mallow prefers wet prairies, wet meadows, damp railroad rights-of-way, and along streams and rivers.
Prairie False-Dandelion	Nothocalais cuspidata	Special Concern	Prairie false-dandelion prefers dry and dry sand prairies.
Prairie Parsley	Polytaenia nuttallii	Threatened	Prairie parsley prefers dry prairies, railroad right-of-ways, and dry, grassy banks along rivers.
Shadowy Goldenrod	Solidago sciaphila	Special Concern	Shadowy goldenrod is endemic to the Driftless Area and prefers exposed sandstone cliffs.
Snowy Campion	Silene nivea	Threatened	Snowy campion prefers rich mesic or lowland woods.
Yellow Evening Primrose	Calylophus serrulatus	Special Concern	Yellow evening primrose prefers sandy and dry bluff prairies.
Snake			
Timber Rattlesnake	Crotalus horridus	Special Concern	The timber rattlesnake prefers deciduous forests and croplands during the summer and steep, rugged bluffs and rocky outcrops during the spring and fall.
Turtle			
Wood Turtle	Clemmys insculpta	Threatened	The wood turtle prefers deciduous forests and open meadows along moderate to fast-moving streams and rivers.

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Upper La Crosse River Watershed (BL06)

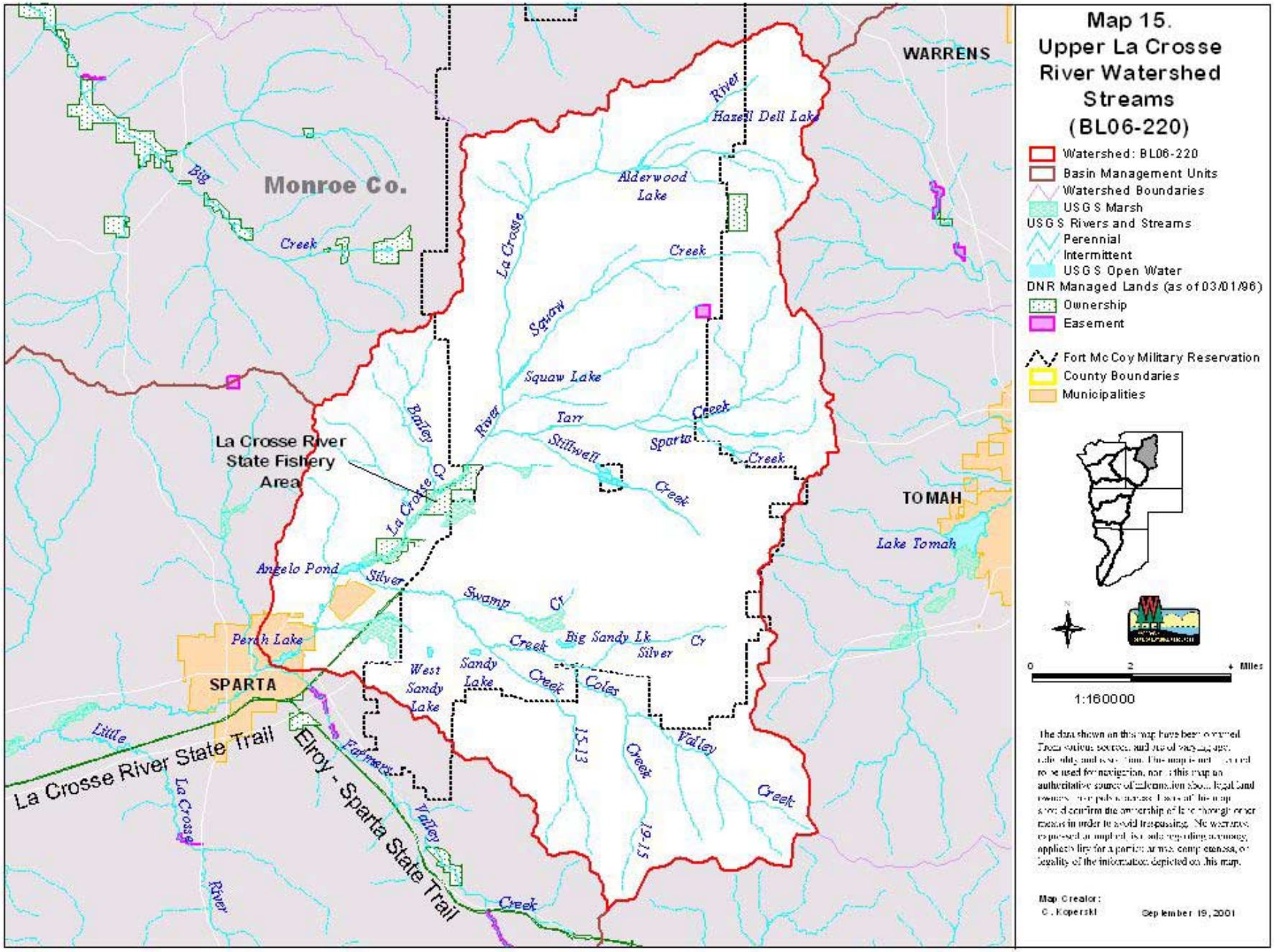
The Upper La Crosse River Watershed covers approximately 126 square miles, 57% of which are contained within the Fort McCoy Military Reservation. Many streams in this watershed originate outside the boundaries of Fort McCoy, but then flow through the military installation, eventually reaching the La Crosse River. Much of the reservation is used for military training including: firing ranges, classrooms, air-to-ground impact area, airborne drop zones, and multi-purpose training ranges. The vegetation, terrain, and water resources available within Fort McCoy allow a varied training experience. At times, training exercises can directly or indirectly impact natural resources. Conversely, management of the natural resources of Fort McCoy can have both positive or negative impacts on training activities. To that end, Fort McCoy staff completed an integrated natural resources management plan in 2000 to summarize the natural resources of the Fort and identify major natural resource initiatives. Much of the information contained in this chapter is derived from that plan.

