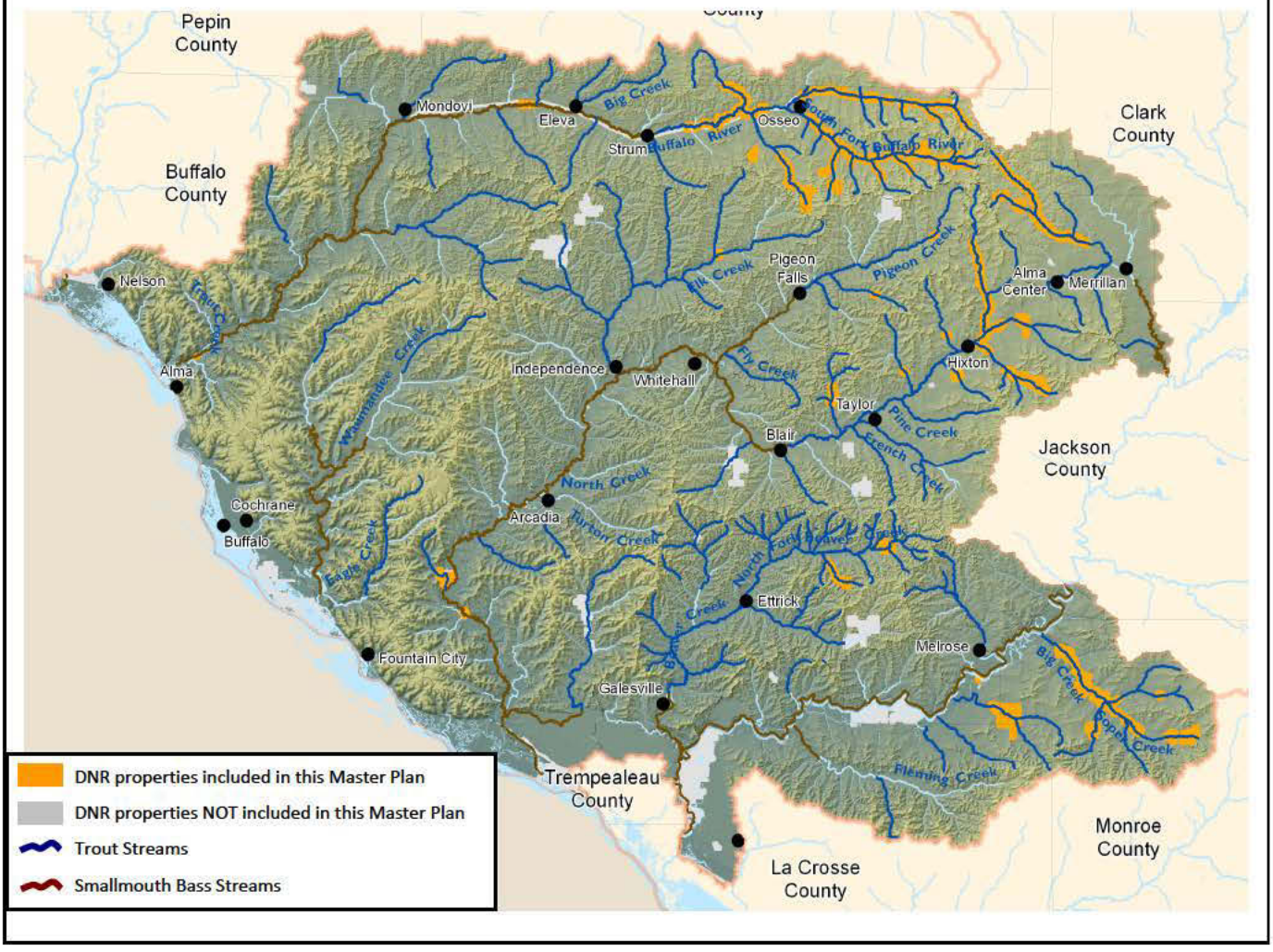
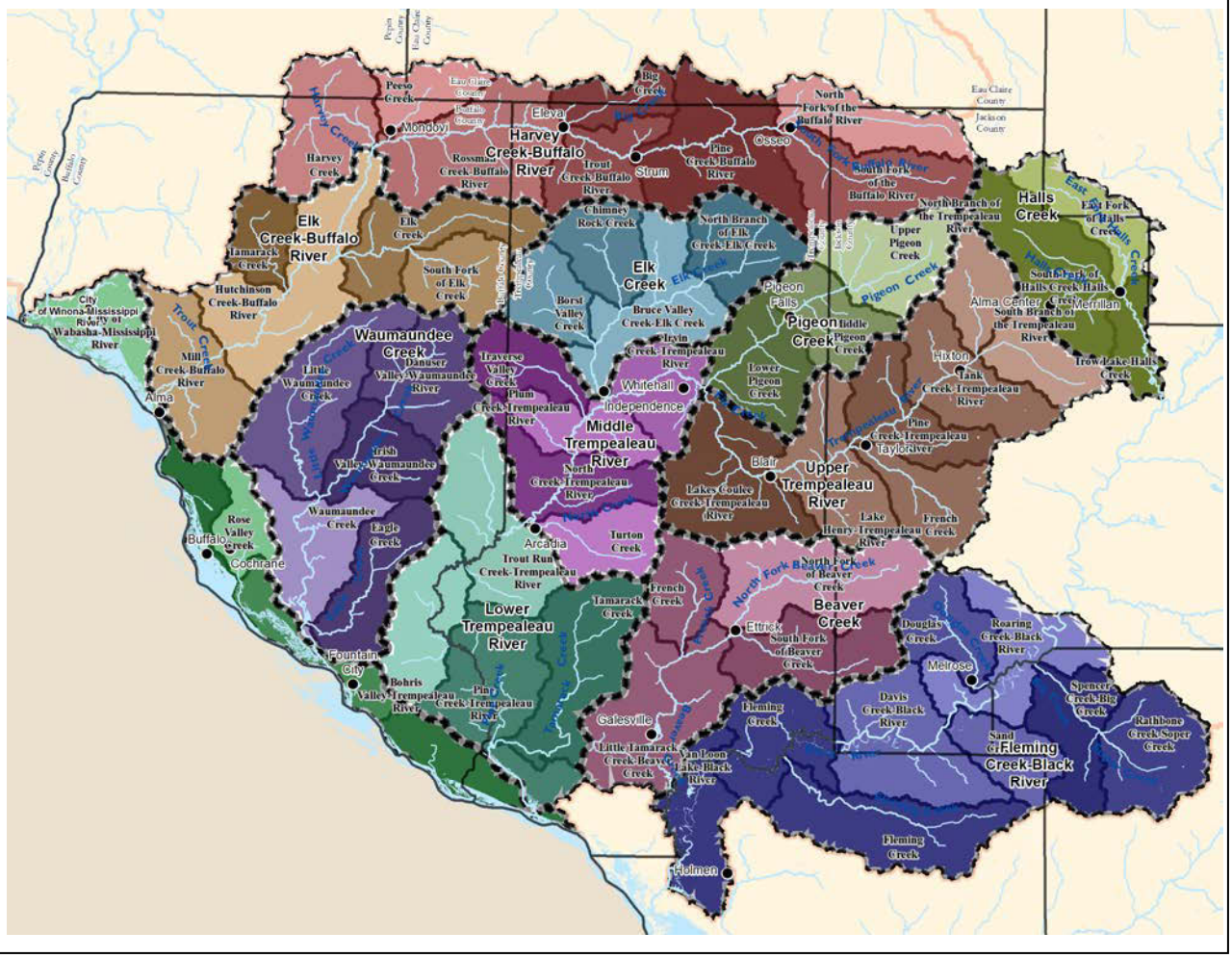
CHAPTER 5: BLACK RIVER REGION

Figure 5.1: Map of the DNR lands included in the master plan for the Black River Region.



Note: Most of the properties included in this master planning process are narrow strips along trout and smallmouth bass waters and cannot be seen at the scale of this map. To enable readers to see the properties, their boundaries have been significantly exaggerated.

Figure 5.2: Watersheds (HUC 10) and Sub-Watersheds (HUC 12) of the Black River Region.



1. OVERVIEW

a) Physical Environment

The topography of the Black River Region generally grades from gently rolling lands in the east portion (Clark and Jackson counties) to the high ridges and steep valleys of Buffalo County. Soils are dominated by windblown loess of varying thicknesses (up to a dozen feet on the ridges near the Mississippi River with less moving east) and alluvium in the floodplains. Bedrock is mostly Paleozoic sandstones and dolomites of Cambrian and Ordovician age. The region is found within the Western Coulees and Ridges landscape of Wisconsin. This part of the country is also known as the prairie-forest border forming a transition zone between the plains to the south and west and forests to the north and east. The steep hills and valleys support many coldwater streams influenced by groundwater levels and good drainage of the sandy soils.

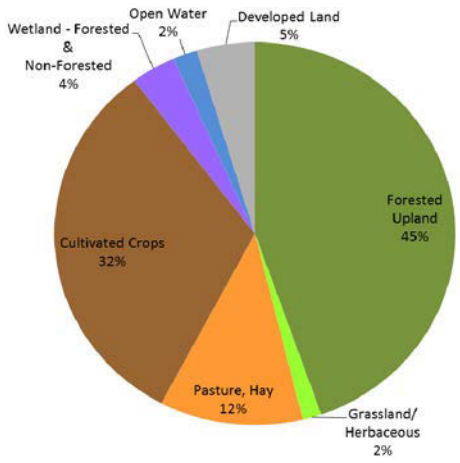
During the Late Wisconsin glaciation the Black River carried large quantities of meltwater along with enormous loads of outwash sand and gravel. As a result, the floodplain is significantly larger than the current river occupies, with the current river bed downcut into the former floodplain.

b) Land Cover and Use

Although agriculture plays a significant role in this planning region, especially in the eastern portions, upland forest is the most prevalent land cover. Most forests are managed to provide timber products ranging from firewood to sawtimber.

In general, the lowland areas with their wet soil types do not support high quality or valuable forest types for timber production. Lowland vegetation consists mainly of alder brush, willow, swamp hardwoods, red maple, birch, and some scattered tamarack. The uplands contain the species that are desirable for timber production. The dominant upland species are oak, jack pine, white pine and some aspen, depending upon location. As with the rest of the Driftless Area, this region contains few wetlands, most of which are confined to valley floors.

Figure 5.3: Land cover of the Black River Region.



c) Terrestrial Habitats

Common natural community types found in this region include southern dry, dry-mesic, and mesic forests, floodplain forest, emergent marsh, and dry cliff. Less common to rare natural communities include moist cliff, algific talus slope, shrub-car, southern sedge meadow, dry prairie, oak opening, and oak barrens. High quality natural communities of Driftless Area study stream properties can be found in Appendix C of the "Rapid Ecological Assessment for Driftless Area Streams" (Appendix 2).

d) Aquatic habitats

Along with the Wisconsin and Chippewa rivers, the Black River is among the Upper Midwest's most ecologically important large river systems because of the wealth of aquatic life it supports, the many excellent examples of native vegetation (aquatic, wetland, and upland) that are associated with the river corridor, and the numerous populations of rare species that are found here.

The majority of streams in the Black River Region are low to moderate gradient, with shifting sand bottoms and highly erodible banks. Some streams contain both brook and brown trout, with brook trout as the dominant species, and experience varying degrees of natural reproduction of both species. Some streams require additional stocking of domestic or wild strain trout to maintain fishable populations.

In the eastern portion of the region, streams are slightly acidic and relatively infertile with a lower biodiversity of forage fish species. Primary forage species in this area are darters, dace, stickleback, mud minnows, American brook lamprey, and white suckers. Fertility, biodiversity, and occurrences of hard bottom substrates and pool/riffle sequences increase the further west the stream location as gradient and presence of carbonate geology in the watershed increases. White sucker populations generally tend to increase and more creek chubs, fathead minnows, and common shiners are added to the species present.

Note: Detailed descriptions of the sport fishery can be found in the next section. A more complete discussion of the aquatic features and water management goals can be found in the watershed basin reports developed by the DNR.[1]

e) Threatened, Endangered, and Special Concern Species

To date, there are 60 known rare species that occur within the study stream properties of this region. Included within this list are 1 amphibian, 8 birds, 12 fish, 1 mammal, 5 reptiles, 13 invertebrates, and 20 plants. Of these, 5 are state Endangered, 21 are state Threatened (includes 1 Federally Threatened plant), and 34 are special concern. For a complete list of these species by property, see in Appendix C of the "Rapid Ecological Assessment for Driftless Area Streams" (Appendix 2). For an explanation of the state and global ranks, as well as state status, see Appendix A of the "Rapid Ecological Assessment for Driftless Area Streams."

f) Invasive Species and Other Species of Management Concern

None noted.

g) Social and Recreation Issues

In the Black River Region, the majority of angling effort is local and pressure is light to moderate. There are several possible reasons for these characterizations. First, the area has an overall low population density and few large population centers. Secondly, there are plenty of more popular trout streams close to population centers to the north, south, and east. To the west are the Driftless streams of southeastern Minnesota. Access also plays a role. Most of the public lands allowing ample access to trout streams are located in a very small part of the region in the far northeast in Trempealeau and Jackson Counties.

Many of these same reasons apply to smallmouth bass fishing – low population density, more popular warmwater fishing destinations (such as the Mississippi River), and public access. Additional reasons for localized anglers and light fishing pressure for smallmouth are the few waters in the region where smallmouth are present, namely the Black River and lower Trempealeau River, and limited motorboat usage in these rivers. There simply isn't the area or water depth conducive to the use of medium to large size watercraft in the Black or lower Trempealeau River.

Although some other minor recreational uses compatible with angling occur on some of the properties included in this master plan (e.g., dog walking, bird watching, and geocaching), the size, shape, and soils of most properties restrict their recreational potential. Further, lands on which the Department has acquired a fishing access

[1] Watershed Basin Reports are posted on the DNR's web (dnr.wi.gov); search for "basins."

easement often do not allow other recreational uses. On some of the parcels that the Department owns, the agency has entered into land use agreements with local clubs that allow snowmobiling on designated trails.

f) Cultural Resources

Archaeological sites representing all of the recognized prehistoric culture periods are found throughout the region, from Paleo-Indian (10,000-8,000 BC), through Archaic (8,000-500 BC), Woodland (500 BC-1000 AD), Mississippian (900-1000 AD) and Oneota (1000-1650 AD). Associated sites include Native American camps, villages, burial mounds, rock art, and more. In addition to numerous conical (round) burial mounds, the area evidences many *effigy* mounds, shaped to resemble a variety of animal forms. Examples of Mississippian *pyramidal* or flat-topped mounds are located within the village of Trempealeau.

Historic period archaeological sites (ca. 1650-present) include farmsteads, dams, sawmills, cemeteries, and others. The area's river towns, villages, and rural roads are dotted with historic residences, businesses, bridges, and other early structures, many used continuously to this day.

Whether populated by ancient Indian peoples or more recent arrivals, the area's numerous archaeological sites and historic structures reflect a lengthy record of settlement, as well as intensive utilization of the diverse water, mineral, plant, animal, and other resources characteristic of the region.

2. PUBLICLY ACCESSIBLE LANDS in the BLACK RIVER REGION

a) DNR and other public and private conservation lands[2]

i) By Watershed and sub-watershed (acres):

	Properties included in this Master Plan															
	Fisheries Management Program															
	State Fishery Areas		Remnant Program		Streambank Protection		Scattered Habitat		Other*		Wildlife Program	End. Resources Program	TOTAL for properties included in this Master Plan	Other DNR Lands	Other Public & Private Conservation Lands**	TOTAL
	Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease						
Beaver Creek	0	0	70	22	0	0	0	0	0	0	190	0	282	1,120	0	**1,402**
South Fork of Beaver Creek														1,120		1,120
North Fork of Beaver Creek			70	22							190					
City of Winona - Miss. River	0	0	0	0	0	0	0	0	0	0	0	0	0	3,976	21,681	**25,658**
Buffalo City - Mississippi River														2	4,801	4,802
Fountain City - Miss. River														2,655	1,250	3,905
Rose Valley Creek															11	11
City of Winona - Miss. River														735	7,075	7,810
City of Wabasha - Miss. River														584	8,545	9,129
Elk Creek	0	0	0	0	0	0	0	0	0	0	23	0	23	1,921	0	**1,944**
Borst Valley Creek														1,294		1,294
NB of Elk Creek-Elk Creek											23					
Chimney Rock Creek														627		627
Elk Creek - Buffalo River	0	0	0	0	0	0	0	0	0	0	0	0	0	578	0	**578**
South Fork of Elk Creek														10		10
Mill Creek - Buffalo River														568		568
Fleming Creek - Black River	1,458	4	21	8	685	29	0	0	4	0	0	0	2,209	5,779	3,874	**11,863**
Rathbone Creek - Soper Creek	493		21						4					13	1,922	2,453
Spencer Creek - Big Creek	965	4														969
Van Loon Lake - Black River														3,717	1,793	5,510
Sand Creek					685	29									159	874
Roaring Creek - Black River				8												8
Davis Creek - Black River														1,992		1,992
Fleming Creek														58		58
Halls Creek	813	46	0	0	0	0	0	0	0	0	0	0	858	125	7,376	**8,359**
SF of Halls Creek - Halls Creek	813	46												34		892
East Fork of Halls Creek															6,003	6,003
Trow Lake - Halls Creek														91	1,373	1,464

[2] Watersheds and sub-watersheds without any DNR lands are not listed.

