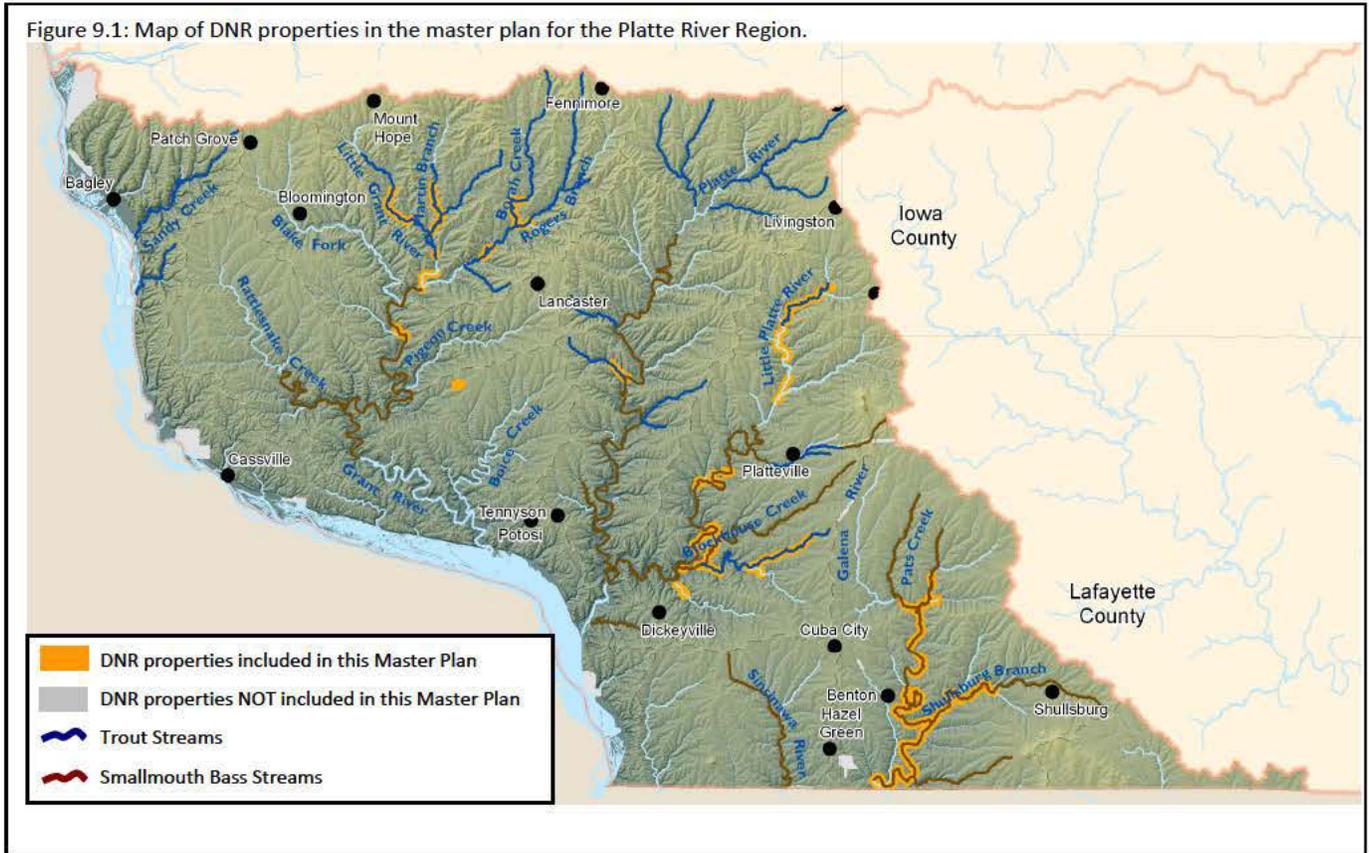


CHAPTER 9: PLATTE RIVER REGION

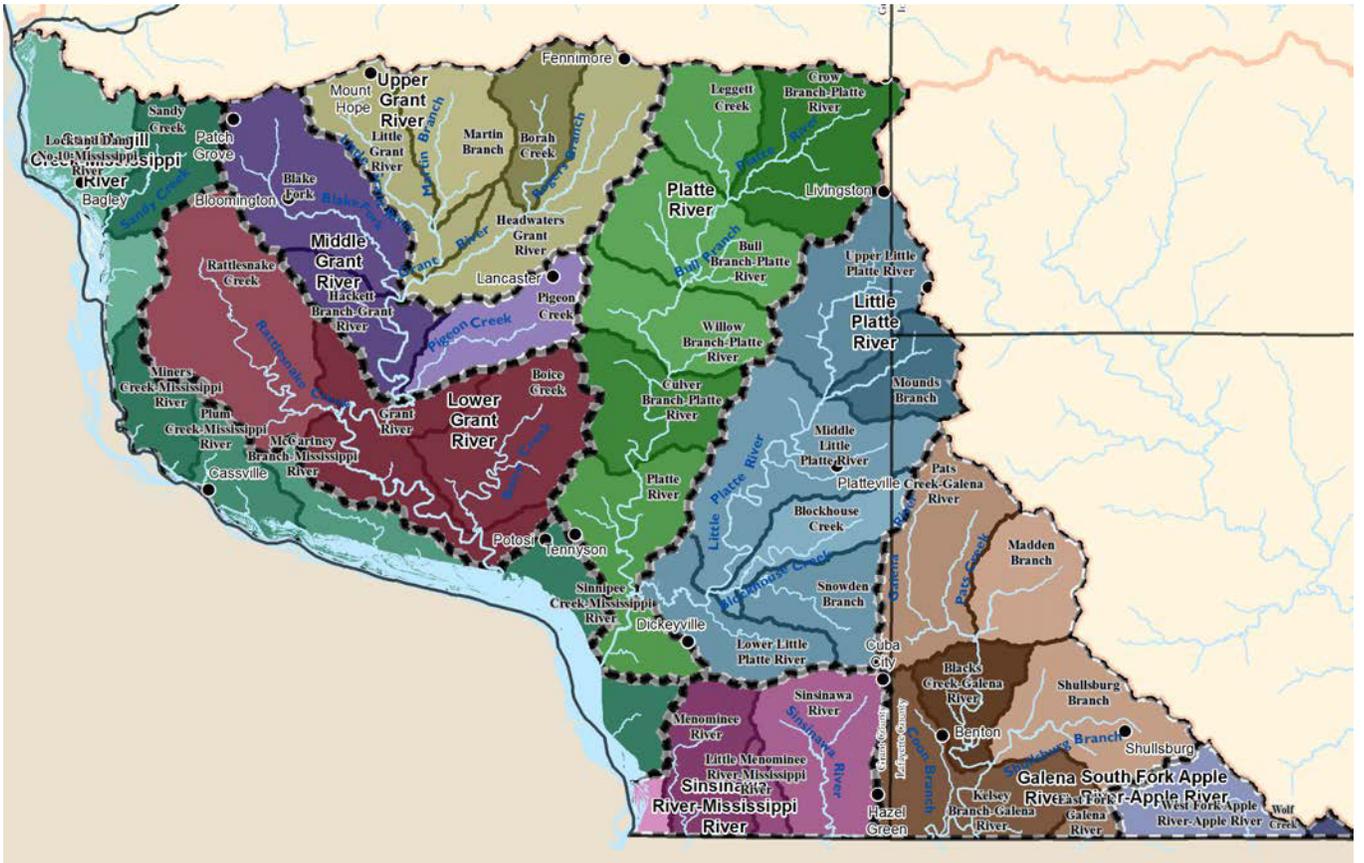
Figure 9.1: Map of DNR properties in the master plan for the Platte River Region.