Since 1993, the Fort McCoy Fisheries Program has been assessing the water quality, habitat, macroinvertebrates and fisheries of the streams and lakes within Fort McCoy. The data collection and analysis methods are either the same or very similar to Wisconsin Department of Natural Resource (WDNR) methods. The sharing of information, ideas, and cooperative agreements between Fort McCoy, the Monroe County Land Conservation Department and WDNR have resulted in increased knowledge and improvement of many streams and lakes in Monroe County.

Measures taken by Fort McCoy to reduce impacts to the water and land resources from training activities include: rehabilitating training areas to promote revegetation and reduce erosion; use of streambank erosion protection measures; require tracked vehicles to cross waterways at designated bridges or culvert crossings; establish a no-fire corridor along the La Crosse River in the North Impact Area; conduct fishery surveys; adhere to new federal non-point source erosion control policies for new construction; analyze solid waste management units to determine possible groundwater and surface water contamination and appropriate remediation; and remove underground petroleum product storage tanks.

Access to streams and lakes within Fort McCoy for fishing and recreational purposes is granted by permit from the Fort McCoy Directorate of Training and Mobilization. A WDNR fishing license and State Trout Stamp are required as well as a Fort McCoy Fishing Permit. Fishing regulations and access are unique to the military installation and enforced by the Fort McCoy Directorate of Protective Services. Specified areas are closed to recreational activities for safety or security purposes. Information related to recreational opportunities within Fort McCoy can be obtained online at *www.mccoy.army.mil/Garrison/DTM/rd/bcrmt/contents.asp*

Since the majority of stream miles in the Upper La Crosse River Watershed lie within Fort McCoy, where less non-point source pollution occurs relative to agricultural lands adjacent to the military reservation, the non-point source rank for the entire watershed is low. However, grants available from the WDNR to reduce non-point source pollution cannot be disbursed to a Federal agency such as the Department of Defense - Fort McCoy. Consequently, the streams or portion of streams in the Upper La Crosse River Watershed within Fort McCoy were excluded from the ranking process. The non-point source rank of the Upper La Crosse River Watershed, excluding the stream miles in Fort McCoy, is high.


Map 15.
Upper La Crosse River Watershed Streams
(BL06-220)
Watershed: BL06-220
Basin Management Units
Watershed Boundaries
USGS Marsh
USGS Rivers and Streams
Perennial
Intermittent
USGS Open Water
DNR Managed Lands (as of 03/01/96)
Ownership
Easement
Fort McCoy Military Reservation
County Boundaries
Municipalities
0
2
4 Miles
1:160000
Map Creator:
C. Kopecski
September 19, 2001
WARRENS
TOMAH
Monroe Co.
SPARTA
La Crosse River State Fishery Area
La Crosse River State Trail
Elroy - Sparta State Trail
Hazell Dell Lake
Alderwood Lake
Squaw Lake
Lake Tomah
Angelo Pond
Perch Lake
Big Sandy Lk
West Sandy Lake
Sandy Lake
Big Creek
La Crosse River
Squaw Creek
Bailey Creek
Tarr Creek
Stillwell Creek
Sparta Creek
Silver Cr
Swamp Cr
Coles Creek
Valley Creek
Little La Crosse River
Fairmans Valley Creek
15-13
19-15