	Properties included in this Master Plan															
	Fisheries Management Program										Wildlife Program	End. Resources Program	TOTAL for properties included in this Master Plan	Other DNR Lands	Other Public & Private Conservation Lands**	TOTAL
	State Fishery Areas		Remnant Program		Streambank Protection		Scattered Habitat		Other*							
	Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease						
Harvey Creek - Buffalo River	1,565	194	183	224	0	111	0	20	0	0	312	0	2,609	604	0	3,213
Rossman Creek - Buffalo River				29				20						135		184
North Fork of the Buffalo River	467	90												57		614
Trout Creek - Buffalo River														50		50
Pine Creek - Buffalo River			183	195		111					306			64		859
Harvey Creek														265		265
South Fork of the Buffalo River	1,098	104									6			34		1,242
Lake Arbutus-Black River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Lake Arbutus														0	2	2
Lower Trempealeau River	0	0	0	0	0	0	0	0	0	0	21	414	435	1,091	787	2,313
Bohris Valley - Tremp. River											11	414		29		454
Pine Creek - Tremp. River											10			472	787	1,268
Tamarack Creek														579		579
Trout Run Creek - Tremp. River														11		11
Pigeon Creek	0	0	0	0	0	0	0	0	0	0	22	0	22	592	0	615
Upper Pigeon Creek											11			592		604
Middle Pigeon Creek											11					
Upper Trempealeau River	783	88	239	1	0	0	0	0	0	0	146	0	1,258	1,419	0	2,676
SB of the Trempealeau River			180	1												181
NB of the Trempealeau River	181	88														
Pine Creek-Tremp. River											11					
Lakes Coulee Creek - Tremp. R.														814		814
Lake Henry - Tremp. River											124			605		729
Tank Creek - Tremp. River	602		59								11					673
Waumaundee Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	9	2	11
Waumaundee Creek														9	2	11
TOTAL	***4,619***	***332***	***513***	***255***	***685***	***140***	***0***	***20***	***4***	***0***	***715***	***414***	7,696	***17,215***	***33,723***	58,634

* Includes nonpoint easements, wetland mitigation sites, watershed management projects, public access sites, gift lands, and rearing stations.

** Includes conservation lands owned and eased by federal agencies, counties, private conservation groups and other similar organizations, as described in the Protected Areas Database housed in the Conservation Biology Institute (http://databasin.org/protected-center/features/PAD-US-CBI).

ii) By DNR Property (acres):

Black River Region	**Fee**	**Easement**	**Total**
Fish Management Program			6,568
State Fishery Areas			
BIG CREEK FISHERY AREA	1,459	4	1,463
BUFFALO RIVER FISHERY AREA	1,564	194	1,758
HALLS (STOCKWELL) CREEK FISHERY AREA	812	46	858
NORTH BRANCH TREMPEALEAU RIVER FISHERY AREA	180	89	269
SMITH POND FISHERY AREA	96	-	96
TANK CREEK FISHERY AREA	507	-	507
Remnant Habitat Projects			
REM-BLACK RIVER	-	8	8
REM-BUFFALO RIVER	81	126	207
REM-KING CREEK	13	18	31
REM-PINE CREEK	101	68	169
REM-RATHBONE CREEK	21	-	21
REM-S BRANCH TREMPEALEAU RIVER	239	1	240
REM-WASHINGTON COULEE	70	22	92
Stream Bank Protection	684	141	825
Other*	4	20	24
Natural Areas Program			414
STATEWIDE NATURAL AREA	414	-	414
Wildlife Management Program			714
Scattered Habitat, Statewide Habitat, Scattered Forest, and Extensive Habitat lands	714	-	714
Total	**6,959**	**737**	**7,696**

** Includes nonpoint easements, scattered habitat lands, wetland mitigation, watershed management projects, public access sites, and rearing stations.*

b) Habitat management of DNR lands.

i) In-stream management

In stream habitat work in this region follows the objectives and strategies described in Chapter 2.

ii) "Backland" habitat management

Given the scale limitations of available geospatial land cover data, it is not feasible to accurately describe the land cover in most of the Department's land holdings that are small and narrow. As such, the following section simply lists the habitat types that are present on the properties in the Black River Region that are covered in this master plan and their approximate coverage, based on property managers' estimates.

Habitats Present	**Approx. Coverage**
Prairies, grasslands, and oak opening (savanna) habitats	5%
Wetlands (inc. lowland forests)	54%
Forests (upland)	41%
Agricultural lands	<1%
	100%

These habitats are managed following the strategies described in Chapter 2.4, unless noted below.

iii) Description of any unique management strategies/techniques/goals used in this region.

In many of the trout waters here, the Department has shifted in-stream techniques to the use of root wads, backwaters, and vortex weirs in lieu of riprap and LUNKER structures. In addition, management focuses more on removal of floodplain sediment rather than thin spreading of deposits. The formerly accepted practice of grading and sloping of deposited sediments is now often replaced with sale and removal of these high quality soils.

iv) Description of areas of special management interest in this region.

Primary Sites

These sites warrant high protection and/or restoration consideration during the development of the property master plan. See Appendix G of the "Rapid Ecological Assessment for Driftless Area Streams" (Appendix 2) for management considerations of the rare species and high-quality natural communities by Primary Site.

Sand Creek Pines and Barrens (within the Sand Creek Pines State Natural Area and Sand Creek Streambank Protection Area in Monroe and Jackson counties. 483 acres).

Sand Creek Pines State Natural Area (SNA) lies mostly in the center of the larger primary site, occupying 150 acres along Sand and Cascade Creeks. The SNA features an undeveloped, mile-long corridor containing Sand Creek, a cold, fast, sandy-bottom, soft water stream that supports native brook trout. An alder thicket borders the stream with fen-like seepages along its banks. White pine is dominant on the north-facing slopes, with occasional groves of red pine; jack pine, oaks, and red maple also present. Scattered prairie species are found under canopy openings. The level uplands away from the stream are a mix of overgrown jack pine-oak barrens and old field, with dense prickly-ash and American hazelnut in the understory. Cascade Creek is a feeder stream that has a 10-foot-high waterfall. The forest is more mesic near the waterfall, with second-growth red maple, basswood, and yellowbud hickory. Sand Creek Pines was designated a State Natural Area in 2002. The rest of the primary site is within Sand Creek Fishery Area, and occupies 333 acres on flat and sandy terrain south of the SNA.

Buffalo River Trail Prairies State Natural Area (within the Buffalo River Fishery Area, Buffalo River Trail Prairies State Natural Area, and Buffalo River State Trail in Buffalo, Trempealeau, and Jackson counties. 152 acres).

Buffalo River Trail Prairies State Natural Area (SNA) contains four high quality dry-mesic prairie remnants on sandy soils along the Buffalo River State Trail. The four prairie remnants stretch between Eleva and Osseo. One is located west of Eleva, two are found east of Strum, and the largest occurs along a five-mile stretch of trail east of Osseo. The prairies contain numerous species with grasses including big and little bluestem and Indian grass. Showy forbs include stiff goldenrod, prairie tickseed, spiderwort, and flowering spurge. Buffalo River Trail Prairies was designated a State Natural Area in 2002.

La Crosse River Pine-Oak Barrens (within the La Crosse River Fishery Area. 113 acres)

This primary site harbors a degraded barrens community and riparian wetland along the La Crosse River. The barrens lie on mostly flat terrain on a sandy terrace above the river. There is evidence of a major disturbance in the past 10-15 years: vegetative cover values in the barrens are extremely variable, ranging from open to brushy (with many downed trees) to 70-80% mature tree canopy. There are elements of both Pine Barrens and Oak Barrens here: Dominant trees are black oak, jack pine, red pine, and red maple, most of which are 6-12 inches in diameter at breast height (dbh), though some black oaks approach 24 inches dbh. The shrub layer is relatively dense, and is dominated by American hazelnut, common blackberry, chokecherry, and tree saplings. The ground layer is dominated by Pennsylvania sedge, along with a diverse suite of sun-loving grasses and forbs in canopy openings, including big bluestem, black-eyed Susan, round-headed bush-clover, and dotted horsemint.

Moving down to the river, one may encounter 10- to 20-foot tall sandy banks, mostly vegetated. The wetland corridor along the river lies 10-20 feet lower in elevation than the adjacent sand terrace, and is bounded by a steep, mostly vegetated sandy bank. The wetland is comprised of Alder Thicket with a narrow band of reed canary grass in the river bends. Other wetland plants found here include lake sedge, spotted Joe-Pye-weed, orange jewelweed, and arrow-leaved tear-thumb.

State Natural Areas

In addition to those mentioned above, the following State Natural Area is part of this Master Plan:

Trempealeau River Meadow – Buffalo County, 443 acres.

Trempealeau River Meadow is a high quality wetland complex featuring a large undisturbed sedge meadow with a diversity of species. Dominant plant species are tussock sedge, fox sedge, blue-joint grass, cord grass, fowl manna grass, and rice cut grass. Forbs include Canada anemone, marsh pea, panicled aster, swamp milkweed, spotted joe-pye weed, American water-horehound, and blunt-leaf bedstraw. Adjacent to the meadow is a shallow marsh with numerous emergent aquatics such as cat-tails, river bulrush, common rush, wool-grass, common bur-reed, swamp loosestrife, bulbet water-hemlock, wild rice, and broad-leaved arrowhead. At four locations the water deepens in old oxbows of the Trempealeau River forming deep-water marshes with an abundance of submerged aquatic species. An important aspect of these communities is the absence of invasive species. Large numbers of grassland birds, which are declining in Wisconsin, nest in the area. Species include bobolink, savannah sparrow, eastern meadowlark, sedge wren, and LeConte's sparrow, a Wisconsin species of concern. Additional rare birds include the state-threatened great egret, great blue heron, bald eagle, and the red-headed woodpecker. Trempealeau River Meadow is owned by the DNR and was designated a State Natural Area in 2002.

c) Recreation facilities in this region.

See Appendix 3.

d) Other issues and challenges in this region.

As indicated in the previous social and recreational issues segment of this chapter, access is unevenly distributed in the region. At the end of the chapter, Figure 5.29 shows the regional availability of publically accessible miles of trout water and that access is concentrated in the far northeast. Existing property boundaries were established years ago around a small number of individual streams or groups of streams in close proximity to one another (usually a main stem and associated tributaries). Despite the fact that there are many miles of high quality trout streams elsewhere in the region, the Department has not acquired many acres in fee or easements, nor established many acquisition projects, in much of the region. In part this is likely due to the relatively high cost of land in the region.

Since guaranteed public access to a stream is a requirement for investing trout stamp funds in habitat restoration projects, the geographical extent of these projects was limited as well. However, in the past few years partners to DNR, such as Trout Unlimited or rod & gun clubs, have purchased fishing easements outside of existing DNR property boundaries. This has enabled the DNR to expand trout stamp projects to streams not eligible in the past. At present, this strategy continues. Examples include Eagle, Waumandee, and Swinns Valley Creeks in Buffalo County, and French Creek in Jackson County.

Other concerns are cranberry cultivation and recent expansion of non-metallic mining. Low, wet origins of many of the region's trout streams, especially in the eastern part, are ideal for cranberry cultivation and these headwaters are at risk of impoundment to provide water reservoirs necessary for cranberry production. Impoundment of cold water tributaries increases water surface area and residence time allowing solar radiation to warm the water. Once this warmer water is returned to the stream, the increase in water temperature can decrease suitability for trout. Structures used to impound waters also create barriers to trout migration isolating spawning and nursery areas.

Recently there has been a dramatic increase in the number of frac sand mines, particularly in the Black River Region. Potential problems associated with sand mining operations include: contamination of ground water, decreased stream flows from high capacity wells, increased sedimentation due to runoff from open mines and stormwater ponds, increased stream temperatures, and impacts to fish and invertebrates. For a more complete discussion see Chapter 2.

For smallmouth bass in the Black River, mercury contamination is a regional concern. The entire Black River basin (including those segments of river not within the Driftless Area) contains over 84,000 acres of wetlands. Chemical properties that exist in these wetlands change mercury into a more available form for concentration in aquatic organisms. Smallmouth bass, and other fish, in contact with receiving waters from the Black River basin are in contact with this available form of mercury and may contain concentrations high enough to warrant consumption advisories.

3. Report card on Trout and Smallmouth Bass streams in the Black River Region

Figure 5.4: Overview report card of the Black River Region.

Grade methods are detailed in Chapter 2. Grades show each watershed's place in the distribution of all Driftless watersheds. An **A** means the value is in the upper quartile (75%-100%) or upper quintile (80%-100%) of the distribution, whereas an **F** means the value is zero or is in the lowest quintile (0-20%) of the distribution. Blank cells indicate "not applicable."

			Watersheds											
			Beaver Creek	City of Winona - Mississippi R	Elk Creek	Elk Creek - Buffalo River	Fleming Creek - Black River	Halls Creek	Harvey Creek - Buffalo River	Lower Trempealeau River	Middle Trempealeau River	Pigeon Creek	Upper Trempealeau River	Waumaundee Creek
Brook Trout	**Stream Health and Habitat Quality**	Natural Habitat Potential	B		B	B	C	A	A	C	B	A	A	B
		Land Use Stress	A		B	A	A	B	B	A	C	A	A	A
	Sport Fishery Performance	Stock (5" up to 8")	B		C	F	B	B	B	F	D	F	A	C
		Quality (8" up to 12")	B		A	A	C	F	B	D	C	C	C	B
		Memorable (12" +)	F		F	F	F	F	F	F	F	F	F	F
	Projected resilience to climate change		A	C	A	A	A	B	A	A	B	A	A	A
Brown Trout	**Stream Health and Habitat Quality**	Natural Habitat Potential	D		F	B	F	F	F	D	D	F	F	A
		Land Use Stress	B		D	F	A	A	C	F	F	A	A	F
	Sport Fishery Performance	Stock (6" up to 10")	F		F	F	F	F	F	F	D	F	F	F
		Quality (10" up to 15")	F		F	F	F	F	F	F	F	F	F	F
		Memorable (15" +)	F		F	F	F	F	F	F	F	F	F	F
	Projected resilience to climate change		A	D	A	A	A	C	A	A	A	B	A	A
Small-mouth Bass	**Stream Health and Habitat Quality**	Natural Habitat Potential	D	C	F	C	A	F	F	A	C	F	D	D
		Land Use Stress	C	A	D	D	D	F	D	D	D	F	F	A
	Sport Fishery Performance	Stock (8" up to 14")	F		F	F	F	B	F	D	F	F	F	F
		Memorable (14" +)	F		F	F	F	F	F	D	F	F	F	F
	Projected gain from climate change		C	D	D	D	C	D	C	B	D	B	C	B
Trout Stream Habitat	**Thermal resilience of trout streams**		A		B	A	A	C	D	C		D	B	B
	Total miles of stream restoration		F		D	F	B	D	B	F	F	F	B	F
Recreation	**Angling opportunities**	Percent of trout stream miles with public access	D		D	F	B	A	A	C	F	D	C	D
		Percent of smallmouth bass stream miles with public access	F	A	F	D	B	C	B	C	F	F	F	F
	Supply relative to demand	Miles of publicly-accessible trout and SMB streams per 100K people within a 1-hour drive	C	D	C	D	A	A	A	B	F	D	B	D

a) Brook Trout

i) *Stream Health and Habitat Quality*

Figure 5.5 depicts, by sub-watershed, the current natural habitat potential (top panel), land use stress (middle panel), and probability of occurrence (lower panel) for brook trout in the region.

Natural Habitat Potential

Natural habitat quality within the region is very good to excellent with the northern and eastern portion of the region (in particular western Jackson County) harboring some of the best habitat potential in the entire Driftless Area. This high level of habitat potential is reflected in the region's fishery - these sub-watersheds are dominated by brook trout.