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 9.2

Figure 9.2: Watersheds (HUC 10) and Sub-Watersheds (HUC 12) of the Platte River Region.



1. OVERVIEW

a) Physical Environment

The Platte River Region is characterized by broad open hilltops and river valleys, and steep wooded slopes. The soils in this watershed have formed in a silty, wind-blown covering with the deepest deposits along the bluffs of the Mississippi River and thinning towards the east. Some valley soils are alluvial sands, loams, and peats. Some hilltops are almost treeless due to the thin soil while others have a deep silt loam cap. Soils are underlain with calcareous bedrock.

b) Land Cover and Use

The region is dominated by agricultural uses, in particular along the hilltops and valley bottoms. With the increasing price of corn and soybeans over the last decade, many pastures, hayfields, and lands that were enrolled in the Conservation Reserve Program (CRP) are being converted to row crops. This large-scale conversion of permanent vegetation to agricultural uses that expose open soil is also likely to have an adverse effect on water quality of streams in the region.

Deciduous forests are found on the steep side slopes, with wetlands confined to riparian corridors. Most forested lands are part of farming operations and managed to provide forest products, including saw timber and firewood.

c) Terrestrial Habitats

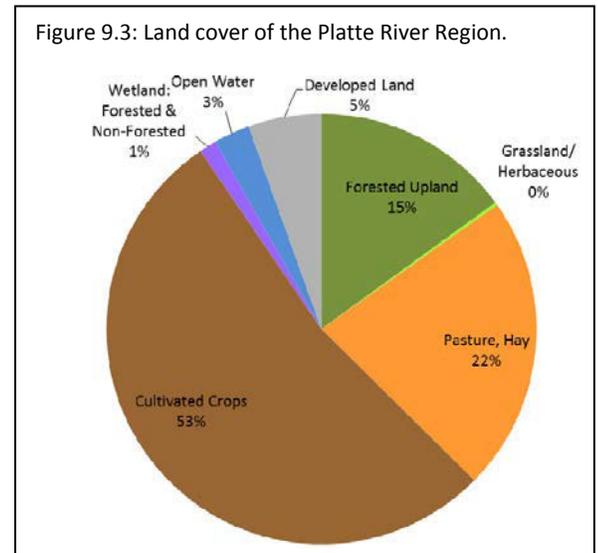
Grassland management at multiple scales is a conservation opportunity in the Platte River Region. Small, scattered remnants of native prairie exist here along with substantial areas of "surrogate grassland" (although this is declining with conversions out of CRP). The remaining grasslands provide increasingly critical habitat for many species, especially grassland birds.

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, and oak opening. 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."

d) Aquatic habitats

The following four paragraphs are a narrative excerpt taken from the 2001 basin plan which shares the same boundary as the Platte River Planning Region in this report.

There are 81 named streams in the Grant-Platte Basin, with 1,048 total stream miles. Of these, 638 miles are of named streams and 410 miles of smaller streams are not named. 37 miles of waters having excellent water quality and valued fisheries are classified as exceptional resource waters, (ERW). The Galena River and its excellent smallmouth bass fishery in Lafayette County accounts for 35 miles, while the remaining two miles of are the Class I trout waters of Borah Creek in Grant County. There are 70.3 miles of trout (COLD) water streams, 382.9 miles of warm water sport fish (WWSF) community streams and 169.9 miles of warm water forage fish (WWFF) community



streams in the basin. Some of the traditionally good smallmouth streams in the basin besides the Galena are the Little Platte and the Sinsinawa River.

Stream gradients range from low in some headwater areas and near mouths of larger streams, to higher gradients in upper and middle stream reaches. Local gradients and topographical relief cause streams in the basin tend to be very "flashy" which means water levels will increase rapidly after major rainfall or snowmelt events, then fall rapidly back to more normal flow levels. It also means that the streams in the basin are subject to runoff-related non-point source pollution such as stream bank erosion, barnyard runoff, overgrazing of streambanks, and sediment being carried from cultivated fields by runoff. This type of pollution increases the amount of sediment and nutrients in streams and affects in stream habitat, water temperature, and fish spawning and has other adverse effects on stream ecosystem and biological uses.