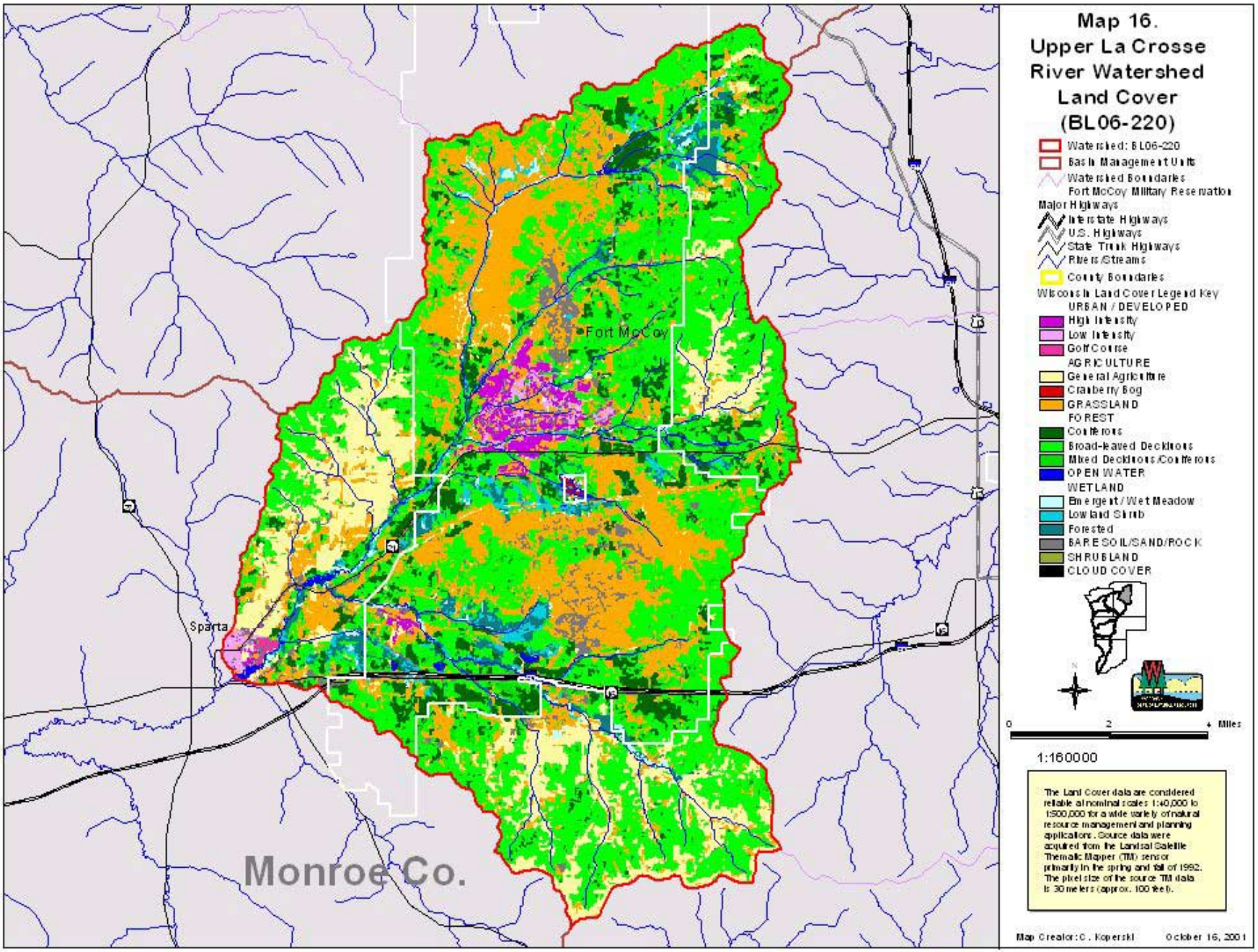

Map 16.
Upper La Crosse River Watershed Land Cover (BL06-220)
Watershed: BL06-220
Basin Management Units
Watershed Boundaries
Fort McCoy Military Reservation
Major Highways
Interstate Highways
U.S. Highways
State Trunk Highways
Rivers/Streams
County Boundaries
Wisconsin Land Cover Legend Key
URBAN / DEVELOPED
High Intensity
Low Intensity
Golf Course
AGRICULTURE
General Agriculture
Cranberry Bog
GRASSLAND
FOREST
Coniferous
Broad-leaved Deciduous
Mixed Deciduous/Coniferous
OPEN WATER
WETLAND
Emergent / Wet Meadow
Lowland Shrub
Forested
BARE SOIL/SAND/ROCK
SHRUBLAND
CLOUD COVER
Fort McCoy
Sparta
Monroe Co.
0
2
4 Miles
1:160000
The Land Cover data are considered reliable at nominal scales 1:40,000 to 1:500,000 for a wide variety of natural resource management and planning applications. Source data were acquired from the Landsat Satellite Thematic Mapper (TM) sensor primarily in the spring and fall of 1992. The pixel size of the source TM data is 30 meters (approx. 100 feet).
Map Creator: C. Koperski
October 16, 2001