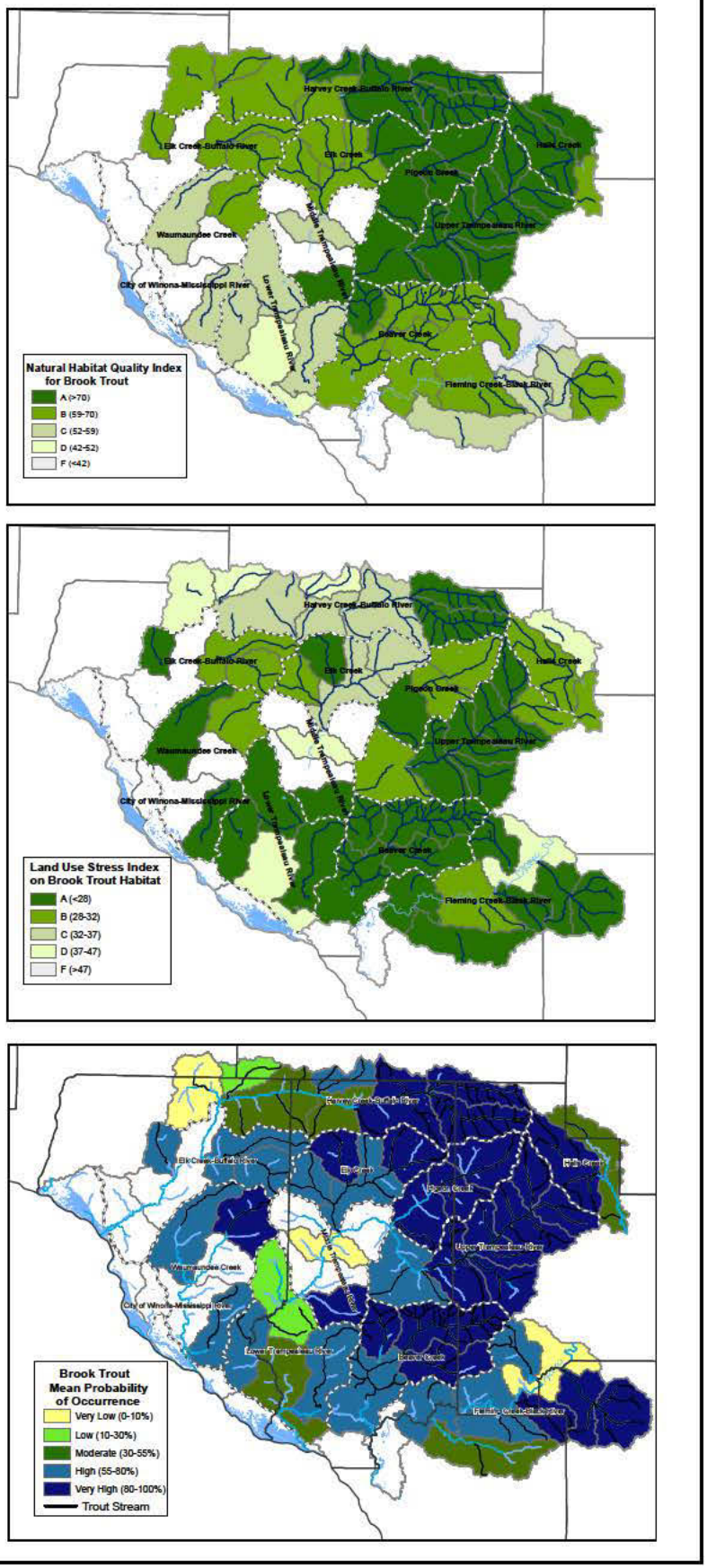
Land Use Stress

A majority of sub-watersheds here rank well for brook trout because of the heavy forest cover, relatively limited amount of cattle, and low population density which limits the amount of impervious surfaces. The region is characterized by few large population centers and it is no coincidence that anthropogenic stress is less in the eastern part of the region because this is where most of the public land holdings occur. Low, wet soils in eastern stream bottoms also limit suitability for row crops. Moving further west in the region increases potential to plant crops right up the water's edge. Soil fertility also increases from east to west promoting agricultural practices over timber production.

Probability of Occurrence

Not surprisingly, given the high level of natural habitat and low level of land use stress, many of the sub-watersheds in the region have a high to very high probability of supporting brook trout (83% of the region's 48 sub-watersheds have high or very high occurrence probabilities).

Figure 5.5: Natural habitat potential, land use stress, and probability of occurrence for brook trout in the Black River Region.



ii) Sport Fishery Performance

Electrofishing catch per unit of effort (CPE) is an excellent index of adult trout abundance in Wisconsin streams. For a detailed discussion of electrofishing survey methods see Chapter 2.

Figure 5.6 shows median catch rates, expressed as number of fish captured per mile of stream surveyed, for brook and brown trout. As can be seen, this region is heavily dominated by brook trout. The best angling opportunities exist for stock (5 – 8") and quality (8 – 12") brook trout. Brown trout are much less available to anglers. As with most streams in the Driftless Area, there are only limited numbers of memorable size trout of either species.

Figure 5.7 maps the densities of stock, quality, and memorable size brook trout in the sub-watersheds. Interestingly, some sub-watersheds contain more quality size fish than stock size. It is possible that the upper end of the entire watershed harbors more natural reproduction and smaller adults, with larger adults located lower in the lower end where habitat is more suitable for adults or increased fertility allows greater availability and diversity of food items, thus promoting greater growth. Stocking of catchable size trout may also increase presence of larger fish in some sub-watersheds as well.

Figure 5.6: Brook and brown trout abundance in the Black River Region.

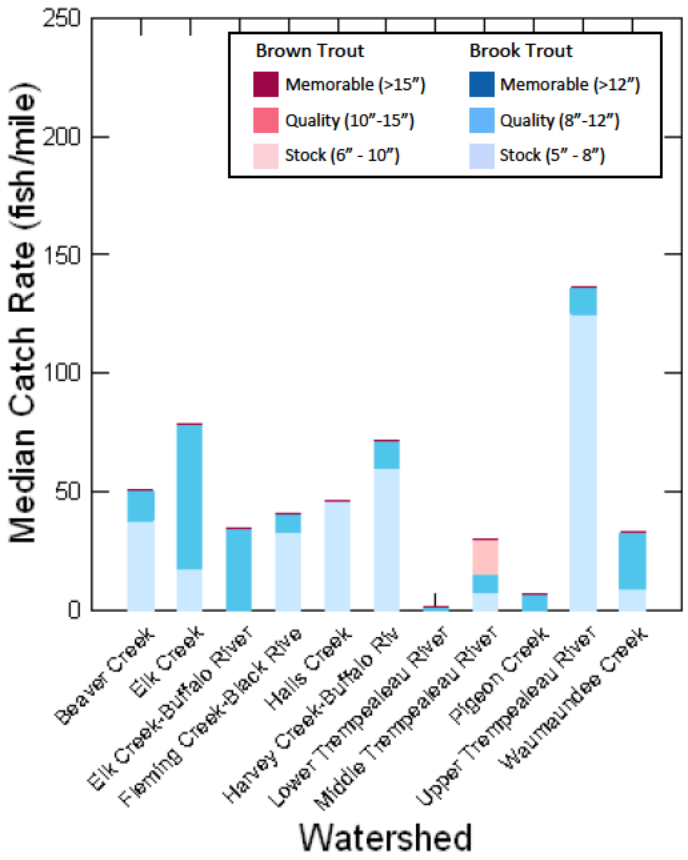
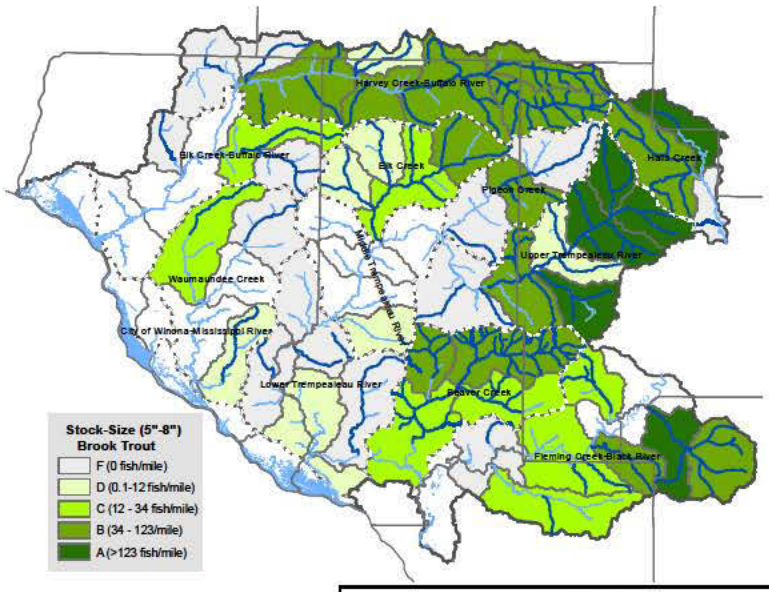
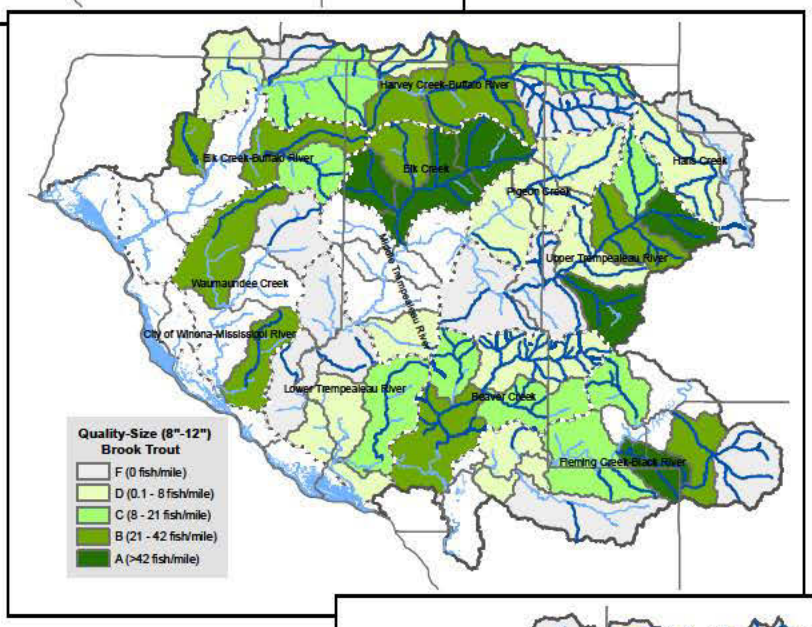
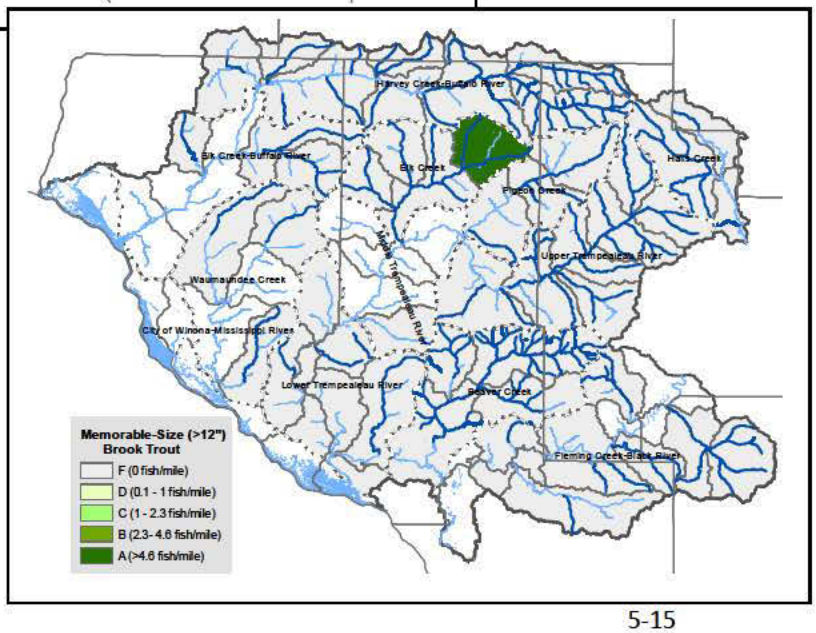


Figure 5.7: Brook trout density – stock, quality, and memorable fish in the Black River Region.







iii) Projected Resilience of Brook Trout to Climate Change

This RPA utilizes these newest USGS Stream model outputs to evaluate impacts of global warming on future distributions of brook and brown trout and smallmouth bass. A more complete discussion of the methods and analysis can be found in Chapter 2. For each trout species, the RPA examines future distributions by classifying each stream reach into three categories: stable, at risk, and lost. Figure 5.8 shows projected effects of climate warming on future brook trout distribution. Projections show a substantial loss of miles of brook trout water within the region. However, compared to other regions in the Driftless Area, streams in the Black River Region are projected to fare much better overall into the middle of the century (Figures 2.33 and 5.9). In fact, the Fleming Creek watershed holds the most brook trout stream miles classified as "stable (40.8 miles) in the entire Driftless Area. The region could act as a core "reserve" area for brook trout in the future. In particular, the contiguous Fleming Creek, Beaver Creek, and the Upper Trempealeau River watersheds will likely be critical in future management of brook trout in Wisconsin.

Figure 5.8: Projected climate effects on future brook trout distribution in the Black River Region (2046 to 2065).

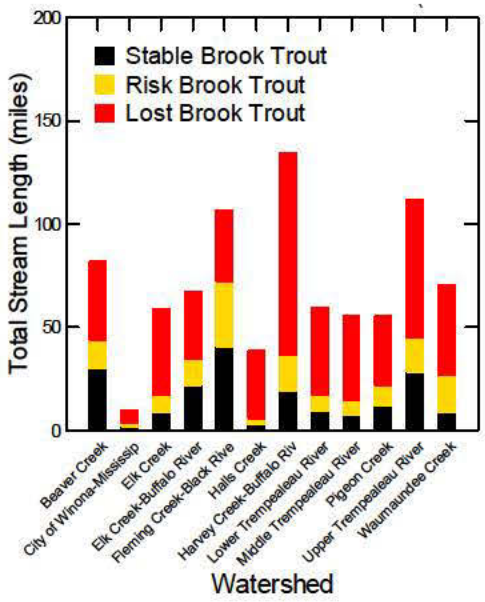
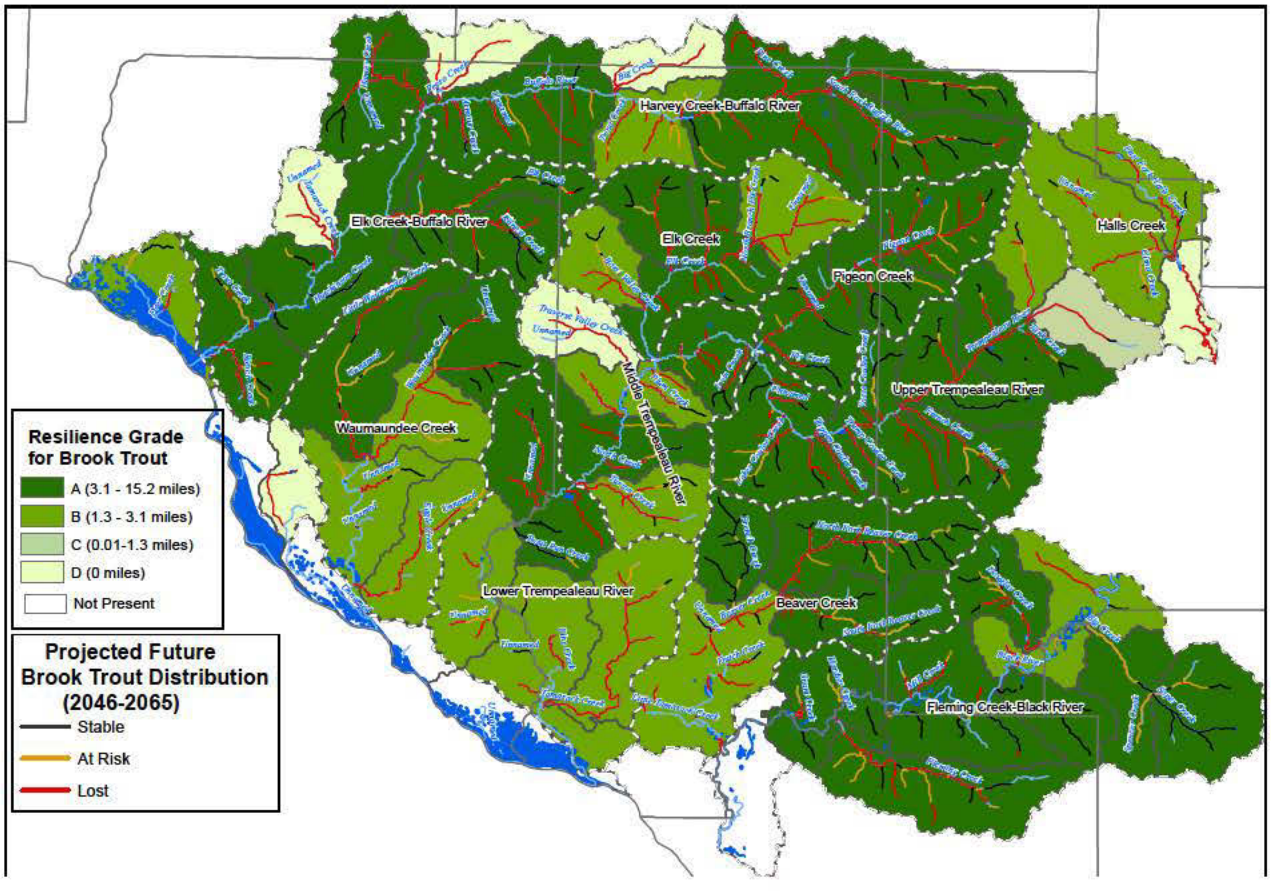


Figure 5.9: Projected future brook trout distribution and resilience in the Black River Region.



b) Brown Trout

i) *Stream Health and Habitat Quality*

Figure 5.10 depicts, by sub-watershed, the current natural habitat potential (top panel), land use stress (middle panel), and probability of occurrence (bottom panel) for brown trout in the region.

Natural Habitat Potential

Brown trout habitat quality generally increases moving west geographically in the region. Brown trout are less thermally sensitive than brook trout and annual average air temperatures increase from east to west. Also increasing east to west are stream gradient and presence of carbonate geology. Higher gradient streams have greater potential for coarse sediment, harder bottoms and more pool/riffle sequences. More carbonate geology tends to increase stream fertility and, when combined with warmer stream water temperatures, increases biodiversity of trout food items such as forage fish species and invertebrates. These stream conditions are more favorable for brown trout.