Runoff has increased in the basin over the last 180 years due to the conversion of the original natural land cover to agricultural land. A study done in the Platte River and Little Platte River watersheds demonstrated that runoff had almost tripled as a result of the conversion to agricultural land (Knox, 1977). The resulting increase in runoff and flood frequency also increased sediment load that dumped as much as 12 feet of sediment in the floodplain of the lower Platte River. This has also resulted in significant sediment deposition in the Mississippi River. The USGS looked at unit-area loadings (tons per square mile) of sediment and phosphorus in over 50 small watersheds around Wisconsin and reported that unit-area loads from rural watersheds in the Driftless Area are significantly greater than elsewhere in the state (Corsi, et.al., 1997).

Most of the streams in the watershed harbor numbers of nongame species which prefer higher gradient, hard bottomed streams. The Little Platte River, the lower half of Snowden Branch, Blockhouse Creek, and Mounds Branch harbor smallmouth bass or serve as nursery streams for this species. Rountree Branch and the upper half of Snowden Branch contain brown trout. With the exception of one site on Snowden Branch where brown trout were the only species found, the poor coldwater IBIs reflects the lack of other intolerant, coldwater species and indicates these are likely not true coldwater systems, but cool-coldwater transitional systems with water temperatures capable of sustaining brown trout. Streams in the watershed are very flashy and water levels rise and fall rapidly due to runoff events. Despite heavy erosion from fields, pastures and stream banks, the streams' flashiness, along with their moderate gradient, scours the bottom and generally results in a gravel and/or rubble/cobble bottom.

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

Species of special concern found within this region are the mud darter, weed shiner, and silver chub. Threatened species include the Ozark Minnow and Black Buffalo. The Ozark minnow is found inland inhabiting wadable and non-wadable warm water streams. The black buffalo is associated with the confluence portions of the Grant and Platte Rivers with the Mississippi River. The only endangered species is the goldeye. Like the black buffalo, it is associated with the lower portions of the Grant and Platte Rivers as they enter the Mississippi River.

To date, there is one known state threatened fish species that occurs within the study stream properties of this region. For a complete list of these species by property see in Appendix C of the "Rapid Ecological Assessment for

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

Driftless Area Streams.” 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

Mosquitofish has been established within this watershed. Originally found at the mouth of streams as they entered the Mississippi River, they have recently been collected in side channels and backwaters of smaller streams well away from the Mississippi River. While some consider this species an exotic to Wisconsin, it should be noted that this species is native to North America and the Upper Mississippi River basin. There is concern the mosquito fish may out compete similar species such as the state endangered starhead topminnow.

Asian carp species migrating up the Mississippi River is a concern. The lower portions of the Platte, Little Platte, and Grant Rivers are at risk. Some parts of Grant County have been infested with Japanese Hops (among other species) that have radically changed the vegetation found along stream banks and the riparian corridor.

g) Social and Recreation Issues

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

h) Cultural Resources

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.

Archaeological sites representing all of the recognized prehistoric culture periods are found in the area, ranging from Paleo-Indian (10,000-8,000 BC), through Archaic (8,000-500 BC), Woodland (500 BC-1000 AD), and Oneota (1000-1650 AD). Sites include Native American camps, villages, burial mounds, rock art, and more. In addition to numerous conical (round) burial mounds, the area evidences many animal-shaped *effigy* mounds, including a large number of effigy and non-effigy mounds in Wyalusing State Park.

Historic period sites (ca. 1650-present) include farmsteads, dams, sawmills, cemeteries, abandoned mines, 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. The restored brewery at Potosi is one example, serving as a vibrant link the town’s past.

2. PUBLICLY ACCESSIBLE LANDS in the PLATTE RIVER REGION

a) DNR and other public and private conservation lands²

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

	Properties included in this Master Plan													Other DNR Lands	**Other Public & Private Conservation Lands**	TOTAL
	Fisheries Management Program										Wildlife Program	End. Resources Program	TOTAL for properties included in this Master Plan			
	State Fishery Areas		Remnant Program		Streambank Protection		Scattered Habitat		Other*							
Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease	Fee	Ease					
Galena River	0	0	0	519	0	0	0	0	0	0	0	0	519	193	0	712
Blacks Creek-Galena River				196												
Shullsburg Branch				94												
Pats Creek-Galena River				22										21		
Madden Branch				43												
Kelsey Branch-Galena River				164										172		
Little Platte River	0	0	27	297	0	19	0	0	0	0	0	0	344	53	0	397
Blockhouse Creek			17	31												
Snowden Branch			3	83												
Blockhouse Creek														11		
Mounds Branch				0												
Upper Little Platte River			7	101												
Lower Little Platte River						15										
Middle Little Platte River				82		4								41		
Lower Grant River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23	23
Grant River															23	
Middle Grant River	0	0	0	11	0	0	0	0	0	0	0	0	11	0	0	11
Hackett Branch-Grant River				11												
Platte River	0	0	0	19	0	0	0	0	0	0	0	0	19	0	0	19
Culver Branch-Platte River				19												
Sinsinawa River-Miss. River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	195	195
Frentress Lake-Mississippi River															195	
Sny Magill Creek-Miss. River	0	0	0	0	0	0	0	0	0	0	0	0	0	2,767	12,995	15,762
Lock & Dam No 10-Miss. River														1,631	3,153	
Sinnipee Creek-Mississippi River														302	4,805	
Sandy Creek															2	
Plum Creek-Mississippi River														60	392	
McCartney Branch-Miss. River														25	4,143	
Miners Creek-Mississippi River														748	500	
Upper Grant River	0	0	0	196	0	0	0	0	0	0	0	0	196	0	0	196
Headwaters Grant River				24												
Martin Branch				57												
Little Grant River				78												
Borah Creek				36												
	0	0	27	1,042	0	19	0	0	0	0	0	0	1,089	3,013	13,213	17,314

* 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>).