Table 14. Upper La Crosse River Watershed at a Glance	
Drainage Area (square miles)	126
Total Stream Miles	97.5
Total Trout Stream Miles	Class I = 55.3 Class II = 12.0 Class III = 9.7
Total Impaired Stream Miles / Lakes	0 / Angelo Pond
Total Wetland Acres	4,875
Best Water Quality	Upper Silver Creek
Lakes	Angelo Pond, Alderwood Lake, Big Sandy Lake, East Silver Lake, Hazel Dell Lake, Perch Lake, Sandy Lake, Sparta Pond, Stillwell Pond, Swamp Pond
Municipalities	Fort McCoy, Sparta
Total Permitted Wastewater Discharges	1
Major Public Lands	➢Fort McCoy Military Reservation ➢La Crosse River State Fishery Area
Concerns and Issues	➢ Impoundments on trout streams ➢ Agricultural non-point source pollution ➢ Stormwater quality and volume
Initiatives and Projects	➢ Comprehensive stream surveys ➢ Installation of in-stream habitat ➢ Eradication of purple loosestrife & other exotic invasive plants ➢ Brook trout reintroduction in Upper Silver and Cole's Valley Creeks

Recommendations

1. Fort McCoy should continue its comprehensive water quality and biological monitoring strategy to document existing conditions, identify sources of adverse impacts, implement preventive/remedial measures and monitor the success of such measures.

2. WDNR should consider **Perch Lake** a high priority to receive a lake management planning grant to develop a sediment budget and evaluate water quality and watershed conditions.

3. WDNR should work with the community of Sparta to develop a lake management strategy for **Perch Lake**.

4. Fish and habitat surveys should be conducted on **Bailey Creek, Coles Valley Creek, Stillwell Creek and Unnamed Creek 15-13** to determine current conditions.

5. The fisheries of **Sparta Creek, Squaw Creek, Stillwell Creek and Unnamed Creek 15-13** would likely benefit from the installation of additional in-stream cover.

6. Fort McCoy should continue to utilize best management practices to minimize sedimentation into lakes and streams.

The map that accompanies this chapter indicates DNR easements along streambanks as well as DNR owned lands as of March 1, 1996. Additional easements and land may have been purchased in the area since 1996 that are not indicated on the map. The DNR installs signs where access is allowed onto private lands with DNR easements along streambanks. The easement allows for access to the stream for fishing and nature observation. The land is still privately owned and landowner rights should be respected.

Angelo Pond

See a discussion of Angelo Pond on page 101 of this report.

Bailey Creek

Bailey Creek, located in west central Monroe County, flows in a southerly direction for approximately 2.5 miles before reaching the La Crosse River near Angelo Pond. Bailey Creek does not flow through Fort McCoy. It has a slight gradient of 10 feet per mile and drains agricultural land with some wooded hillsides. Bailey Creek is a Class II trout stream downstream of Finch Avenue for 1.6 miles and Class III upstream of Finch Avenue for 0.9 miles.

The most recent survey, conducted in 1976, documented cool, clear water with a stream bottom comprised mainly of sand, with some areas of gravel and rubble. Riparian land consisted of pasture and hardwoods. In-stream cover for adult fish was scarce. Brook trout and a variety of forage fish species were collected during the survey. A fish and habitat survey should be conducted to update available information for Bailey Creek. DNR has not stocked Bailey Creek since 1976. Access is available from three road crossings and the La Crosse River Fishery Area.

Coles Valley Creek (Creek 24-5)

Coles Valley Creek, located in central Monroe County, flows for approximately 5.3 miles in a northwesterly direction before reaching Silver Creek. Only the extreme lower end of Coles Valley Creek flows through Fort McCoy. It has a moderate gradient of 41 feet per mile and drains agricultural land with wooded hillsides. Coles Valley Creek is a Class I trout stream for its entire length.

The most recent survey, conducted in 1999, documented cool, clear water with a stream bottom comprised primarily of sand with lesser amounts of gravel, rubble, and silt. The riparian area

consisted of two thirds woodland and one third meadow. A naturally reproducing brook trout population was observed as well as a variety of forage fish species. Overhanging vegetation was the primary cover for fish. Monroe County, with assistance from Fort McCoy, installed LUNKER structures in Coles Valley Creek between 1999 and 2000 to add overhead cover for adult fish. A fish and habitat survey of Coles Valley Creek should be conducted to determine any changes in the brook population since the installation of additional fish cover. DNR has not stocked Coles Valley Creek since 1978. Access is available from four road crossings and Fort McCoy.