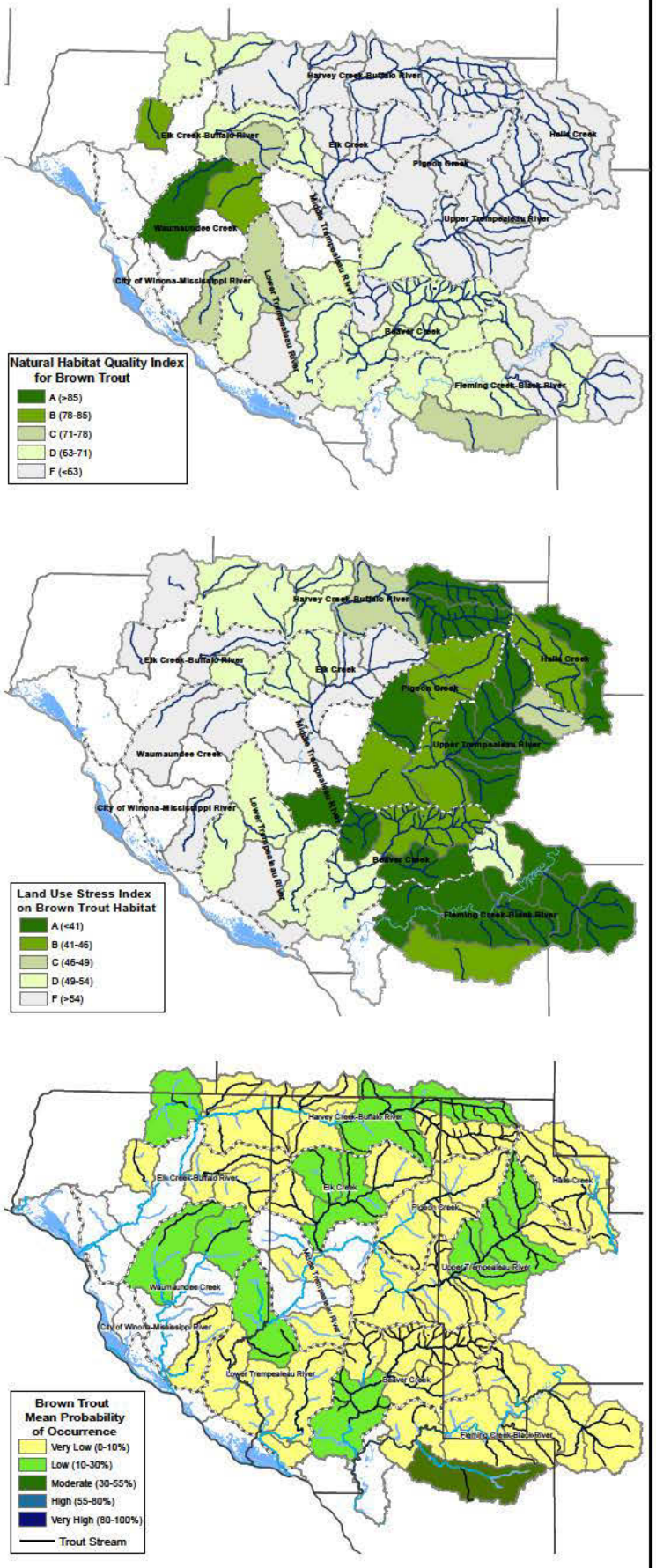
Land Use Stress

Brown trout fare much better overall in this category than compared to natural habitat potential. As with brook trout, a major factor influencing human induced stress here is forest land cover and low levels of agricultural row crops. The region is characterized by low population density and very few large population centers. Anthropogenic stress is less in the eastern part of the region due to the public land holdings and wet soils that limit suitability for row crops. Soil fertility also increases from east to west promoting agricultural practices over timber production.

Probability of Occurrence

Despite the low level of land use stress, because of the limited natural habitat potential, most of the sub-watersheds in the region have only a low to very low probability of supporting brown trout.

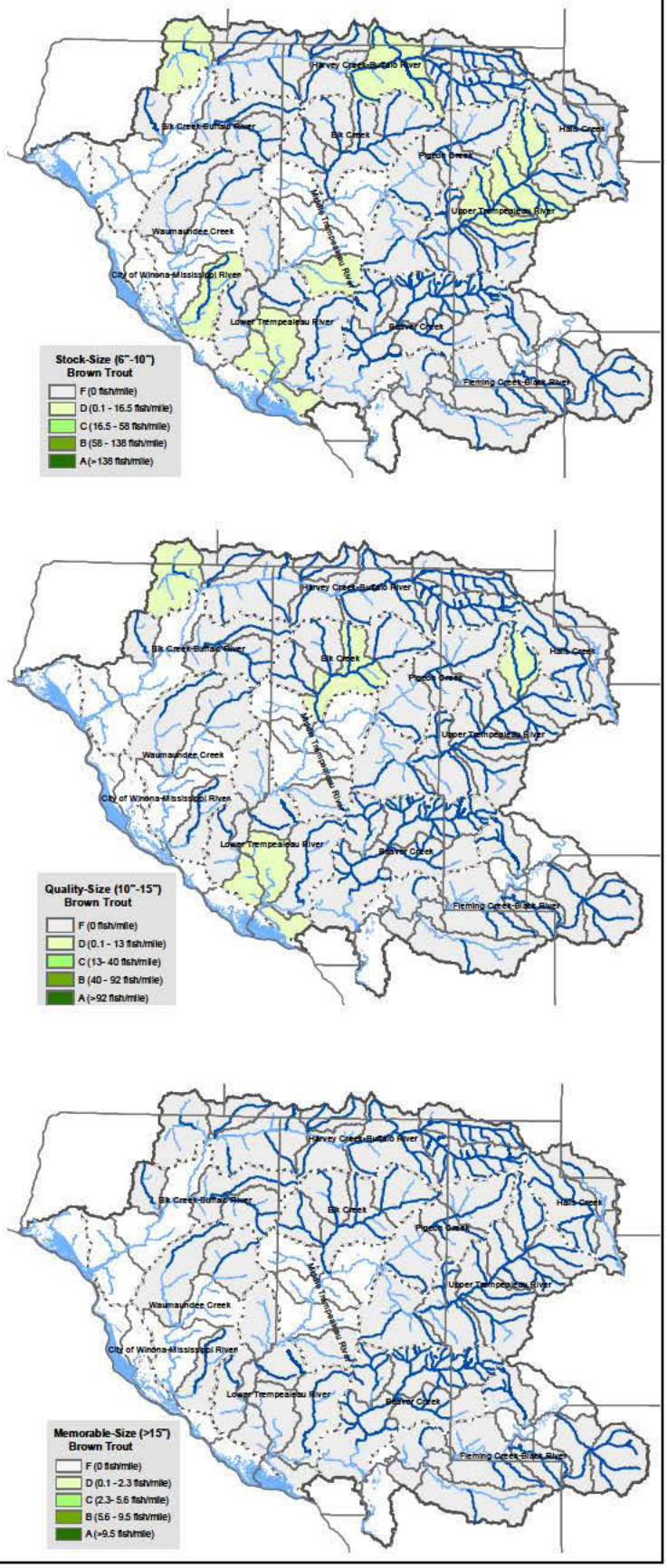
Figure 5.10: Natural habitat potential, land use stress, and probability of occurrence for brown trout in the Black River Region.



ii) Sport Fishery Performance

Figure 5.11 depicts where different sized brown trout have been collected in stream surveys. Consistent with the projected low to very low probability of brown trout occurrence, brown trout have been recorded in only a few streams here and at low levels. Interestingly, despite the Fleming Creek sub-watershed having the highest probability of supporting brown trout in the region, the median values for stream survey collection efforts is zero (albeit the median estimate is from only one survey station).

Figure 5.11: Brown trout density – stock, quality, and memorable fish in the Black River Region.



iii) *Projected Resilience of Brown Trout to Climate Change*

Figure 5.12 shows the projected impacts on the miles of stream that brown trout will occupy at the middle of the century due to climate change. Fish distribution models incorporating climate change project that brown trout will be significantly more resilient to climate warming than brook trout. However, given that brown trout have a low probability of occurring in the region (Figure 5.10) and that stream survey results show few streams with brown trout (Figure 5.11), the USGS stream model likely overestimates the miles of brown trout streams in this region (Figure 5.12). That is, the initial "starting point" for the number of miles of brown trout streams in each of the watersheds is considerably higher than reality. Despite this overestimate, the projected proportional loss of brown trout is credible and is consistent with the results from the other regions. Thus, it is likely that the Harvey, Halls, and Pigeon Creek watersheds will lose a greater proportion of their brown trout than the Beaver, Lower Trempealeau, and Waumaundee Creek watersheds.

Figure 5.12: Projected climate effects on future brown trout distribution in the Black River Region (2046 to 2065).

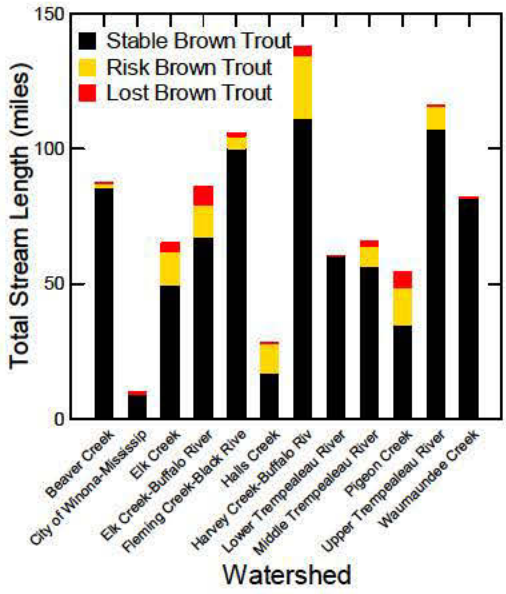
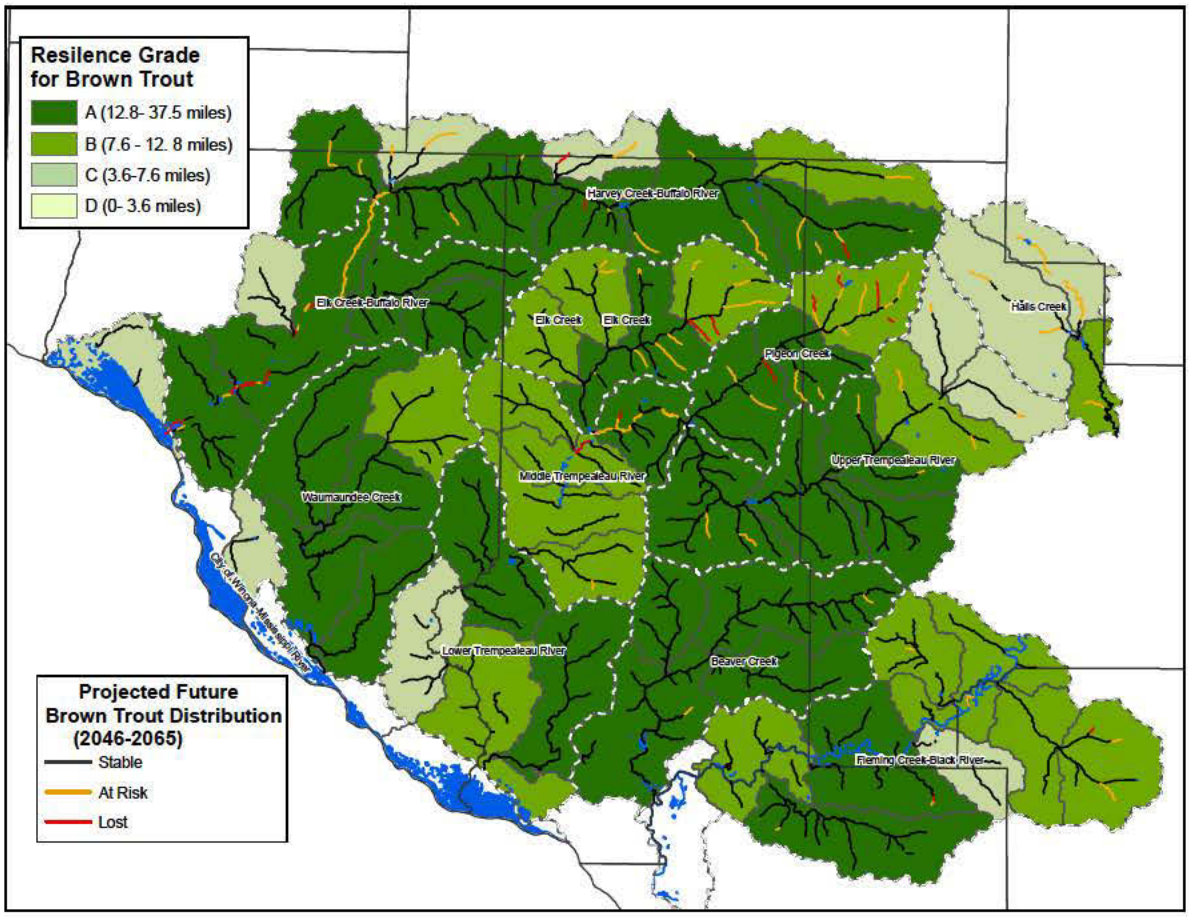


Figure 5.13: Projected future brown trout distribution and resilience in the Black River Region.



c) Smallmouth Bass

i) *Stream Health and Habitat Quality*

Figure 5.14 depicts, by sub-watershed, the current natural habitat potential (top panel), land use stress (middle panel), and probability of occurrence (bottom panel) for smallmouth bass in the region.

Natural Habitat Potential

Habitat conditions are best for smallmouth bass in the Black River and lower Trempealeau River watersheds. These river reaches have greater average width, warmer water temperatures, and greater diversity of forage fish species. The majority of streams in the Black River Region are simply too small or cold for smallmouth bass.

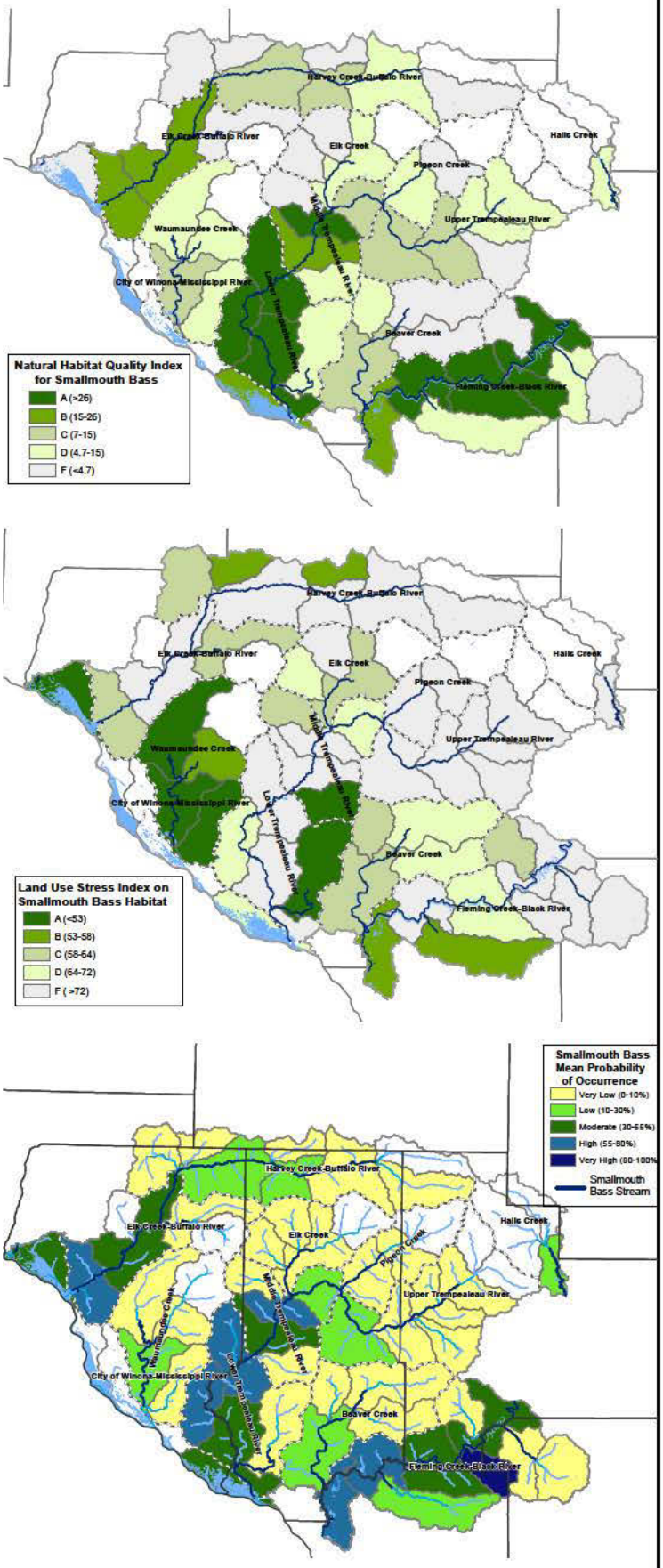
Land Use Stress

Unfortunately, for smallmouth bass, there is higher land use stress in sub-watersheds with better habitat quality and in which these fish occur. The least impacted areas in the region are where very few, if any, smallmouth bass currently exist.

Probability of Occurrence

Based on habitat potential and land use stress, the waters with the highest probability of supporting smallmouth bass are the Black, Trempealeau, and the Buffalo rivers. Stream survey data indicate that smallmouth bass indeed are found in the Black and Trempealeau systems, and only a small population in the lower Buffalo River.

Figure 5.14: Natural habitat potential, land use stress, and probability of occurrence for smallmouth bass in the Black River Region.



ii) Sport Fishery Performance

Figure 5.15 and 5.16 shows data for the abundance and distribution of smallmouth bass in the region. It is evident from the data that bass occur here in only modest numbers. However, the lower reaches of the Buffalo, Black, and Trempealeau Rivers remain under sampled, so the smallmouth bass performance portrayal in Figures 5.15 and 5.16 is incomplete. Despite the representation in Figure 5.16, the fishable populations of smallmouth bass are only located in the Black River and lower Trempealeau River. Both these systems have produced smallmouth bass in the 20"+ size range.