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

ii) By DNR Property (acres):

Platte River Region	Fee	Easement	Total
Fish Management Program			1,089
State Fishery Areas			
None			-
Remnant Habitat Projects			
REM-BAILIE BRANCH	-	14	14
REM-BORAH CREEK	-	21	21
REM-GALENA RIVER	-	519	519
REM-GRANT RIVER	-	26	26
REM-LITTLE GRANT RIVER	-	77	77
REM-LITTLE PLATTE RIVER	27	321	348
REM-MARTIN BRANCH	-	57	57
REM-ROGERS BRANCH	-	6	6
Stream Bank Protection	-	19	19
Other*	-	-	-
Natural Areas Program			-
None			-
Wildlife Management Program			-
None			-
Total	27	1,062	1,089

* 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

A discussion of the goals and management strategies for in-stream habitat and the riparian corridor can be found 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 Platte 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	3%
Wetlands (inc. lowland forests)	10%
Forests (upland)	2%
Agricultural lands (including managed pasture lands)	85%
	100%

These habitats are managed following the strategies described in Chapter II.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 – None identified in the Rapid Ecological Assessment (see Appendix 2).

State Natural Areas – No State Natural Areas in the Platte River Region are part of this Master Plan.

c) Recreation facilities in this region.

See Appendix 3.

3. REPORT CARD on Trout and Smallmouth bass streams in the Platte River Region

Figure 9.4: Overview report card of the Platte 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								
			Galena River	Little Platte River	Lower Grant River	Middle Grant River	Platte River	Sny Magill Creek - Mississippi R	Sinnisawa River - Mississippi R	South Fork Apple River	Upper Grant River
Brook Trout	Stream Health and Habitat Quality	Natural Habitat Potential		F			F	F			F
		Land Use Stress		F			F	F			F
	Sport Fishery Performance	Stock (5" up to 8")		F			F	F			F
		Quality (8" up to 12")		F			F	F			F
		Memorable (12" +)		F			F	F			F
Projected resilience to climate change			D		D	C	D		C		D
Brown Trout	Stream Health and Habitat Quality	Natural Habitat Potential		F			A	B			A
		Land Use Stress		F			F	D			F
	Sport Fishery Performance	Stock (6" up to 10")		F			F	F			B
		Quality (10" up to 15")		F			F	D			A
		Memorable (15" +)		F			F	F			A
Projected resilience to climate change			D	D	D	D	A	D	C		B
Small-mouth Bass	Stream Health and Habitat Quality	Natural Habitat Potential	B	B	B	C	B		B		C
		Land Use Stress	A	A	A	A	A		A		B
	Sport Fishery Performance	Stock (8" up to 14")	A	F			A		A		A
		Memorable (14" +)	B	F			F		C		A
Projected gain from climate change			A	A	A	A	A	A	B	C	A
Trout Stream Habitat	Thermal resilience of trout streams			D			D	C			B
	Total miles of stream restoration			B			C	F			A
Recreation	Angling opportunities	Percent of trout stream miles with public access		A			D	D			B
		Percent of smallmouth bass stream miles with public access	A	B	F	C	D		F		D
	Supply relative to demand	Miles of publicly-accessible trout and SMB streams per 100K people within a 1-hour drive	A	B	F	D	D	F	D	F	A

a) Brook Trout

i) Stream Health and Habitat Quality

Figure 9.5 shows the levels of natural habitat potential, land use stress and probability of occurrence for brook trout in the Platte River Region.

Natural Habitat Potential (Top of Fig. 9.5)

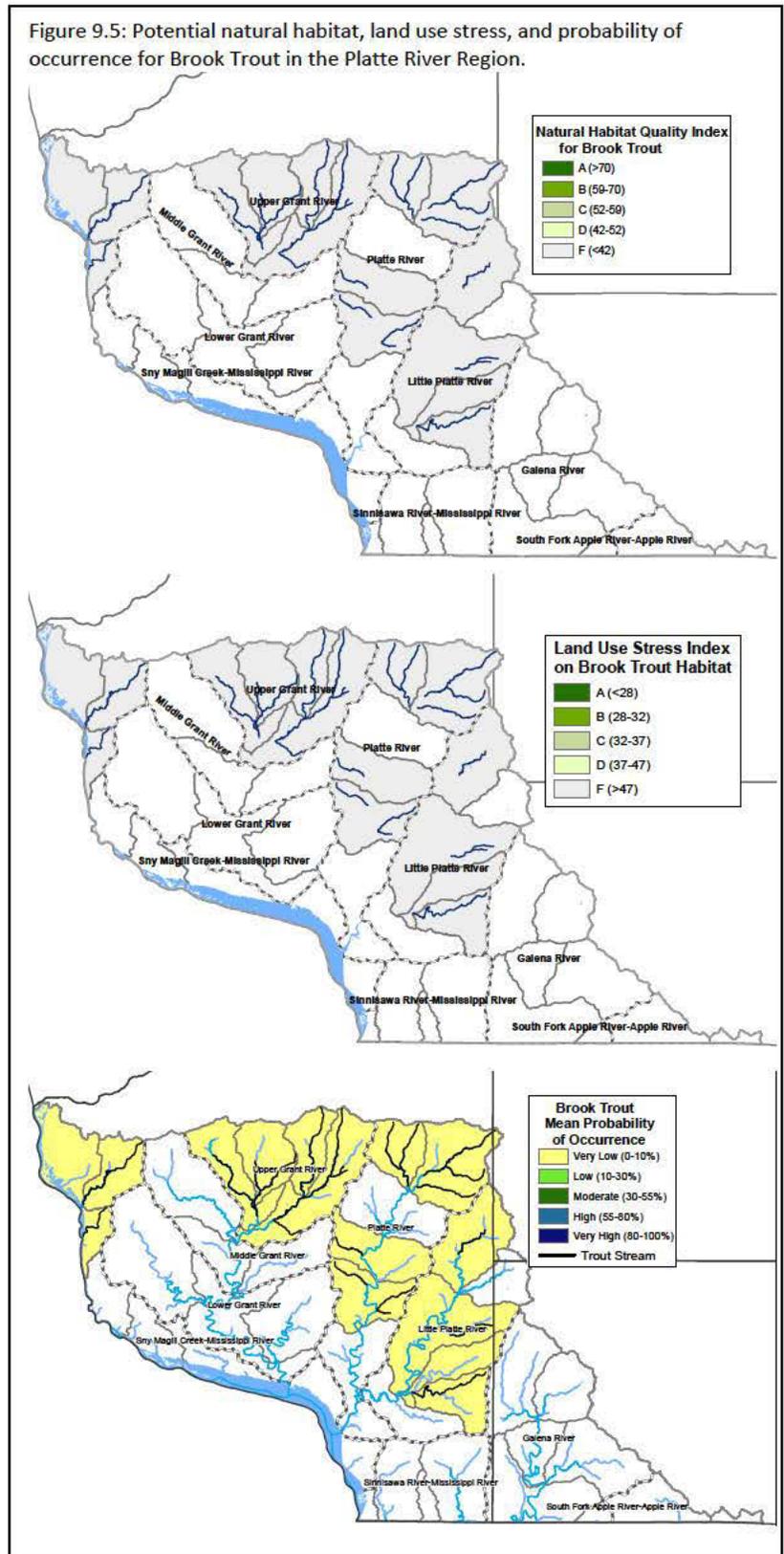
The Platte River Region currently is deficient on good natural habitat potential for brook trout. Although habitat potential index scores were low (<42) for all of sub-watersheds in the Upper Grant River watershed, the best potential can be found in the upper reaches of the Upper Grant River watershed. There are several catchments associated with Borah Creek which hold higher habitat potential index scores. Borah Creek is a Class 1 stream that has the potential to support brook trout.