Creek 15-13

Creek 15-13, located in central Monroe County, flows in a northwesterly direction for approximately 4.7 miles before reaching Silver Creek in Fort McCoy. It has a moderate gradient of 45 feet per mile and drains agricultural land and part of Fort McCoy. The lower 2.2 miles, which is in Fort McCoy, is a Class III trout stream.

The most recent DNR survey, conducted in 1973, documented cool, clear water with a stream bottom composed mainly of sand with small amounts of silt. In-stream cover for fish was poor consisting primarily of limited amounts of undercut banks and woody debris. Brook trout and several forage fish species were documented. Additional overhead cover would benefit the fishery of this stream. Problems noted were flooding and siltation. A recent fish and habitat survey conducted in Fort McCoy noted sedimentation and high nutrient levels as factors limiting the biological potential of this stream. A fish and habitat survey should be conducted to update information and management goals for Creek 15-13. DNR has no stocking records for this stream. Access to Creek 15-13 is from Fort McCoy and four road crossings outside the Fort.

Creek 19-15

Creek 19-15, located in central Monroe County, flows in a northerly direction for approximately 2.7 miles before reaching Coles Valley Creek. It has a gradient of 64 feet per mile and drains agricultural land with wooded hillsides. Creek 19-15 does not flow through Fort McCoy. Creek 19-15 is a Class I trout stream for its entire length.

The most recent survey, conducted in 1999, documented cool, clear water with a stream bottom comprised mainly of gravel and rubble, with smaller amounts of sand, silt and boulder. The riparian land was both meadow and wooded. Undercut banks and overhanging vegetation provided adequate cover for adult fish. Brook trout and mottled sculpin were captured during the survey. DNR has no stocking records for Creek 19-15. Access is available from three road crossings.

La Crosse River

The uppermost 17.9 miles of the La Crosse River down to the dam at Perch Lake in Sparta flow through the Upper La Crosse River Watershed. The river originates just east of the Fort McCoy eastern border. See the La Crosse River discussion found on page 99.

Perch Lake

See a discussion of Perch Lake on page 102 of this report.

Silver Creek

Silver Creek, located in central Monroe County, flows for approximately 10.4 miles in a westerly direction before reaching the La Crosse River at Angelo Pond. Silver Creek not only originates on Fort McCoy, but also flows for approximately 9.5 miles before it leaves the property. It has a slight gradient of 21 feet per mile and drains a portion of Fort McCoy. This stream contains three dams: West Silver wetland, I-90 Impoundment, and East Silver Lake. Silver Creek is a Class I trout stream for its entire length.

The predominant substrate is sand, with small amounts of silt and gravel present. Bank stabilization and installation of LUNKER structures has been ongoing by Fort McCoy staff since 1995. Both brook and brown trout are found in Silver Creek. Brook trout dominate the fishery above the West Silver Wetland, however brown trout have found their way upstream of that dam. Since upper Silver Creek, Cole's Valley Creek and Creek 19-15 all contain healthy brook trout populations, concern exists over competition for food and space from brown trout. Access to Silver Creek is from Fort McCoy and one road crossing near Angelo Pond.

Sparta Creek

Sparta Creek, located in central Monroe County, originates outside Fort McCoy and flows for 2.7 miles in a westerly direction before reaching Tarr Creek in Fort McCoy. It has a gradient of 29 feet per mile. Sparta Creek is a Class I trout stream for the lower 0.7 miles and Class II for the next mile to Spring Bank Lake. The one mile of Sparta Creek upstream of Spring Bank Lake has not been surveyed and the stream classification is unknown at this time.

An impoundment on upper Sparta Creek was dredged in 1990 and the dam modified as a bottom draw structure to decrease downstream water temperatures. Another impoundment on Sparta Creek was removed and the stream returned to its previous free flowing state. Fort McCoy staff continue to monitor water temperatures and sedimentation at Upper Sparta Pond. Several ponds exist on Sparta Creek and tributaries upstream of Fort McCoy on private property. Sparta Creek contains a sand and gravel bottom with little silt. The stream contains brook trout with a few brown trout. The fishery of Sparta Creek may improve with additional in-stream cover. Upper Sparta Pond is scheduled for dredging in 2002. A fish and habitat survey should be conducted on the portion of Sparta Creek upstream of Spring Bank Lake. Access to Sparta Creek is via Fort McCoy.

Squaw Creek

Squaw Creek, located in central Monroe County, flows for nearly six miles in a southwesterly direction before reaching the La Crosse River. It has a gradient of 25 feet per mile and drains a portion of Fort McCoy and a small amount of agricultural land outside the Fort. Squaw Creek is a Class I trout stream above Squaw Lake for 5.6 miles and Class III below Squaw Lake for 0.2 miles.