Figure 5.15: Smallmouth bass abundance in the Black River Region.

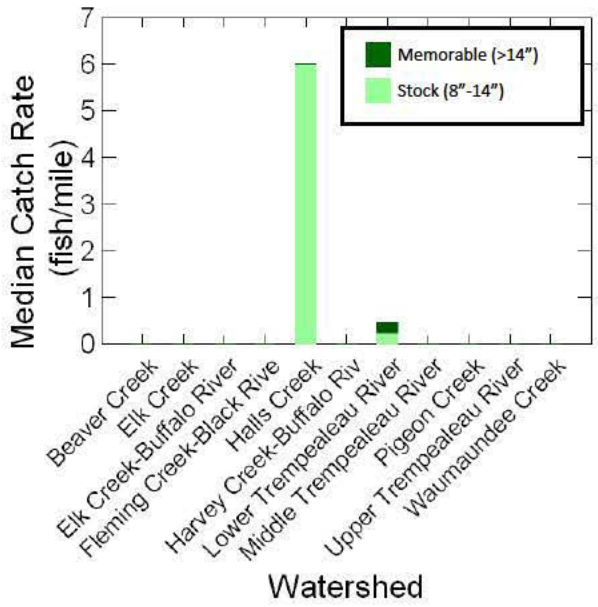
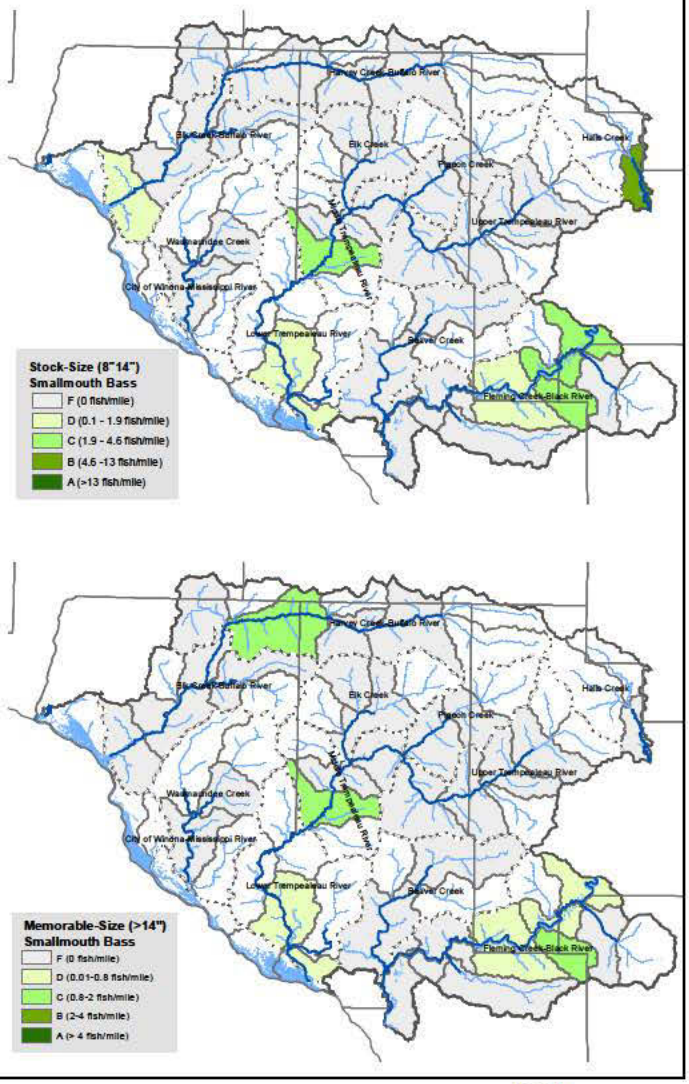


Figure 5.16: Smallmouth bass density – stock and memorable fish.



iii) *Projected Gains of Smallmouth Bass from Climate Change*

The fish distribution model projects that 8 of the 12 watersheds in the region will gain in the number of miles of streams and rivers supporting smallmouth bass (Figures 5.17 and 5.18). Although it is likely that the model projects that bass currently occupy more miles of habitat than is true, the proportional gain that is projected is likely meaningful. Thus, the Lower Trempealeau River, Waumaundee Creek, and Pigeon Creek watersheds are likely to see gains in miles of occupied habitat in the future.

It will be important to focus on protecting and enhancing existing quality of smallmouth bass habitat here, as well as address areas with higher land use stress, in order to maintain these fishable populations.

Figure 5.17: Projected climate effects on future smallmouth bass distribution in the Black River Region (2046 to 2065).

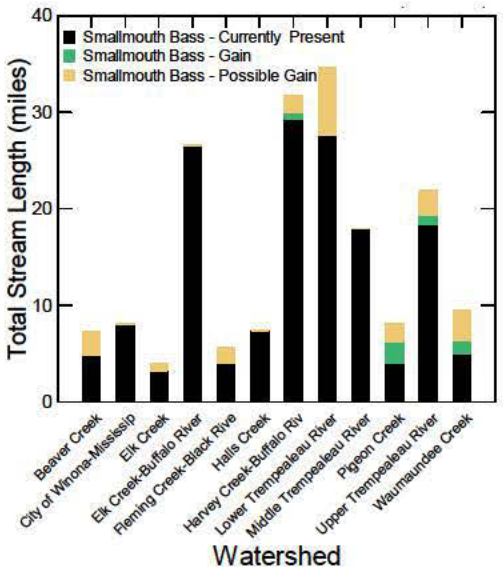
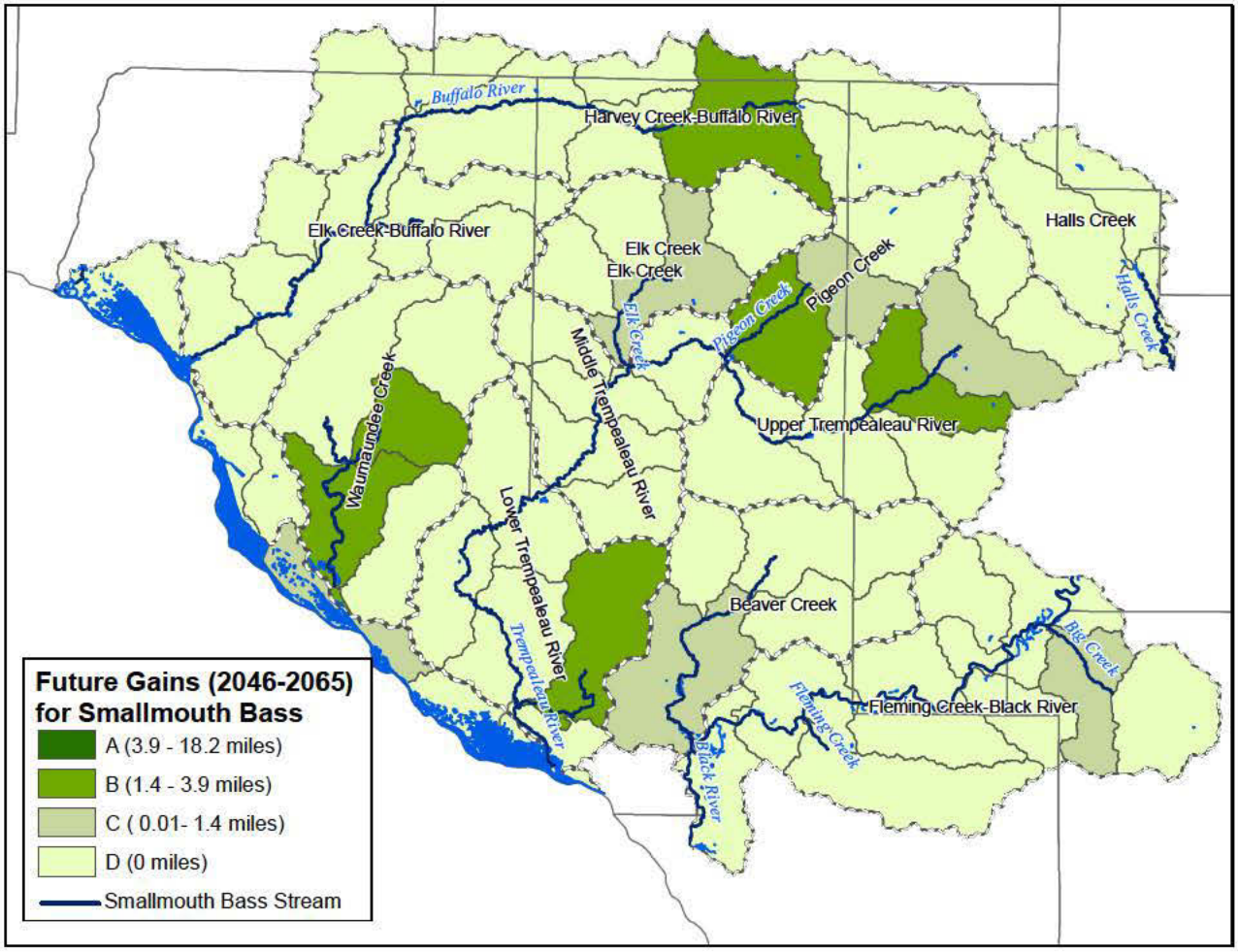


Figure 5.18: Projected future smallmouth bass distribution and gain in the Black River Region.

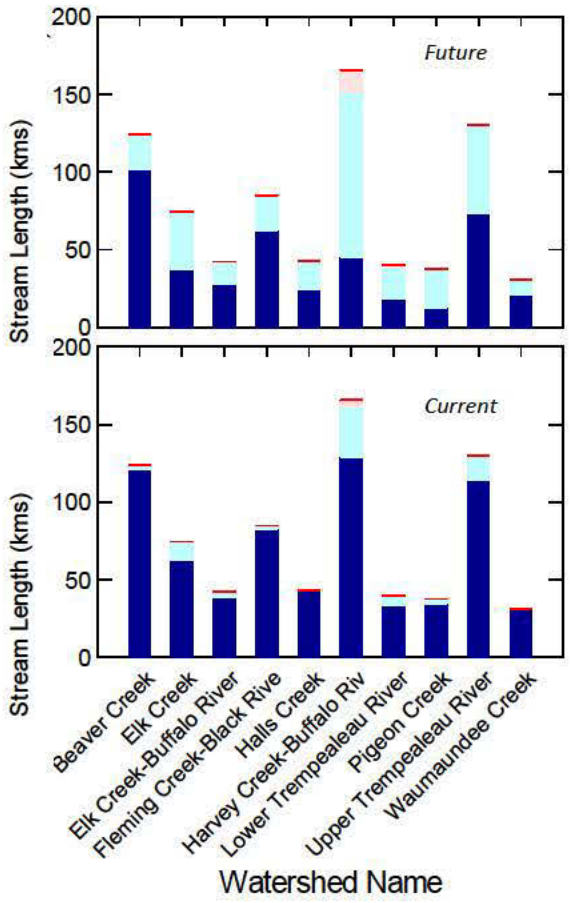


C) Trout Stream Thermal Habitat

Trout streams of the Black River Region currently dominated by cold thermal habitat (Figure 5.19).

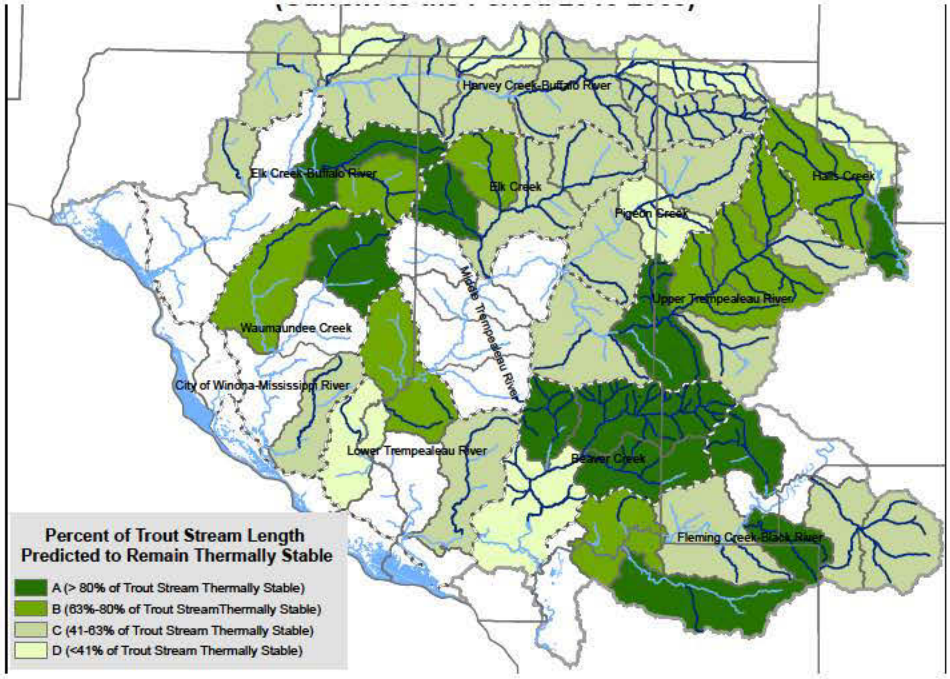
All of the watersheds in the Black River Region are expected to see a portion of their stream miles shift in their thermal classification from cold to cold transition, with the largest changes in the Harvey Creek watershed. By the mid-century, trout stream thermal habitats will warm to the point where cold transition thermal habitat will be co-dominant with cold class thermal habitat. Some watersheds with high habitat quality and low anthropogenic stress are projected to experience water temperature changes in 40 – 60% of total stream length, transitioning from cold to cold transitional thermal classification. Almost none of the trout stream miles in this region are projected to become warm transition. The heart of the trout distribution in the region is along the eastern side and this area is projected to generally have only modest impacts to the thermal characteristics of streams (Figure 5.20).

Figure 5.19: Projected future* and current thermal classes of trout streams in the Black River Region.



* Time period of 2046 to 2065.

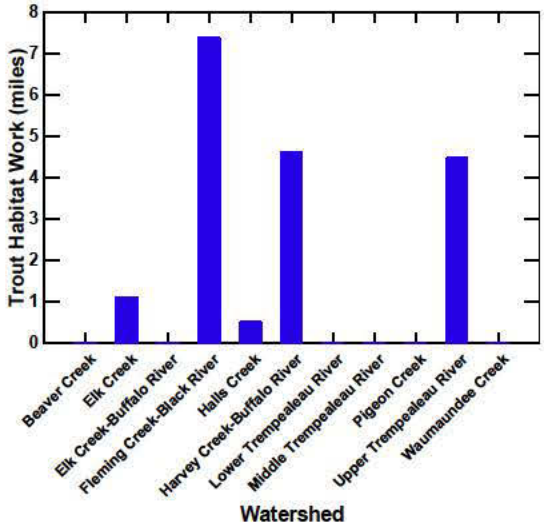
Figure 5.20: Projected changes in trout stream temperatures from current to the time period 2046-2065.



d) Trout Stream Restoration

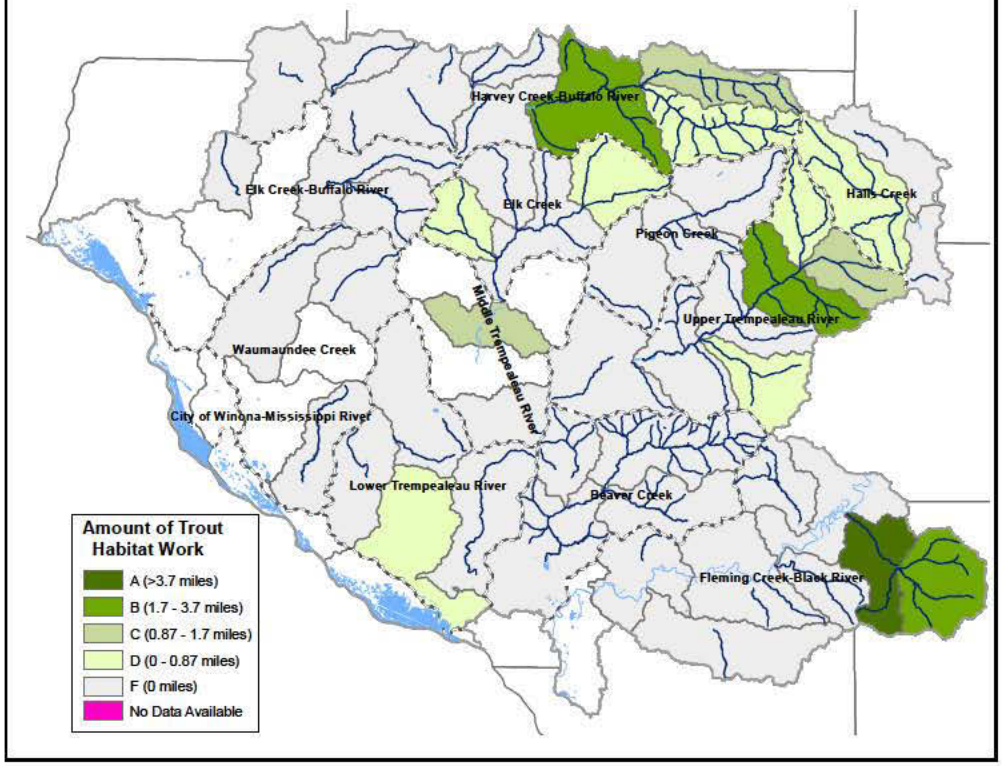
Figures 5.21 and 5.22 depict amounts of habitat restoration work completed on trout streams in the Black River Region for the time period 1970 – 2006. Since trout habitat restoration is an ongoing management priority in the Driftless Area, many more miles of work were conducted since 2006 and are not reflected in the figures. Most past work done in the region was financed solely from sales of trout stamps. In the past few years, increasing amounts of funding has come from other government agencies and entities, such as Trout Unlimited or local rod and gun clubs, which has enabled more miles of habitat restoration.