Land Use Stress (Middle of Fig. 9.5)

The main land use stress within this region is non-point runoff from crop fields, concentrated pastures, and feed lots. Nonpoint runoff results in excessive sediment and nutrient loading, both of which decrease the success of trout spawning and survival of young fish and contribute to the loss of aquatic invertebrates which are an essential food source for trout. Other agriculture related issues impacting habitat include stream straightening and wetland drainage. Many streams within the Platte River region have suffered perturbations from sediment or nutrient loading.

Probability of Occurrence (Bottom of Fig. 9.5)

The probability of brook trout to occur within the Platte River region is very low, as seen by Figure 9.5. This can be attributed to the overall lack of natural habitat potential for brook trout and high land use stress. Much of this region is considered coolwater and has little potential to support brook trout. The best probability of occurrence, albeit lower, is located within the headwater streams of the Grant River and Little Platte River watersheds.



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. As can be seen in Figures 9.6 and 9.7, there are no substantive brook trout fisheries located within this region. The only brook trout fishing opportunities are in the Upper Grant River Watershed when surplus domestic strains of brook trout are stocked. These domestic strains provide anglers with a limited opportunity and are not able to establish a breeding population.

Figure 9.7: Brook trout density – stock, quality, and memorable fish in the Platte River Region.

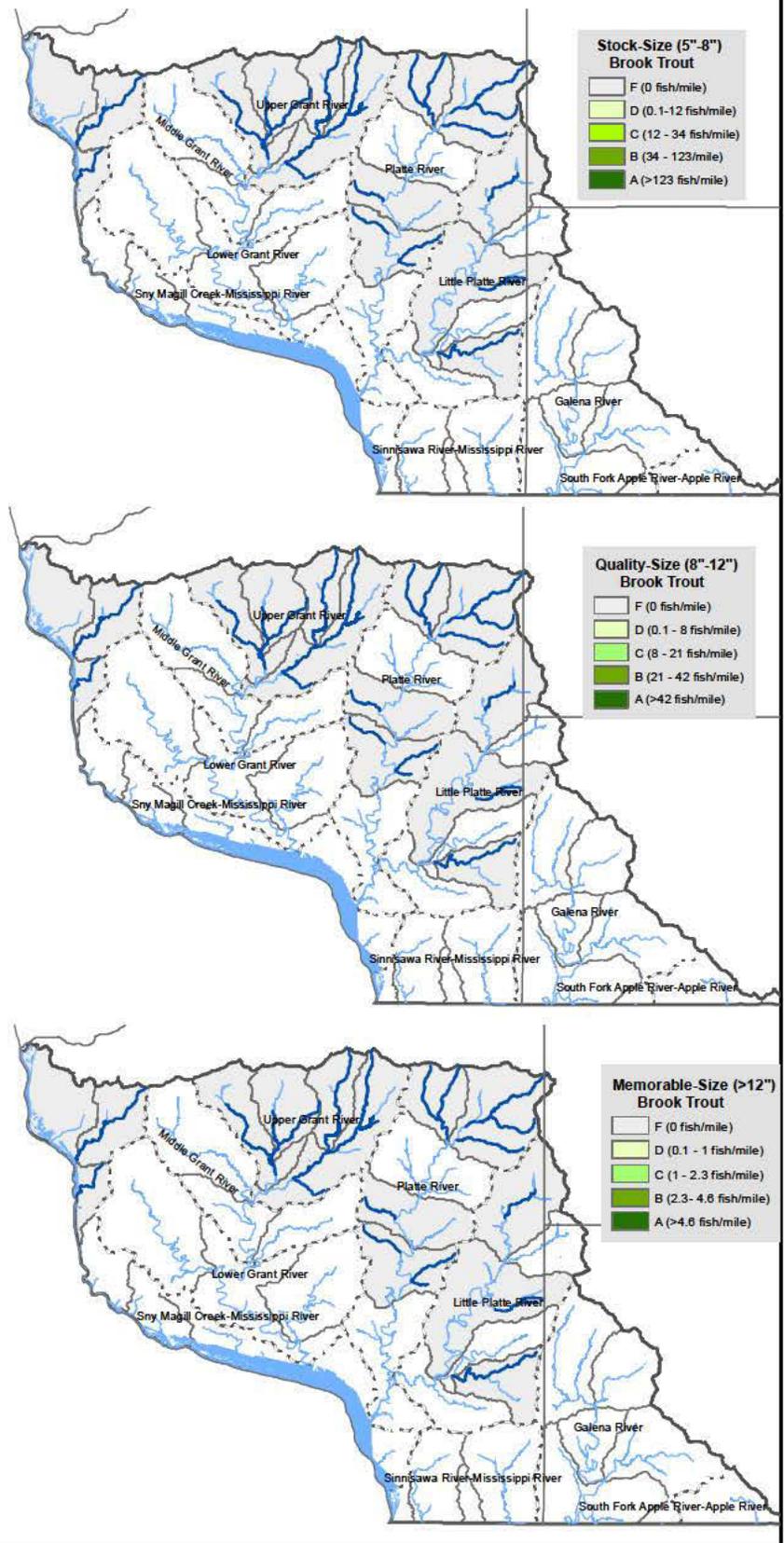
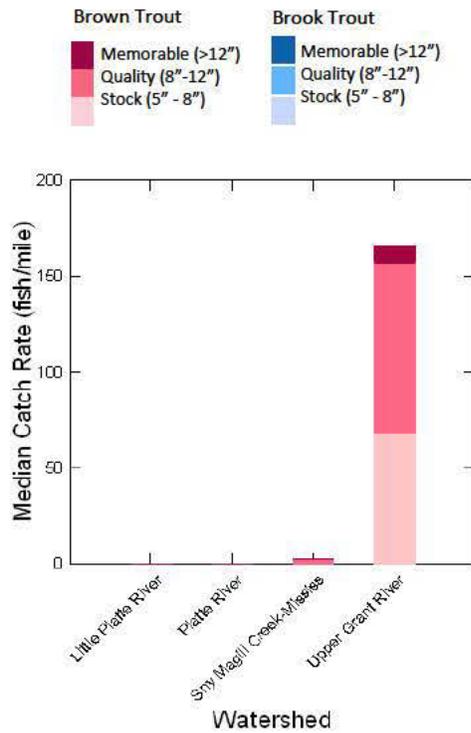