The primary substrate of Squaw Creek is sand with small amounts of gravel and boulder present. In-stream cover is scarce. Stormwater runoff from the many buildings and roads centered in the Fort contribute to erosion problems in the creek. Brook trout and a variety of forage fish species make up the Squaw Creek fishery. The addition of in-stream cover would benefit the Squaw Creek fishery. Access to Squaw Creek is via Fort McCoy.

Squaw Lake

Squaw Lake, a 15 acre impoundment of Squaw Creek, is located on the lower end of the stream. The lake is also located near the cantonment area of the Fort, which contributes a fairly significant amount of stormwater to the lake which may be causing water clarity problems. Fort McCoy staff is currently monitoring lake conditions and temperature variations in the stream below the lake. Since Squaw Creek is a Class I trout stream upstream of the lake but Class III below, the water quality of the Squaw Lake discharge is likely the problem. Water temperature and dissolved oxygen levels should be monitored downstream of the lake to determine if modification of the dam would improve downstream water quality. The dam may be modified in the future to allow a bottom draw and the manipulation of lake levels. Dredging of Squaw Lake should also be considered. Squaw Lake is stocked yearly with rainbow trout.

Stillwell Creek

Stillwell Creek, located in central Monroe County, originates in Fort McCoy and flows for 4.7 miles in a northwesterly direction before reaching Tarr Creek. It has a gradient of 28 feet per mile. A privately owned cranberry operation impounds Stillwell Creek at its midpoint. Stillwell Creek is a Class III trout stream dowstream of the cranberry operation for 2.8 miles and Class II for 1.9 miles upstream of the cranberry operation.

Brook trout inhabit Stillwell Creek; however, in-stream cover for adult fish is scarce. The addition of in-stream cover would likely benefit the Stillwell Creek fishery. Access to Stillwell Creek is via Fort McCoy.

Swamp Creek

Swamp Creek, located in central Monroe County, flows for nearly two miles in a westerly direction before reaching Silver Creek. Swamp Creek flows entirely within Fort McCoy. It has a moderate gradient of 44 feet per mile. Swamp Creek is a Class I trout stream for its entire length.

Fort McCoy staff have periodically removed beaver dams from the upper end of Swamp Creek. Swamp Pond, an impoundment in the mid-section of Swamp Creek, is in need of dredging and spillway rehabilitation. The pond is stocked with rainbow trout; however, a healthy brook trout population inhabits the rest of Swamp Creek. Access to Swamp Creek is via Fort McCoy.

Tarr Creek

Tarr Creek, located in central Monroe County, flows in a westerly direction for approximately 10 miles before reaching the La Crosse River. It has a slight gradient of 26 feet per mile. The entire stream lies within Fort McCoy; however, several tributaries originate outside the Fort. Several recreational impoundments are found on these tributaries. Tarr Creek is a Class I trout stream for its entire length.

The most recent survey, conducted in 1999, documented good in-stream habitat and a healthy fish population consisting of brown trout and several forage fish species. Habitat improvements to Tarr Creek since 1997 included the installation of LUNKER structures, boulder retards, and channel reshaping. Brown trout numbers increased over 200% after in-stream habitat improved. Maintenance of sediment traps has reduced the sedimentation of critical trout habitat. Access to Tarr Creek is via Fort McCoy and several road crossings outside the Fort.

Fort McCoy Impoundments

Many impoundments exist on the numerous trout streams within the boundaries of Fort McCoy. Some are primarily recreational while others support training exercises. As is commonly found in the Bad Axe-La Crosse Basin, it is likely that many impoundments do not benefit, but rather degrade, trout streams. If impoundments discharge warmer water than they receive, the downstream trout fishery may suffer. Fort McCoy staff are currently evaluating temperatures in streams above and below many impoundments. In fact, some Fort McCoy dams have been modified to allow for a bottom draw discharge, which is likely to have colder water temperatures. Fort McCoy should continue to evaluate the necessity of each impoundment in terms of the stream fishery, impoundment fishery, recreation and training purposes, and consider removal or modification of dams as well as dredging.

Species of Concern in the Upper La Crosse River Watershed

The Wisconsin DNR Bureau of Endangered Resources is responsible for tracking natural communities, plant, animal and insect species that are of concern due to their low or declining acreage or numbers. The Natural Heritage Inventory is a list of plant, animal, insect, and natural communities in the State of Wisconsin each of which are categorized as endangered, threatened or of special concern.

Definitions

Wisconsin Endangered Species: Any species whose continued existence as a viable component of this state's wild animal or plant community is determined by WDNR to be in jeopardy on the basis of scientific evidence.