Figure 5.21: Miles of trout habitat work completed from 1970 to 2006 in the Black River Region.



Since trout stamp funded projects are only conducted on stream segments with public shore access, most of the restored miles found within this region are on lands eased or purchased by the state. Since most of the public land holdings are in the eastern part of the region, that's where the bulk of stream miles are restored. However, outside partners such as Trout Unlimited and local rod and gun clubs have purchased public fishing easements along other streams, allowing restoration efforts in places that had not occurred in the past.

Figure 5.22: Relative amount of trout habitat work completed from 1970 to 2006 in the Black River Region.



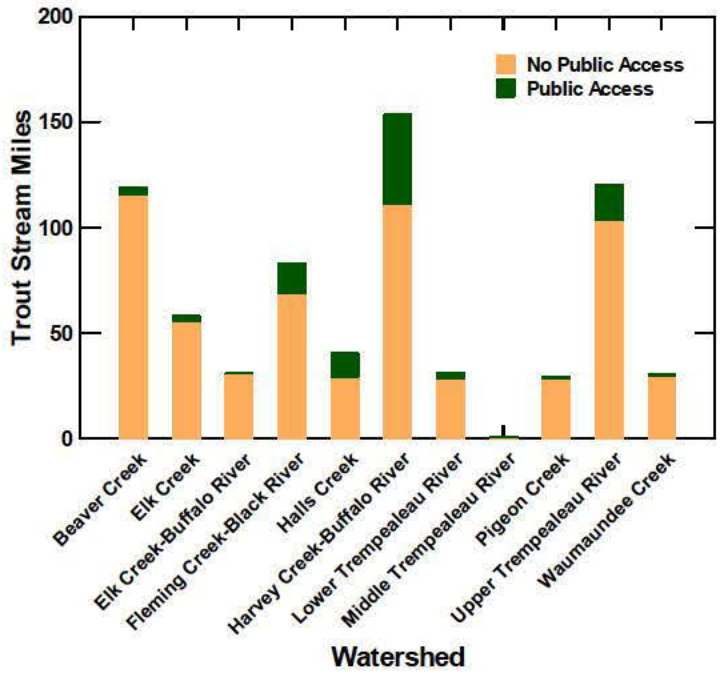
Another habitat restoration project is currently in the works for the North Fork of Beaver Creek in the Village of Ettrick, Trempealeau County. This segment of stream is located within the municipality and public fishing is allowed on the Village property.

g) Recreation Opportunities

i) Trout angling opportunities

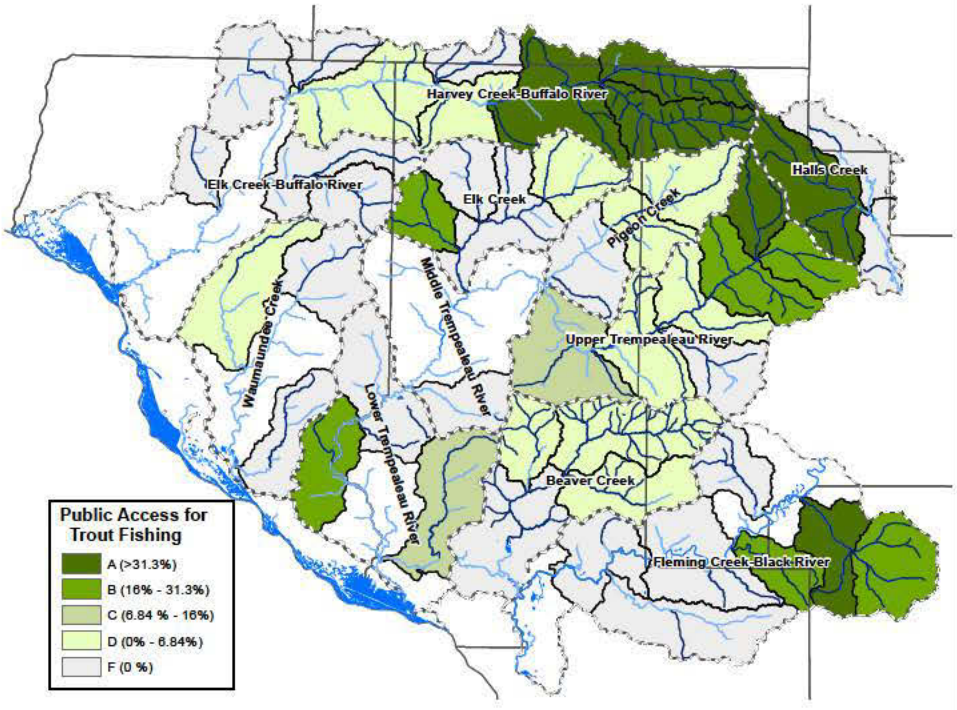
Figure 5.23 shows by watershed the miles of trout stream accessible to angling and Figure 5.24 shows the percentage of miles within sub-watersheds that are publicly accessible. The greatest concentrations of angling access in the region occur in the northeast and far southeast (Figure 5.24). Most of this public property is confined to certain stream segments including Halls Creek, Buffalo River, Trempealeau River, Tank Creek, Sand Creek, and Big Creek state fishery areas. As mentioned previously, these areas also contain most of the restored stream miles. While some of the public angling access is in sub-watersheds that do not harbor the region's best trout populations, they do generally occur where natural habitat quality is high for brook trout and land use stress for both brook and brown trout is minimal.

Figure 5.23: Miles of trout streams that are publicly-accessible for angling in the Black River Region.



Access is more variable throughout the rest of the region. However, public angling access is expanding thanks to the efforts of partner groups that are acquiring important fishing easements. Although not reflected in this database, these easements are found on Swinns Valley, Eagle, and Waumandee Creeks in Buffalo County, French and Pigeon Creeks in Jackson County, and Bruce Valley and Traverse Valley Creeks in Trempealeau County.

Figure 5.24: Percent of the miles of trout streams in the Black River Region that are publicly-accessible.



ii) Smallmouth bass angling opportunities

Figures 5.25 and 5.26 show the miles of smallmouth bass streams where the Department or other agencies or organizations own lands that provide public access for shore angling. Fortunately, relatively good access exists in sub-watersheds where the best smallmouth bass populations are present. However, there is a gap in public access in the lower Black River - Fleming Creek sub-watershed. Procuring public access here would address an important need and provide a much improved angling opportunity.

Figure 5.25: Miles of smallmouth bass streams that are publicly-accessible for angling in the Black River Region.

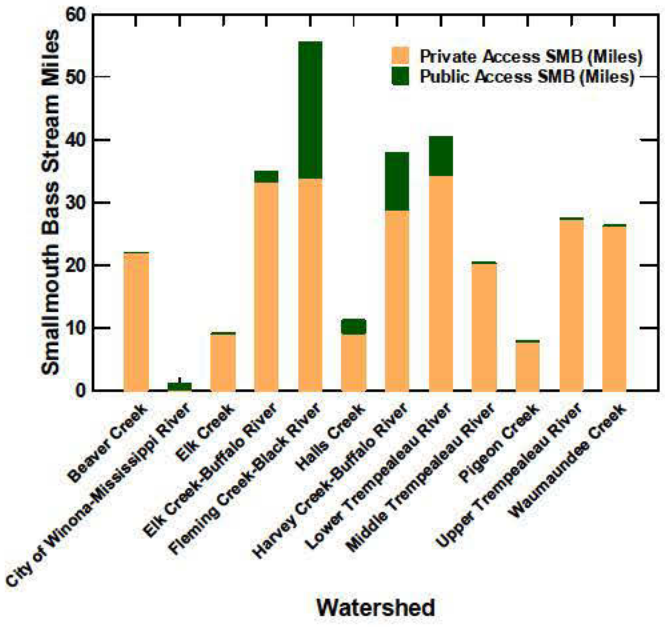
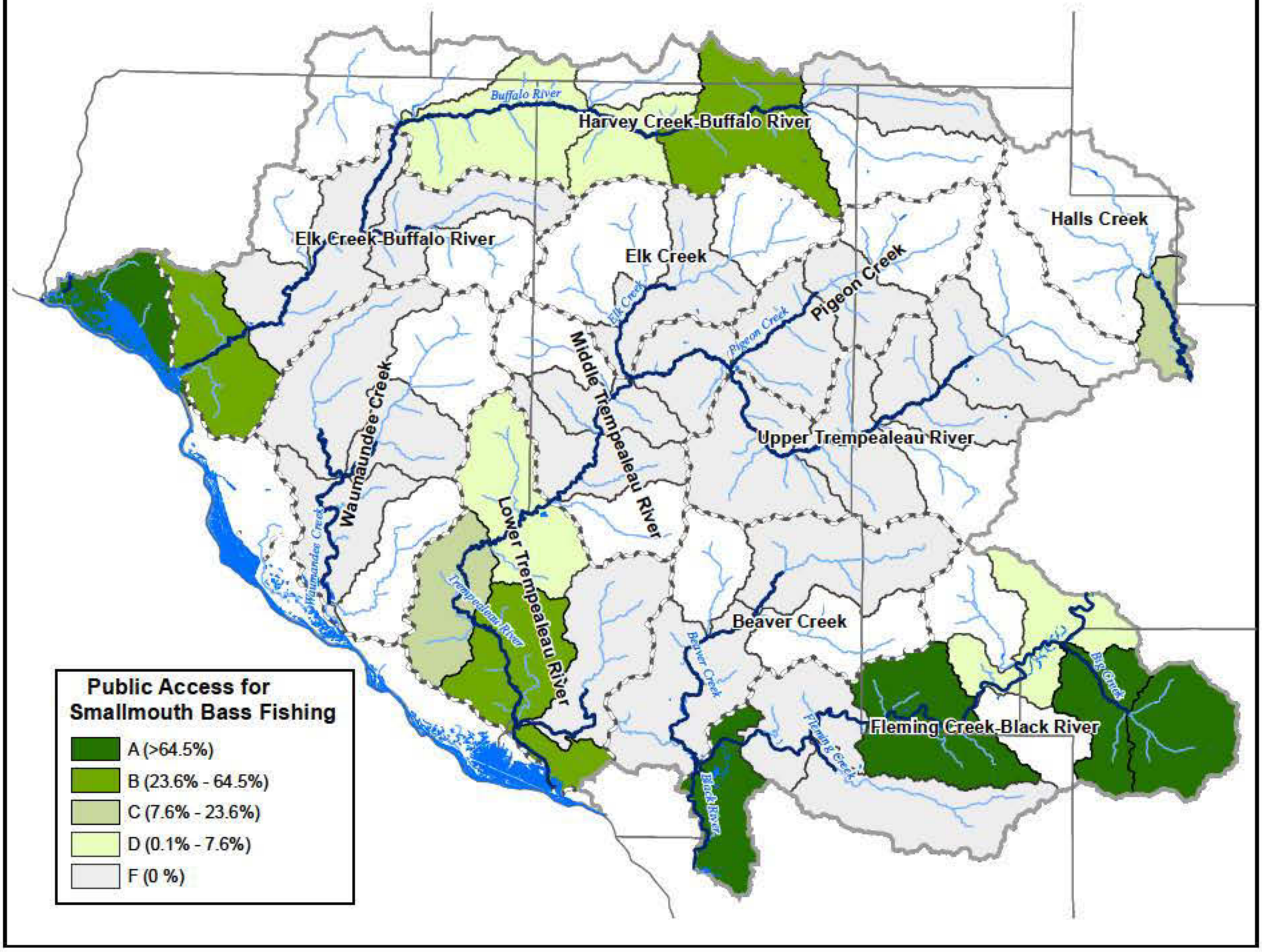


Figure 5.26: Percent of smallmouth bass stream miles in Black River Region that are publicly-accessible.



iii) Other recreation opportunities.

In addition to fishing, other popular recreation activities in the region include hunting, wildlife watching, and camping. As with fishing, the amount of recreation participation that occurs in the region is lighter than surrounding areas that are in closer proximity to urban centers. Most public lands here, including fisheries lands, are used extensively for turkey and deer hunting.

The lower Trempealeau and especially the Black River are used by non-motorized watercraft (kayaks or canoes) and "float trips" are very common during the summer months. The Upper Mississippi River Fish & Wildlife Refuge is heavily used by hunters, anglers and boaters.

iv) Recreation demand and supply

Figure 5.27 shows the number of people who can reach different parts of the region in a one-hour drive. The influence of Black River Falls can be clearly seen. Not surprisingly, with all the winding, lower-speed roads in the western side of the region, few people can get to the Waumaundee watershed.

Even though certain areas are within a one-hour drive of population centers, competition with other Driftless Area streams in regions in closer proximity keeps the majority of angling local and fishing pressure light in the Black River Region.

The eastern portions of the region, where some of the better trout populations are located, are generally well served with angling opportunities (Figure 5.29). Few publicly-accessible streams are available in the central and western portions of the region.

Figure 5.27: Population within a one-hour drive of sub-watersheds in the Black River Region.

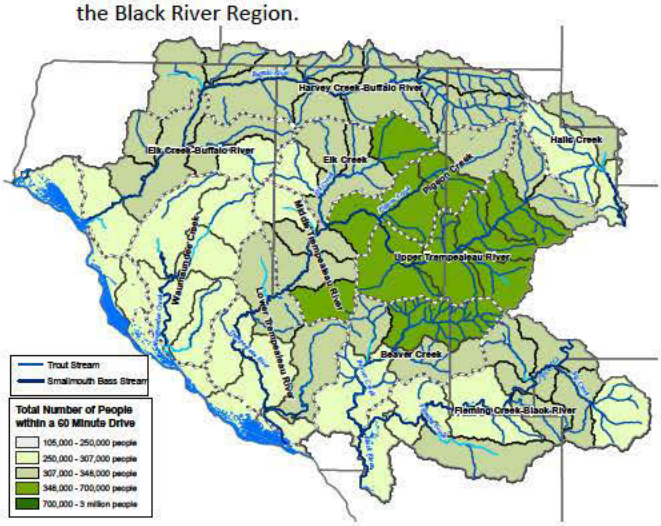


Figure 5.28: Publicly-accessible miles of trout and smallmouth bass streams per 100,000 people within a one-hour drive of watersheds in the Black River Region.

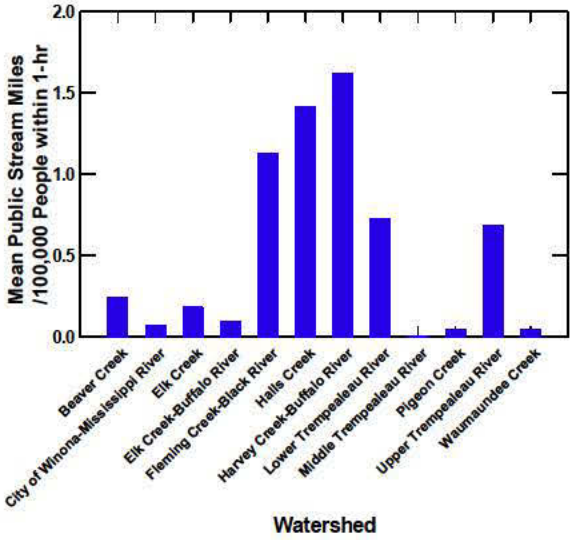
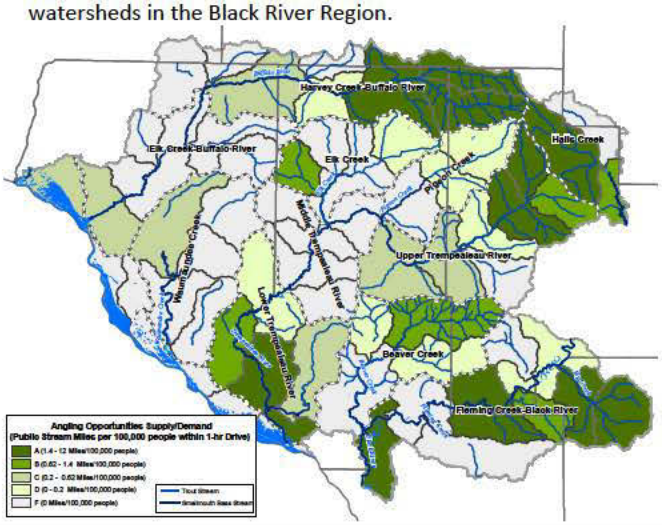


Figure 5.29: Supply of publicly-accessible trout and smallmouth bass stream miles per 100,000 people within a one-hour drive of sub-watersheds in the Black River Region.



4. The Watersheds

Beaver Creek

This watershed contains four sub-watersheds.