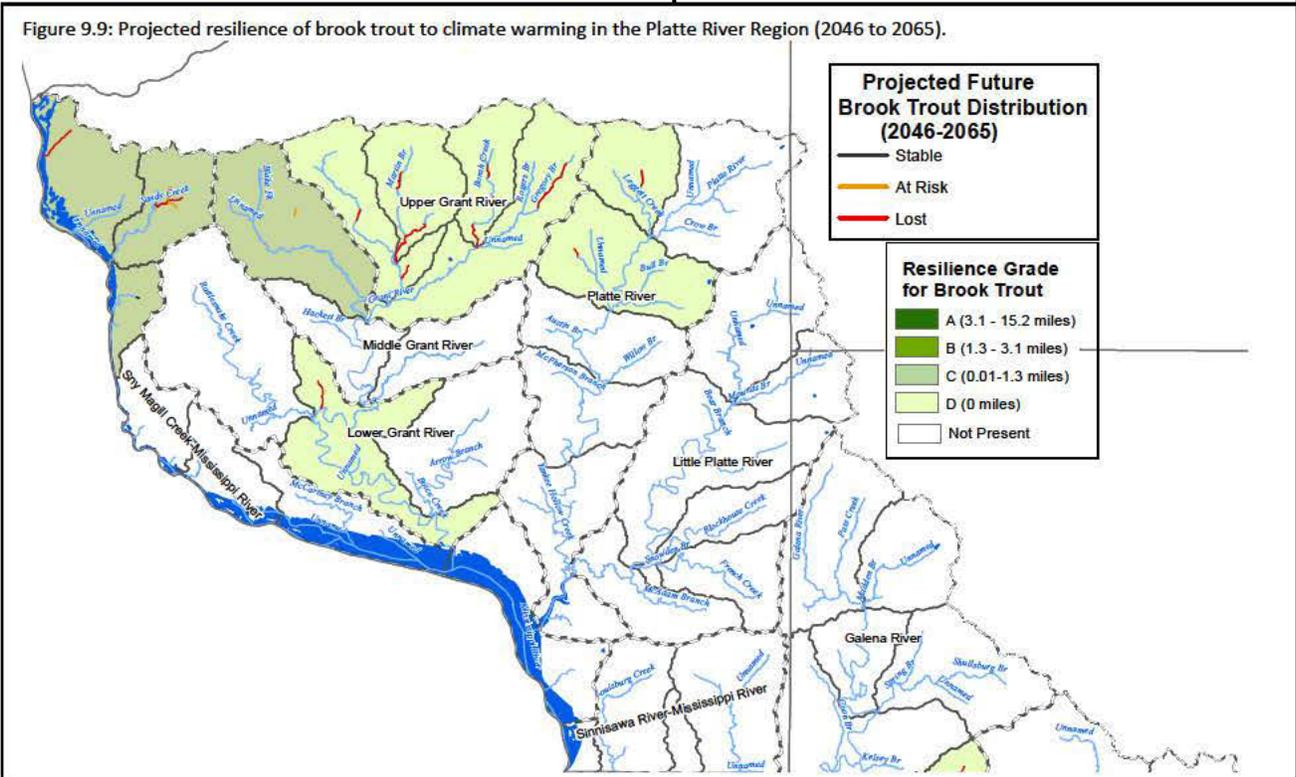
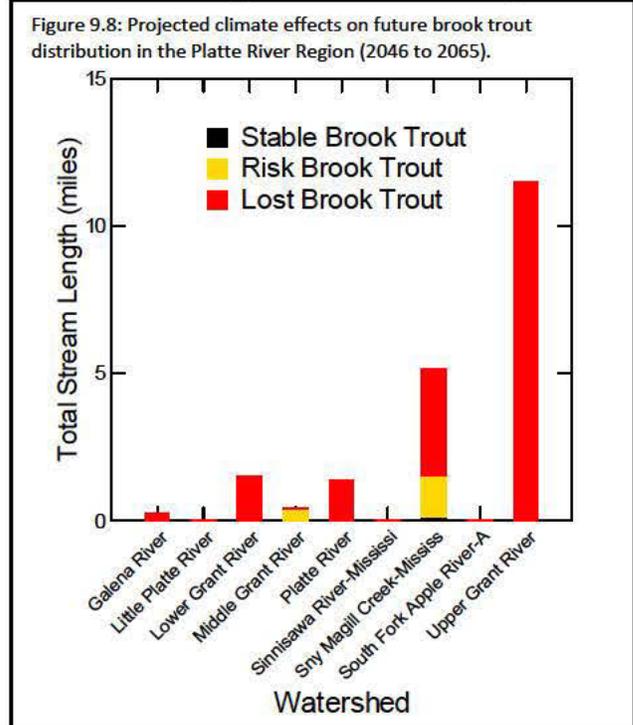
Figure 9.6: Brook and brown trout abundance in the Platte River Region.