Wisconsin Threatened Species: Any species which appears likely to become endangered within the foreseeable future based on scientific evidence.

Wisconsin Special Concern Species: Any species about which some problem of abundance or distribution is suspected in Wisconsin, but not yet proven. The purpose of this category is to focus attention on certain species before they become threatened or endangered.

This information is used to identify critical habitat for these species to prevent further degradation and thus help protect the endangered community. Protection of threatened and endangered species in a watershed requires cooperation between bureaus within WDNR, private landowners, University personnel, sporting groups, industry and municipalities in the search of solutions for protecting critical habitat.

Table 15. Upper La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Beetle			
Tiger Beetle	Cicindela patruela huberi	Special Concern	A tiger beetle prefers dry, sandy pine-oak barrens.
Little White Tiger Beetle	Cicindela lepida	Special Concern	The little white tiger beetle prefers sand dunes, pits, and are very localized, as well as are attracted to lights.
Bird			
Bald Eagle	Haliaeetus leucocephalus	Special Concern	The bald eagle prefers large trees in isolated areas in proximity to large areas of surface water, large complexes of deciduous forest, coniferous forest, wetland and shrub communities.
Grasshopper Sparrow	Ammodramus savannarum	Special Concern	The grasshopper sparrow prefers prairies, retired cropland, unmowed highway right-of-ways, pastures (Kentucky bluegrass and timothy), shrub-carr wetlands, northern sedge meadows, and managed grasslands maintained for duck production.
Henslow's Sparrow	Asclepias ovalifolia	Threatened	Henslow's sparrow prefers undisturbed pastures and meadows.
Lark Sparrow	Chondestes grammacus	Special Concern	The lark sparrow inhabits open prairies and other open lands. In the spring, frequently found along roadsides with grassy vegetation, but prefers open areas with scattered brush and trees. Also inhabits forest edges, cultivated areas, orchards, fields, and savannas.
Osprey	Pandion haliaetus	Threatened	Osprey prefer large trees in proximity to large areas of surface water, large complexes of deciduous forest, coniferous forest, wetland, and shrub communities.
Upland Sandpiper	Bartramia longicauda	Special Concern	The upland sandpiper prefers tallgrass prairies, sedge meadows, unmowed alfalfa/timothy fields and scattered woodlands.
Western Meadowlark	Sturnella neglecta	Special Concern	The western meadowlark prefers open fields, grasslands, and prairies.
Butterfly			
Frosted elfin	Incisalia irus	Threatened	This butterfly prefers barrens.
Gorgone Checker Spot	Chlosyne gorgone	Special Concern	The gorgone checker spot prefers open areas on prairie slopes and ridges as well as grassy areas near streams.
Karner Blue Butterfly	Lycaeides melissa samuelis	Special Concern	The karner blue prefers semi-open oak openings, pine barrens, and oak-pine barrens supporting wild lupine, its only larval food plant.

Table 15. Upper La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Ottoe Skipper	Hesperia ottoe	Special Concern	The ottoe skipper prefers tall-grass prairie often on hills or slopes. It also requires a mixture of suitable nectar plants.
Persius Dusky Wing	Erynnis persius	Special Concern	The persius dusky wing prefers barrens.
Fish			
Redfin Shiner	Lythrurus umbratilis	Threatened	The redfin shiner prefers turbid waters of pools in low-gradient rivers/streams over substances of silt, gravel, or rubble.
Insect			
Prairie Leafhopper	Polyamia dilata	Special Concern	A prairie leafhopper prefers upland dry to dry mesic bluff prairies, sand prairies, or sandy barrens supporting prairie grasses.
Red-Tailed Prairie Leafhopper	Aflexia rubranura	Endangered	The red-tailed prairie leafhopper prefers dry to wet-mesic prairies with the host plant, prairie dropseed.
Lizard			
Western Slender Glass Lizard	Ophisaurus attenuatus	Endangered	The western slender glass lizard prefers oak savannas, dry-sand prairies, grasslands, and woodland edges.
Mammal			
Timber Wolf	Canis lupus	Endangered	The timber wolf prefers large remote contiguous blocks of mixed forest with low road densities.