1 – North Fork Beaver Creek (drains 32,517 acres)

North Fork Beaver Creek is the largest trout stream found within the sub-watershed. Of its total 19.49 miles, the upper 7.9 miles are Class III and lower 11.59 miles are Class II. Wild strain brook trout raised at the Ettrick Cooperative Hatchery and State hatcheries are stocked to the stream. Fish population surveys conducted since 1955 indicate brook trout are the dominant species in the North Fork and are capable of natural reproduction. Average brook trout densities were 23/mile for young-of-year, 197/mile adults, and 68/mile legal size (8"+). Brown trout are also found in the North Fork but at much lower densities and don't naturally reproduce. Average adult densities were 26/mile and legal size (12"+) 2/mile. There are seven unnamed Class I and one Class II tributaries to the North Fork.

Publicly-accessible fishing lands are found on the upper and lower end of the North Fork. Scattered State wildlife lands occur in the upper end and also provide public access to Creek 16-2. At the very lower end the Village of Ettrick owns property adjacent to the stream and public fishing is allowed. There are also public lands on the upper end of Washington Coulee Creek.

2 – South Fork Beaver Creek (drains 22,100 acres)

South Fork Beaver Creek is the largest trout stream found within the sub-watershed. Of its total 13.61 miles, the lower 8.61 miles are Class III trout water. Wild strain brook trout raised at the Ettrick Cooperative Hatchery are stocked to the stream. Creek 2-12 (2.3 miles) is a Class I tributary to the South Fork. Angler access to the South Fork is provided by a State wildlife area. Salzwedel Coulee Creek is the only other named trout stream in the sub-watershed. Its entire length of 3.25 miles is Class I. Wild strain brook trout raised at the Ettrick Cooperative Hatchery are stocked to the stream. Creek 34-15 (1.39 miles) is a Class I tributary to Salzwedel.

3 – French Creek (drains 14,000 acres)

There are two named trout streams, French and Linderud Coulee Creeks, in this sub-watershed. French Creek has 8.75 miles of Class II trout water on the upper end and the remaining 2.47 miles is unclassified. Wild strain brook trout raised at the Ettrick Cooperative Hatchery are stocked to the stream. The upper 2.18 miles of Linderud Coulee is Class I. There are no public lands on either of these streams. Three unnamed trout streams are tributaries to French Creek. Creek 15-13 (2.57 miles) is Class I and Creeks 15-5 (2.2 miles) and 10-3 (1.89 miles) are Class II.

4 – Little Tamarack Creek/Beaver Creek (drains 34,520 acres)

There are four named trout streams in this sub-watershed. Beaver Creek is the largest. Upstream of Lake Marinuka, there is 11 miles of Class II trout water. Fish population surveys conducted since 1964 indicate presence of both brook and brown trout. However, there is very little evidence of natural reproduction of either species. Average brook trout densities were 62/mile for adults and 40/mile legal size (8"+). Average brown trout densities were 71/mile for adults and legal size (12"+) 11/mile. The remaining 7.18 miles downstream of the lake is unclassified. This lower reach contains a very low density population of smallmouth bass. Abraham Coulee Creek begins as Class I trout water for 1.92 miles and the remainder, 1.72 miles, is Class II. Dutch Creek is Class I for its entire 4.11 miles. Silver Creek (2.35 miles) is a Class II tributary to Dutch Creek. There are no public lands associated with any of these streams. There are three unnamed classified streams in the sub-watershed.

City of Winona – Mississippi River

No classified trout water is found in this watershed. The primary resource here is the Mississippi River and associated backwaters which provide angling opportunities for smallmouth bass. Public access to the Mississippi is found at the Whitman Dam State Wildlife Area, Perrot State Park, Trempealeau National Wildlife Refuge, and various boat landings. The National Wildlife Refuge also offers access for smallmouth bass angling to the lower Trempealeau River.

Elk Creek

This watershed contains four sub-watersheds.

1 – North Branch Elk Creek/Elk Creek (drains 18,856 acres)

Elk Creek and North Branch Elk Creek are the two trout streams within this sub-watershed. Both are Class III. The segment of Elk Creek, also known as the Hale Branch of Elk Creek, is part of a total 21.51 miles of classified trout water. The remainder occurs in the Bruce Valley/Elk Creek sub-watershed. A small parcel of State Wildlife land provides public access to Elk Creek. Fish population surveys of Elk Creek conducted since 1957 found both brook and brown trout in the stream and brook trout are capable of natural reproduction. Very little natural reproduction of brown trout occurs. Average brook trout densities were 63/mile for young-of-year, 71/mile adults, and 32/mile legal size (9"+). Average brown trout adult densities were 68/mile and legal size (9"+) 50/mile. Based on these data, Elk Creek is candidate for an upgrade in trout classification status. North Branch Elk is classified for its entire length of 6.6 miles. Some natural reproduction of brook trout occurs in the upper end of North Branch. Potential exists to improve status of this stream to Class II. Elk is stocked with domestic brown trout and the North Fork is stocked with wild strain brook trout. Stocked trout are raised at the Independence Cooperative Hatchery.

2 – Bruce Valley Creek/Elk Creek (drains 25,112 acres)

Three trout streams are found within this sub-watershed. The lower reach of Elk Creek and two of its tributary streams are all Class III. All of Bruce Valley (6.49 miles) and Creek 34-6 (3.28 miles) are classified. Habitat conditions were restored in a segment of Bruce Valley and a non-WDNR easement associated with the project allows public access for fishing. Some natural reproduction of brook trout occurs in Bruce Valley. Potential exists to improve status of this stream to Class II.

3 – Chimney Rock Creek (drains 15,275 acres)

Chimney Rock is the only trout stream in the sub-watershed. All of its 8.41 miles are Class III trout water. Wild strain brook trout raised in WDNR hatcheries are stocked to the stream. Some natural reproduction of brook trout occurs. Potential exists to improve status of this stream to Class II. The Chimney Rock State Wildlife Area provides public fishing access to the upper end of this stream.

4 – Borst Valley Creek (drains 13,063 acres)

Borst Valley and Sport Valley are the only two trout streams in this sub-watershed. All of Borst (8.18 miles) and Sport Valley (3.44 miles) are Class III. Borst Valley is stocked with wild strain brook trout raised at the Independence Cooperative Hatchery. Fish population surveys of Borst Valley conducted since 1962 indicate brook trout are the dominant species and are capable of natural reproduction. Young-of-year brook trout started showing up in surveys in the late 1990's and were found in all subsequent surveys. Average brook trout densities were 105/mile for young-of-year, 41/mile adults, and 32/mile legal size (9"+). Brown trout were also found in Borst Valley but at much lower densities and don't naturally reproduce. Average adult densities were 4/mile and legal size (9"+) 3/mile. Habitat conditions were restored in segments of both creeks. Easements associated with

these restoration projects allow public fishing access. A State Wildlife Area on upper Borst Valley Creek also provides fishing access. Borst Valley is candidate for future upgrade in status to at least Class II.

Elk Creek – Buffalo River

This watershed contains five sub-watersheds. Segments of the Buffalo River found within the sub-watersheds are not trout water and contain very few, if any, smallmouth bass. The fishery is comprised mostly of rough fish and northern pike.

1 – Mill Creek/Buffalo River (drains 24,644 acres)

Currently there are no classified trout streams within this sub-watershed. However, there are four streams with potential for classification. These are Mill, Fimian, Riesch, and Trout Creeks. Fimian (2.58 miles) and Riesch (4.25 miles) Creeks are tributaries to Mill Creek and both harbor natural reproduction of brook trout with lesser densities of adult fish. Mill Creek (5.56 miles) has higher densities of young-of-year and adult brook trout than Fimian and Riesch. Trout Creek (8.48 miles) drains to the Buffalo River from the north. It contains both young of year and adult brook trout throughout its entire length. Mill Creek and Trout Creek are supplemented annually with stocked yearling wild brook trout raised at the Waumandee cooperative rearing facility.

2 – Hutchinson Creek/Buffalo River (drains 36,747 acres)

Currently there are no classified trout streams within this sub-watershed or angling accessible public lands. The primary fishery resource here is the Buffalo River.

3 – Tamarack Creek (drains 11,422 acres)

Tamarack Creek, near the community of Modena, Buffalo County, is the only classified trout water in the sub-watershed. Of the total 8.77 miles of stream, the upper 3.83 miles is Class II followed directly downstream by 1.87 miles of Class III. Brook trout are the dominant species. There are no angling accessible public lands in this sub-watershed.

4 – Elk Creek (drains 22,352 acres)

Elk Creek, also known as Bennett Valley Creek, is the only classified trout water in the sub-watershed. Of its entire 16.5 miles, the upper 13.19 miles are Class III. Brook and brown trout are found in Elk Creek with brooks the predominant species. The stream is relatively fertile with a higher diversity of forage fish species than are found in streams in the eastern part of the region. Thus brook trout exhibit better growth. Elk Creek has potential for a higher trout classification as young of year and adult brook trout are found throughout the classified portion of the stream. Wild strain brown trout yearlings from the Waumandee cooperative rearing facility are stocked annually. There are no angling accessible public lands in this sub-watershed.

5 – South Fork Elk Creek (drains 16,280 acres)

There are three classified trout streams within this sub-watershed – South Fork Elk Creek, Kilness Creek, and Cooke Valley Creek. All are Class III. Cooke Valley (2.8 miles) drains to Kilness (5.22 miles) which drains to the South Fork Elk (8.16 miles). All of Cooke Valley Creek is Class III. The lower 4.05 miles of Kilness are Class III and the lower 5.06 miles of the South Fork are Class III. The South Fork contains a low density population of adult brook and brown trout and little evidence of natural reproduction. Wild strain brown trout yearlings from the Waumandee cooperative rearing facility are stocked annually. Presence of adult brook trout probably occurs due to immigration of fish from the main Elk Creek. There are no angling accessible public lands in this sub-watershed.

Fleming Creek – Black River

This watershed contains nine sub-watersheds. Segments of the Black River found within the sub-watersheds provide angling opportunities for smallmouth bass. The lower Black is one of the few waters within the Black River Region of the Driftless Area that support a fishable population of smallmouth bass.

1 – Rathbone Creek/Soper Creek (drains 24,081 acres)

There are five classified trout streams within this sub-watershed – Soper Creek, Jenkins Valley, Rathbone Creek, Creek 30-1, and Dustin Creek. All 7.97 miles of Soper Creek are Class I. Jenkins Valley Creek is a tributary of Soper Creek and all of its 4.16 miles are Class II. Rathbone Creek is 6.2 miles of Class II trout water. Dustin Creek and Creek 30-1 are tributaries of Rathbone Creek. Dustin Creek is 3.68 miles of Class I and Creek 30-1 is 0.58 miles of Class II. Lands along Soper, Rathbone and the lower end of Jenkins Valley are included in the Big Creek Fishery Area. These are fee-title lands allowing public access for trout fishing.

2 – Spencer Creek/Big Creek (drains 18,211 acres)

There are two classified trout streams in this sub-watershed – Spencer and Big Creeks. The upper end of Spencer Creek is 3.3 miles of Class II trout water and the lower 3.21 miles Class I. All 6.4 miles of Big Creek is Class II. Both streams are part of the Big Creek Fishery Area and contain parcels of fee-title lands allowing public fishing access.

3 – Sand Creek (drains 13,287 acres)

Sand Creek and its tributary, Creek 34-13, are the only classified trout streams found within this sub-watershed. All 10.21 miles of Sand Creek and 4.47 miles of Creek 34-12 are Class I. Brook trout are the dominant species. Creek 34-13 acts primarily as a spawning and nursery area and more adult size fish are found in Sand Creek. The upper end of Sand Creek and the very lower end of Creek 34-13 are within fee-title lands allowing public fishing access. Habitat restoration work was done on a segment of Sand Creek in these lands. Downstream and adjacent to the fee-title land on Sand Creek is a small area of public fishing easement.

4 – Roaring Creek/Black River (drains 26,122 acres)

No trout water or public lands are found in this sub-watershed. The Black River provides smallmouth bass fishing opportunities.

5 – Douglas Creek (drains 15,458 acres)

There are five classified trout waters within this sub-watershed. Douglas Creek is the primary trout stream and features brook trout. Of its total 9.99 miles of stream, the upper 5.86 miles is Class I trout water and directly below are 2.06 miles of Class II. The remainder of Douglas Creek was impounded with a short stretch of it acting as an outlet draining to the Black River. Currently, the pond is drawn down because of safety issues with the control structure. The future of the pond is uncertain, however in its absence Douglas Creek has re-established a channel through the old pond area and brook trout now inhabit it. Creeks 24-4 (Class I) and 30-15 (Class I and II) are tributaries to Douglas Creek.

6 – Davis Creek/Black River (drains 32,382 acres)

There are two classified trout streams within this sub-watershed. Davis Creek is Class II for its entire length of 6.86 miles. Creek 2-1 is 3.86 miles of Class II trout water. Public access to the Black River is provided in the North Bend Bottoms Wildlife Area. Angling opportunities for a variety of warm water species, including smallmouth bass, are provided by this segment of the Black River.

7 – Fleming Creek (drains 30,970 acres)
There are no public lands and one classified trout stream, Severson Coulee Creek, within this sub-watershed. Severson Coulee (also known as Creamery Creek) is 4.8 miles of Class III trout water.

8 – Fleming Creek/Black River (drains 22,023 acres)
There are no public fishing lands and one classified trout stream, Hardies Creek, within this sub-watershed. Total stream length of Hardies Creek is 4.91 miles of which the upper 1.9 miles is Class III trout water. The segment of the Black River found here provides an angling opportunity for smallmouth bass.

9 – Van Loon Lake/Black River (drains 19,441 acres)
The Van Loon Wildlife area provides public fishing access to the Black River. The segment of the Black River found here provides an angling opportunity for smallmouth bass.

Halls Creek

This watershed contains three sub-watersheds. Due to the low, wet nature of creek bottoms within this watershed, ideal conditions exist for beavers to construct dams and constant management efforts are required to remove dams and control beaver populations.

1 – East Fork Halls Creek (drains 17,027 acres)
East Fork Halls Creek is the only trout stream found in this sub-watershed. Of its total length of 15.07 miles, the upper 4.25 miles are Class II. Classified trout water extends above and below Emerson Lake in Humbird, WI. Status as trout water below Emerson Lake is suspect. There are no public lands allowing fishing access.

2 – South Fork Halls Creek (drains 30225 acres)
There are three named trout streams, Halls Creek, South Fork Halls Creek, and Cisna Creek, within this sub-watershed. Halls Creek, upstream of the confluence with South Fork Halls, is 12.67 miles of Class II trout water. Fish population surveys conducted since 1955 found both brook and brown trout in the stream and both species reproduce naturally. Average brook trout densities were 74/mile for young-of-year, 79/mile adults, and 22/mile legal size (8”+). Average brown trout adult densities were 16/mile for young-of-year, 185/mile adults, and legal size (12”+) 12/mile. Both brook and brown trout are found in this stream. Creek 12-6 (3.72 miles) is all Class II and Creek 17-8 (3.19 miles) is all Class III. Both are tributaries to Halls Creek. Numerous parcels of public lands provide access to Halls Creek, Creek 12-6, and the very lower end of Creek 17-8. South Fork Halls Creek (8.89 miles) is all Class II trout water. Cisna Creek is a tributary to the South Fork and all of its 5.15 miles are Class I.

3 – Trow Lake/Halls Creek (drains 10,085 acres)
Only one stream within this sub-watershed is classified trout water, Creek 18-10. Its entire length of 2.53 miles is Class II. The segment of Halls Creek downstream of Trow Lake provides some smallmouth bass fishing opportunity. This population of bass is mixing with that of the Black River. Bass found in the lower end of Halls Creek range from young-of-year to generally medium size adults. Larger adults are found out in the Black. Lands around the confluence of Halls Creek with the Black River are within the Black River State Forest, which provides public fishing access to both waters.

Harvey Creek – Buffalo River

This watershed contains eight sub-watersheds. Segments of the lower Buffalo River, located within the sub-watersheds, not classified as trout water provide few, if any angling opportunities for smallmouth bass. Due to the low, wet nature of creek bottoms within this watershed ideal conditions exist for damming by beavers. Constant management efforts are required to remove dams and control beaver populations.

1 – Harvey Creek (drains 24,196 acres)
No publicly-accessible fishing lands are found within this sub-watershed and Harvey Creek is the only trout water. Of its total 10.62 miles, the middle 3.81 miles is Class III. Stocked, domestic strain trout provide a fishable population in this stream.

2 – Peeso Creek (drains 12,040 acres)
No publicly-accessible fishing lands are found within this sub-watershed and Peeso Creek is the only trout water. Its entire length of 9.66 miles is Class III.

3 – Rossman Creek/Buffalo River (drains 34,706 acres)
There are three classified trout streams found within this sub-watershed. The upper 3.79 miles of Armour Creek is Class II. Rossman Creek contains 2.94 miles of Class III in the upper end and the remainder, 3.66 miles, is Class II. Lindsay Creek contains 1.84 miles of Class II in the upper end and the remainder, 1.94 miles, is Class III. Armour and Rossman are stocked with small fingerling wild brook trout raised in WDNR hatcheries. The only publicly-accessible fishing land here is a small land-locked easement along the Buffalo River corridor located on either side of the Buffalo-Trempealeau County line. The reach of the Buffalo River found within this sub-watershed is not classified trout water.

4 – Big Creek (drains 11,083 acres)
No publicly-accessible fishing lands and two classified trout streams, Big and Adams Creeks, are found within this sub-watershed. The upper 4.96 miles of Big Creek is Class II and the lower 3.81 miles is Class III. All 4.25 miles of Adams Creek is Class II. Brook trout reproduce naturally in upper reaches of both streams. However, their trout populations are supplemented with wild brook trout raised at the Eleva Cooperative Hatchery.