iii) Projected Resilience of Brook Trout to Climate Change

The Driftless Regional and Property Analysis utilizes the newest USGS model outputs to evaluate impacts of global warming on future distributions of brook trout, 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 9.8 shows the projected effects of climate warming on future brook trout distribution. Brook trout occurrence is very low today, and by the mid-century this species is projected to be largely extirpated in the Platte River Region. As can be seen in Figure 9.8, it is projected that there will be an overall loss of brook trout waters within the Platte River region. For each watershed the total miles of lost or at risk is very low (<12 miles) as the stream climate model projects that brook trout current occur in very few stream reaches throughout the region. The stream climate model projected brook trout would currently occur in only 24 stream reach sections across the entire planning region. Contemporary electrofishing survey results affirm the low number of stream segments output from stream climate model (initial conditions).

The most resilient sub-watersheds occur in the northern portions of the region as seen in Figure 9.9. However, only 1 of the 24 stream reach segments where brook trout are initially projected to occur were classified as stable. Brook trout occurrences in the mid-century for the other 23 reaches are projected to be either lost (16 reaches) or at risk (7 reaches).



b) Brown Trout

i) Stream Health and Habitat Quality

Figure 9.10 shows the levels of natural habitat potential, land use stress and probability of occurrence for brown trout in the Platte River Region.

Natural Habitat Potential (Top of Figure 9.10)

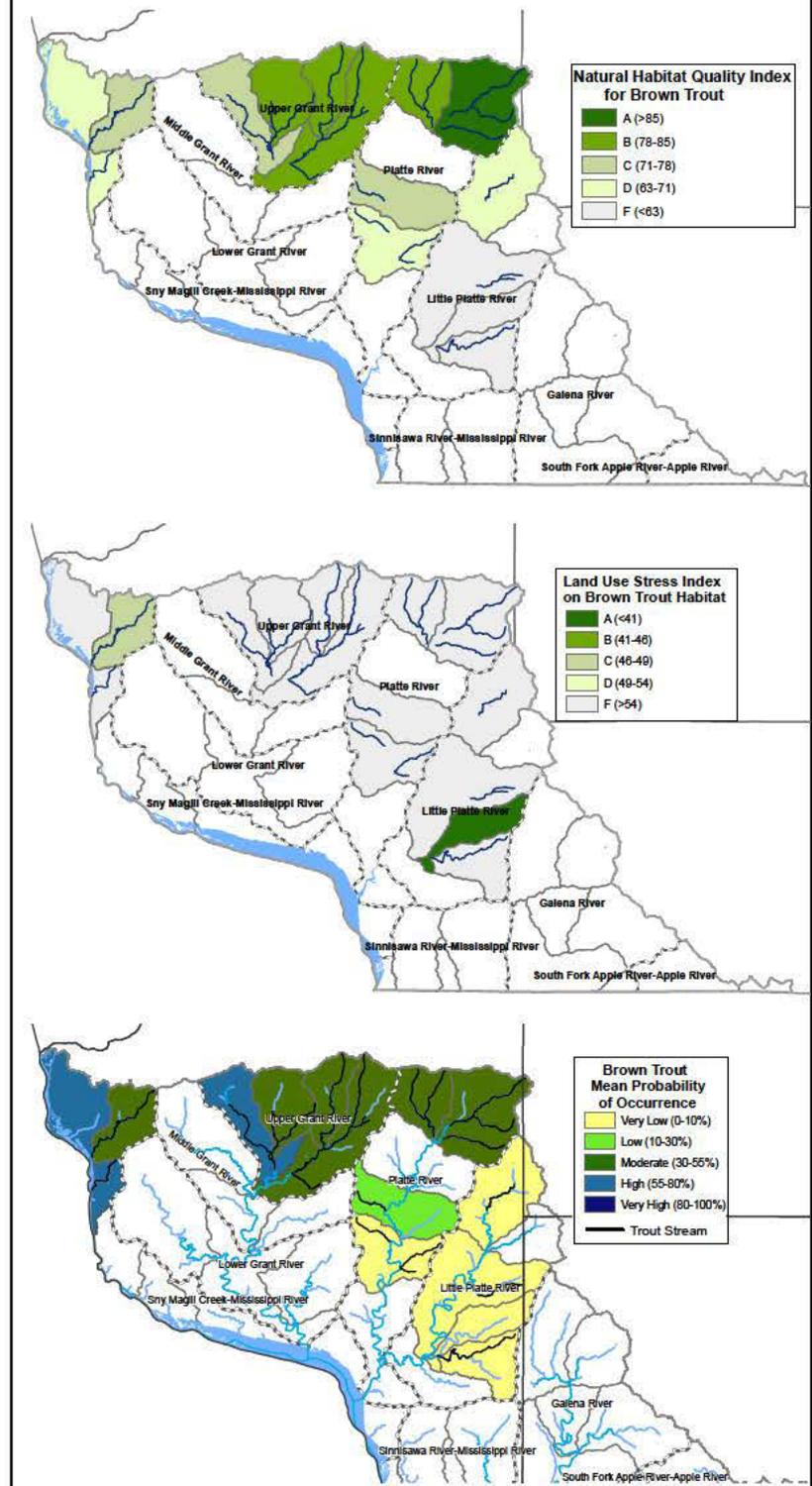
There is higher natural habitat potential for brown trout compared to brook trout (Figure 9.10 and 9.5) The best potential brown trout habitat is found in the northern portions of the Platte River Region. This includes the headwater streams of the Grant and Platte River system; Little Grant River, Borah Creek, Rogers Branch, Upper Little Platte River, and the Upper Platte River.