Table 15. Upper La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Moth			
Newman's Brocade	Meropleon ambifusca	Special Concern	The newman's brocade has been found not to be habitat specific. Can be found in grassland, dry prairie, sedge meadow, and wetland areas.
Phlox Moth	Schinia indiana	Endangered	The phlox moth prefers pine/oak barrens and scrub oak habitat, as well as prairies and roadsides on sandy soil support the larval host plant, downy phlox. The moths are most often found on the bright pink or "fresh" blossoms of phlox.
Whitney's Underwing Moth	Catocala whitneyi	Special Concern	The whitney's underwing moth prefers prairie and hosts on the Amorpha canescens plant.
Natural Community			
Alder Thicket	Alder thicket		These wetlands are dominated by thick growths of tall shrubs, especially speckled alder. Among the common herbaceous species are Canada bluejoint grass, orange jewelweed, several asters, boneset, rough bedstraw, marsh fern, arrow-leaved tearthumb, and sensitive fern.
Oak Barrens	Oak barrens		Black oak is the dominant tree in this savanna community, but other oaks may also be present. Common understory species are lead plant, black-eyed susan, round-headed bush clover, goat's rue, june grass, little bluestem, flowering spurge, frostweed, false Solomon's-seals, spiderwort, and lupine.
Plant			
Bog Bluegrass	Poa paludigena	Threatened	Bog bluegrass prefers wet, mossy woods and also does well along springs and in tamarack bogs.
Bog Fern	Thelypteris simulata	Special Concern	Bog fern prefers boggy or lowland woods and thickets or on knolls in bogs.

Table 15. Upper La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Brittle Prickly-Pear	Opuntia fragilis	Threatened	Brittle prickly-pear is found in portions of the western and southern half of the state, where it grows in crevices and soil pockets of rock (especially rhyolite) outcrops and on dry sand prairies and barrens.
Clustered Sedge	Carex cumulata	Special Concern	Clustered sedge prefers dry to moist acidic soils and moist sandy soils in burned-over areas.
Crossleaf Milkwort	Polygala cruciata	Special Concern	Crossleaf milkwort prefers sandy, peaty meadows. These habitats are typically moist, sunny, acidic environments that may develop in low depressions or at the margins of emergent wetlands.
Dragon Wormwood	Artemisia dracunculus	Special Concern	Dragon wormwood prefers dry, sandy prairies.
Dwarf Milkweed	Asclepias ovalifolia	Threatened	
Long Sedge	Carex folliculata	Special Concern	Long sedge prefers moist, shaded situations such as mossy hemlock woods, lowland forests, shrub borders of bogs, and in the sphagnum mat of a bog thicket.
Prairie Fame-Flower	Talinum rugospermum	Special Concern	Prairie fame-flower prefers sandy soils of prairies and barrens and in pockets of thin poor soil between rocks.
Prairie Parsley	Polytaenia nuttallii	Threatened	Prairie parsley prefers dry prairies, railroad right-of-ways, and dry, grassy banks along rivers.
Rough Rattlesnake-Root	Prenanthes aspera	Endangered	Rough rattlesnake-root prefers dry prairies and barrens.
Shadowy Goldenrod	Solidago sciaphila	Special Concern	Shadowy goldenrod is endemic to the Driftless Area and prefers exposed sandstone cliffs.
Smooth-sheathed Sedge	Carex laevivaginata	Special Concern	
Virginia Meadow-Beauty	Rhexia virginica	Special Concern	Virginia meadow-beauty prefers wet sandy flats and drying lake borders.
Whip Nutrush	Scleria triglomerata	Special Concern	Whip nutrush prefers wet sandy swales in savannas, prairies or dunes.

Table 15. Upper La Crosse River Watershed Species of Concern

Common Name	Scientific Name	Status	Habitat
Yellow Gentian	Gentiana alba	Threatened	Yellow gentian has been observed in wet, sandy railroad prairie; thin soil on open and wooded ridges and blufftop; wooded ravine in clay soils and damp roadside on edge of woods.
Salamander			
Four-Toed Salamander	Hemidactylium scutatum	Special Concern	The four-toed salamander prefers sphagnum moss bogs and adjacent woodlands.
Snake			
Bull Snake	Pituophis melanoleucus	Special Concern	The bull snake prefers dry prairies, dry-mesic prairies, pine barrens and oak openings, primarily in southwestern Wisconsin.
Northern Ringneck Snake	Diadophis punctatus edwardsii	Special Concern	The northern ringneck snake prefers moist deciduous forests.
Timber Rattlesnake	Crotalus horridus	Special Concern	The timber rattlesnake prefers deciduous forests and croplands during the summer and steep, rugged bluffs and rocky outcrops during the spring and fall.
Turtle			
Blanding's Turtle	Emydoidea blandingii	Threatened	The blanding's turtle is found in sedge meadows, southern wet and southern wet-mesic forest, wet and wet-mesic prairie, open-water marshes, backwater sloughs, prairie potholes, and large ponds, slow-moving rivers and shallow lakes.
Wood Turtle	Clemmys insculpta	Threatened	The wood turtle prefers deciduous forests and open meadows along moderate to fast-moving streams and rivers.

References – Upper La Crosse River Watershed

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