5 – Trout Creek/Buffalo River (drains 15,721 acres)
Trout Creek is the only classified trout stream. Its entire length of 5.76 miles is Class III. Wild brook trout raised at the Eleva Cooperative Hatchery are stocked to Trout Creek. This stream is a potential candidate for reclassification to at least Class II status. The Buffalo River State Trail crosses the lower end of Trout Creek thus providing a means for angling access.

6 – Pine Creek/Buffalo River (drains 34,335 acres)
Several classified trout streams and publicly-accessible fishing lands are found within this sub-watershed. Johnson Valley Creek is a small first and second order brook trout stream. Its entire 5.2 miles is Class I. Pine Creek has its origin in a low, wetland complex. The upper 5.71 miles is Class III. As it flows south toward the Buffalo River, gradient increases and trout habitat improves. The lower 3.04 miles is Class I trout water. Past beaver activity degraded this lower reach and habitat restoration was required to correct the damage. Subsequently, the brook trout population improved. King Creek is Class I brook trout water for its entire length of 7.76 miles. Constant beaver activity has degraded trout habitat conditions in certain reaches of this stream as well. Creek 21-9 is a first order tributary to King Creek and is Class II for its entire length of 1.83 miles. The reach of the Buffalo River located upstream of Crystal Lake is Class II trout water for its entire length. Publicly-accessible fishing lands are located on Pine Creek, King Creek and the Buffalo River. Johnson Valley and the Buffalo River are the only streams stocked with trout. Wild brook trout are stocked to Johnson Valley and domestic brown trout to the Buffalo River.

Fish population surveys of the classified portion of the Buffalo River conducted since 1953 found both brook and brown trout. There is little natural reproduction of brook trout occurring. Evidence of brown trout reproduction first occurred in 2008 and continued in all subsequent surveys. Average adult brook trout densities were 23/mile

and legal size (8”+) 15/mile. Average brown trout densities were 24/mile for young-of-year, adults 66/mile and legal size (12”+) 7/mile.

7 – North Fork Buffalo River (drains 19,274 acres)
North Fork Buffalo River is the primary trout stream found within this sub-watershed. Its upper 10.93 miles is Class I and the lower 4.82 miles is Class II. Fish population surveys conducted since 1962 found both brook and brown trout in the North Fork. Each reproduces naturally, but brook trout reproduction is much greater than brown. Average brook trout densities were 134/mile for young-of-year, 232/mile adults, and legal size (8”+) 60/mile. Average brown trout densities were 3/mile for young-of-year, adults 31/mile and legal size (12”+) 4/mile. Habitat restoration projects were completed on segments of stream in each of the classified reaches. Publicly-accessible fishing lands are located on the North Fork and most of its tributary streams

8 – South Fork Buffalo River (drains 25,121 acres)
South Fork Buffalo River is the primary trout stream found within this sub-watershed. Its upper 11.21 miles is Class I and the lower 5.43 miles is Class II. Fish population surveys conducted since 1962 found both brook and brown trout in the South Fork. Each reproduces naturally, but brook trout reproduction is much greater than brown. Average brook trout densities were 111/mile for young-of-year, 187/mile adults, and legal size (8”+) 51/mile. Average brown trout densities were 5/mile for young-of-year, adults 12/mile and legal size (12”+) 1/mile. Two named tributaries, Jermstad and Rindahl Creeks, are classified trout water. Jermstad is Class II for its entire length of 3.13 miles and Rindahl is Class I for its entire length of 3.45 miles. Publicly-accessible fishing lands are located on the South Fork and most of its tributaries. There are 13 unnamed, classified tributaries to the South Fork. Eleven are Class I and two are Class III.

Lower Trempealeau River

This watershed contains four sub-watersheds. Segments of the lower Trempealeau River found within the sub-watersheds provide angling opportunities for smallmouth bass. The lower the segment is in the watershed, the better the smallmouth bass fishing.

1 – Pine Creek/Trempealeau River (drains 32,246 acres)
No trout water found within this sub-watershed. Smallmouth bass angling opportunity is provided by the Trempealeau River. Parts of Perrot State Park are contained within this sub-watershed and ultimately provided public access for smallmouth bass fishing in the Mississippi River.

2 – Tamarack Creek (drains 29,734 acres)
Only one classified trout stream, Tamarack Creek, is found within this sub-watershed. Of 22.74 total miles of stream, the upper 16.43 miles is Class III. Tamarack is stocked with wild brown and brook trout raised at the Waumandee Cooperative Hatchery. Public fishing access to this stream is provided by the Tamarack Creek Wildlife Area.

3 – Bohris Valley Creek/Trempealeau River (drains 20,777 acres)
Only one classified trout stream, Doelle Creek, is found within this sub-watershed. Its entire 5.07 miles is Class III. A State Natural Area on the lower segment of the creek provides public fishing access. Habitat and thermal conditions within the natural area are good for trout. Small fingerling wild brook trout are stocked to Doelle Valley Creek for the purpose of improving the trout population and potentially future classification.

4 – Trout Run Creek/Trempealeau River (drains 29,795 acres)

There are two classified trout streams within this sub-watershed. Trout Run Creek is 6.05 miles of Class II trout water and the upper 3.74 miles of Meyers Valley Creek is Class III. Total length of Meyers Valley Creek is 5.88 miles. Both streams are stocked with wild brook and brown trout raised at the Waumandee Coopertive Hatchery. A trout habitat restoration project was conducted on Swinns Valley Creek. Swinns Valley is not currently classified trout water. Wild brook and brown trout raised at the Waumandee Cooperative Hatchery are stocked to the stream. Through restoration and wild trout stocking, Swinns Valley may be candidate for future classification as trout water. The project area is within a fishing easement and is the only publicly-accessible land in the sub-watershed.

Middle Trempealeau River

This watershed contains five sub- watersheds. Segments of the Trempealeau River found within the sub-watersheds are not classified trout water and provide very limited smallmouth bass angling opportunities. Public fishing access in this watershed is provided through non-DNR easements. Streams with these easements are listed in the specific sub-watershed descriptions.

1 – Turton Creek (drains 15,062 acres)

Only one classified trout stream is found within this sub-watershed. Creek 8-14 is a first order tributary to Turton Creek and its entire 0.75 miles is Class I. Turton Creek itself contains a low density population of brook trout and young-of-year fish are found throughout the stream with the exception of the very lower end. Turton is stocked with wild yearling brook trout raised at the Waumandee Cooperative Hatchery. Turton may be candidate for future classification to trout water.

2 – North Creek/Trempealeau River (drains 20,060 acres)

No classified trout waters are found in this sub-watershed. Two notable unclassified streams are Lewis Valley and North Creek. Lewis Valley originates northwest of Highway 93 and drains southwest to the Trempealeau River. North Creek lies west of Highway 93 and also drains to the Trempealeau River. Both streams are stocked with wild brook and brown trout raised at the Waumandee Cooperative Hatchery. Stocked wild fish may hold over and reproduce in these streams making both potential candidates for future classification to trout water.

3 – Plum Creek/Trempealeau River (drains 13,888 acres)

No classified trout waters are found within this sub-watershed. One unclassified stream, Wickham Valley Creek, is stocked with wild brook trout raised at the Independence Cooperative Hatchery. Stocked wild fish may hold over and reproduce in this stream making it a potential candidate for future classification to trout water.

4 – Traverse Valley Creek (drains 13,999 acres)

No classified trout waters are found within this sub-watershed. One unclassified stream, Traverse Valley Creek, is candidate for future classification to trout water. Natural reproduction of brook trout occurs in the upper end and three lower segments of stream underwent habitat restoration work. Easements allowing public access are associated with each restoration project.

5 – Irvin Creek/Trempealeau River (drains 15,813 acres)

No public fishing lands or classified trout water occur within this sub-watershed.

Pigeon Creek

This watershed contains three sub-watersheds.

1 – Lower Pigeon Creek (drains 22,113 acres)

Fly Creek is the only classified trout stream. Its entire length, 7.2 miles, is Class II. The 7.92 mile segment of Pigeon Creek within this sub-watershed is not classified trout water. It is thermally impacted by warm water flowing out of Pigeon Falls Pond, an impoundment of Pigeon Creek. However, a brook trout population consisting of both young-of-year and adult size fish, exists throughout most of it. Fish population surveys conducted since 2005 found both brook and brown trout in lower Pigeon Creek. Some evidence exists of brook trout natural reproduction. Average brook trout densities were 53/mile for young-of-year, 111/mile adults, and legal size (7"+) 105/mile. Average brown trout densities were 1/mile for young-of-year, adults 7/mile and legal size (7"+) 7/mile. Influx of cold water from tributary streams and groundwater aide in keeping overall water temperatures in Pigeon Creek cold enough for trout survival. Lack of habitat is the prominent limiting factor here.

2 – Middle Pigeon Creek (drains 15,399 acres)

Three classified trout streams are found within this sub-watershed. The lower 2.61 miles of Big Slough Creek is Class III. All 5.44 miles of Schermerhorn Creek is Class III. Some scattered wildlife properties provide pubic fishing access to this stream. Pigeon Creek in this sub-watershed is Class III.

3 – Upper Pigeon Creek (drains 22,118 acres)

Pigeon Creek is the only classified trout water. The upper end is 6.83 miles of Class II and the remainder is Class III. Pigeon Creek is stocked with wild brook trout small fingerlings raised in DNR hatcheries. Fish population surveys conducted since 1953 found brook trout and very few brown trout in upper Pigeon. Brooks reproduce naturally. Average brook trout densities were 82/mile for young-of-year, 126/mile adults, and legal size (9"+) 33/mile. Average brown trout adult densities were 3/mile and legal size (9"+) 3/mile. Public access to Pigeon Creek is provided by a small land-locked parcel of state land located in the Class II reach and a non-DNR fishing easement in the Class III reach located just upstream of the mouth of Beaver Creek. A habitat restoration project was completed within the non-DNR easement area.

Public lands found on the upper end of Beaver Creek do not provide access to a classified trout stream. They are part of the Northfield Lake DNR fish rearing facility. Hunting is the primary public use of this property. Fishing is not allowed in the rearing ponds.

Upper Trempealeau River

This watershed contains seven sub-watersheds. Some beaver activity and subsequent control measures occur is this watershed. However, beaver activity here does not have the frequency as does other watersheds in the Black River Region such as Halls or Harvey Creek/Buffalo River.

1 – North Branch Trempealeau River (drains 13,853 acres)

Two trout streams are located within this sub-watershed, North Fork Trempealeau and Judkins Creek. All 11.35 miles of the North Fork are Class I and all 5.49 miles of Judkins Creek are Class III. Fish population surveys conducted since 1953 found both brook and brown trout in the North Fork. Each reproduces naturally, but brook trout reproduction is much greater than brown. Average brook trout densities were 159/mile for young-of-year, 281/mile adults, and legal size (8"+) 35/mile. Average brown trout densities were 43/mile for young-of-year, adults 171/mile and legal size (12"+) 5/mile. Habitat restoration was done on segments of the North Fork. Beaver activity is common in the upper reach of this stream. There are numerous public lands along the North Fork providing fishing access.

2 – South Branch Trempealeau River (drains 14,275 acres)

Two trout streams are located within this sub-watershed, South Fork Trempealeau and Amo Creek. All 8.7 miles of the South Fork and 3.08 miles of Amo Creek are Class II. Fish population surveys conducted since 1958 found both brook and brown trout in the South Fork. Each reproduces naturally, but brook trout reproduction is much greater than brown. Average brook trout densities were 202/mile for young-of-year, 463/mile adults, and legal size (8"+) 79/mile. Average brown trout densities were 2/mile for young-of-year, adults 20/mile and legal size (12"+) 2/mile. Public lands along the South Fork provide fishing access.

3 – Tank Creek/Trempealeau River (drains 23,220 acres)

There are four named trout streams, Trempealeau River, Stony Creek, Tank Creek, and Lowe Creek, within this sub-watershed. Tank and the Trempealeau provide most of the trout angling opportunities. All of Tank Creek (6.6 miles) is Class I and all of the Trempealeau River in this sub-watershed is Class II. Fish population surveys conducted since 1953 found both brook and brown trout in Tank Creek. Each reproduces naturally, but brook trout reproduction is much greater than brown. Average brook trout densities were 280/mile for young-of-year, 720/mile adults, and legal size (8"+) 53/mile. Average brown trout densities were 54/mile for young-of-year, adults 52/mile and legal size (12"+) 2/mile. Fish population surveys conducted since 1971 found both brook and brown trout in the Trempealeau. Each reproduces naturally, but brook trout reproduction is much greater than brown. Average brook trout densities were 50/mile for young-of-year, 134/mile adults, and legal size (8"+) 46/mile. Average brown trout densities were 11/mile for young-of-year, adults 103/mile and legal size (12"+) 9/mile. Two unnamed tributaries to Tank Creek, Creeks 26-7 (1.95 miles) and 27-7 (1.41 miles) are all Class I. Habitat restoration was done on segments of both creeks. Wild strain brook and brown trout raised in State hatcheries are stocked to the Trempealeau. Public lands on both streams provide fishing access. Stony Creek (5.38 miles) is all Class I trout water and lower Lowe Creek (1.1 miles) is Class II and upper Lowe (3.08 miles) is Class III. Wild strain brook trout raised in State hatcheries are stocked to Stony Creek. Public lands on Lowe and Stony Creek provide fishing access.

4 – Pine Creek/Trempealeau River (drains 19,607 acres)

There are three trout streams, Curran Coulee Creek, Pine Creek, and the Trempealeau River, within this sub-watershed. The Trempealeau River provides most of the trout angling opportunities. This reach contains both Class II and III trout water. Total miles of classified water for the Trempealeau are 11.66 miles Class II and 7.87 miles of Class III. Class II water starts in the Tank/Trempealeau sub-watershed and extend into this one. Class III water starts in this sub-watershed and extends into the Lake Henry/Trempealeau sub-watershed. Habitat restoration was done on a segment within the Class II trout water. All of Curran Coulee Creek (5.25 miles) and Pine Creek (7.32 miles) are classified trout water. Curran is Class III and Pine is Class I. No public lands are found on trout streams in this sub-watershed.

5 – French Creek (drains 17,731 acres)

French Creek (10.05 miles) and its tributary, Creek 23-1 (2.81 miles), are all Class I trout water. Habitat restoration was done on a segment of lower French Creek near the Village of Taylor. A public fishing easement at the project site allows fishing access.

6 – Lake Henry/Trempealeau River (drains 23,853 acres)

Three trout streams, Vosse Coulee Creek, Skutley Creek, and part of the Trempealeau River, are within this sub-watershed. All of Vosse Coulee (6.26 miles) and upper Skutley (2.37 miles) are Class I. Lower Skutley (3.91 miles) is

Class II. Two unnamed tributaries to Vosse Coulee, Creeks 25-13 and 36-15, are classified trout water. Creek 25-13 (2.03 miles) is all Class I. Upper Creek 36-15 (0.67 miles) is Class II and the lower 0.27 miles is Class III. Upstream of Lake Henry, the Trempealeau River is Class III. Public lands in upper Vosse Coulee Creek provide fishing access.

7 – Lakes Coulee Creek/Trempealeau River (drains 30,900 acres)
Two trout streams, Lakes Coulee Creek and Tappen Coulee Creek, are within this sub-watershed. All of Lakes Coulee (6.43 miles) and Tappen Coulee (5.06 miles) are Class II. Domestic brown trout raised at State hatcheries are stocked to Lakes Coulee. Public lands on lower Lakes Coulee provide fishing access. The Trempealeau River within this sub-watershed is not classified trout water. Very few, if any, smallmouth bass are found within this reach of the river.

Waumaundee Creek

This watershed contains five sub-watersheds. Although future gains for smallmouth bass are projected, Waumandee Creek currently does not provide smallmouth bass angling opportunities.

1 – Eagle Creek (drains 19,926 acres)
Eagle Creek is the only classified trout water. Of its total length of 17.56 miles, the upper 13.28 miles are Class III. Although the stream is stocked with wild brown trout raised at the Waumandee Cooperative Hatchery, brook trout are the dominant species and naturally reproduce in the stream. Reclassification to Class II status is needed. A habitat restoration project was conducted in upper Eagle Creek and public fishing access is allowed through a non-WDNR easement at the site.

2 – Waumandee Creek (drains 22,637 acres)
No classified trout water or publicly-accessible fish lands are found within this sub-watershed. One unclassified stream, Yeager Valley Creek, has a naturally reproducing brook trout population. Potential exists for future classification to trout water.

3 – Irish Valley Creek/Waumandee Creek (drains 16,688 acres)
No classified trout water or publicly-accessible fish lands are found within this sub-watershed. The reach of Waumandee Creek here is cold transitional water and may harbor a few larger adult brown trout.

4 – Little Waumandee Creek (drains 32,041 acres)
Little Waumandee Creek is the only classified trout water. Of its total 21 miles, the upper 10 miles is Class III. Wild brook trout raised at the Waumandee Cooperative Hatchery are stocked here.

5 – Danuser Valley Creek/Waumandee Creek (drains 21,803 acres)
This sub-watershed contains all of the classified trout water found in Waumandee Creek. This reach is 6.92 miles of Class III. Habitat restoration was conducted on the upper end. Here there is remnant population of naturally reproducing brook trout. This upper end is candidate for future improvement in trout classification status. Public fishing access through a non-DNR easement is available in the project area. Danuser Creek is an unclassified tributary to Waumandee Creek. A low-density naturally reproducing brook trout population exists in this stream. Future reclassification to trout water is possible.