Land Use Stress (Middle of Figure 9.10)

Model outputs in Figure 9.10 depict high levels of land use stress on brown trout habitat throughout the Platte River Region. Like the brook trout, the most influential land use stress for brown trout is non-point runoff from crop fields, concentrated pastures, and feed lots. Nonpoint runoff results in excessive sediment and nutrient loading. Both decrease the success of trout spawning and survival of young fish and contribute to the loss of aquatic invertebrates which are an essential food source for trout. Other agriculture related issues impacting habitat include stream straightening and wetland drainage. Many streams within the Platte River region have suffered perturbations from sediment or nutrient loading. The low land use stress index scores (<41) associated with the Blockhouse Branch in the Little Platte River watershed in figure 9.10 represent model output error.

The Rountree Branch located within the city of Platteville also has historic mining piles and urban development acting as land stressors as well. The mine piles were remediated in 1991, but some runoff still persists at very low levels. Urban development is increasing the amount of impervious surfaces, leading to increased storm water runoff into the Rountree Branch.

Figure 9.10: Potential natural habitat, land use stress, and probability of occurrence for Brown Trout in the Platte River Region.



Probability of Occurrence (Bottom of Figure 9.10)

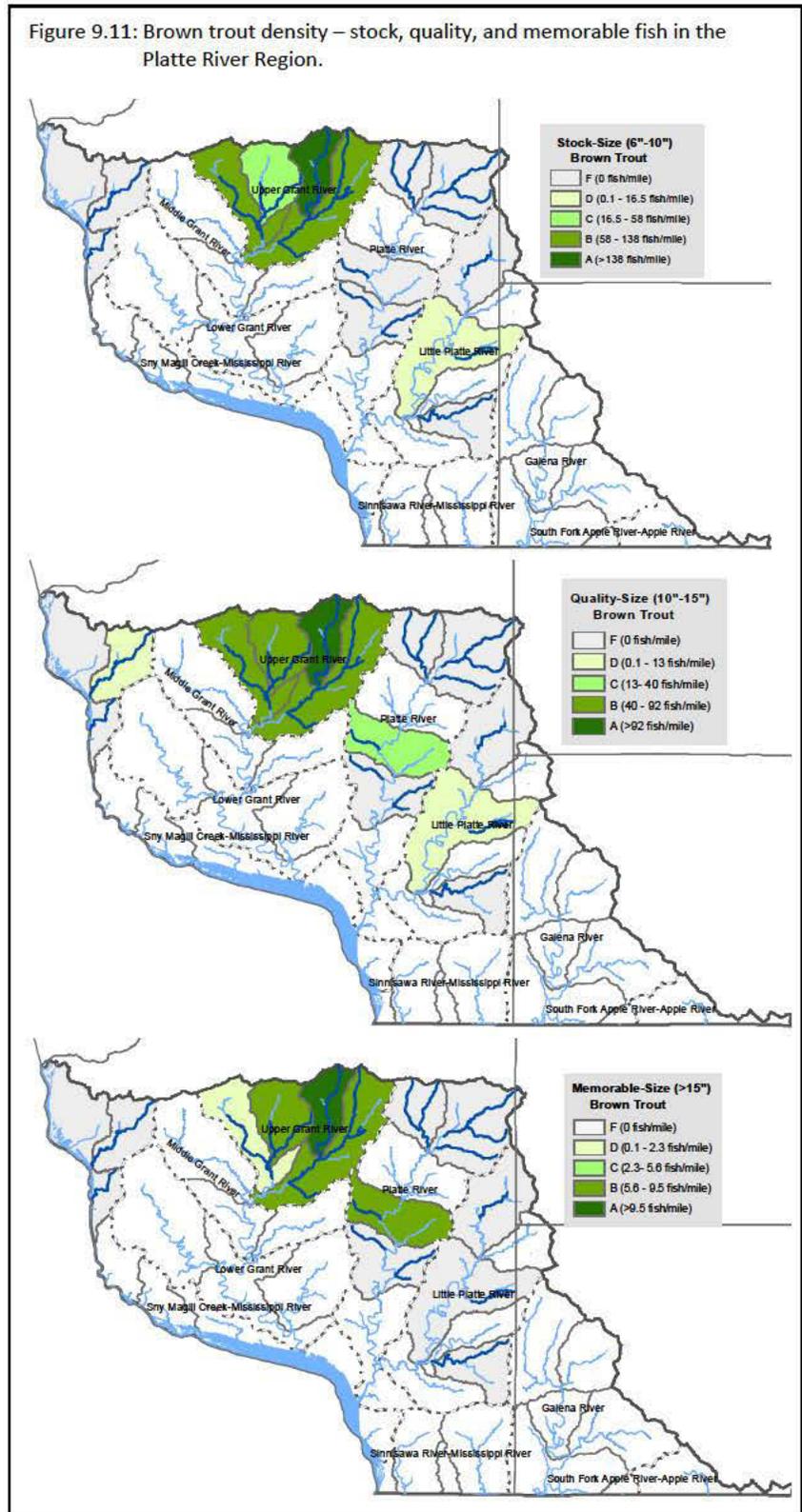
The probability of brown trout to occur within the Platte River Region is moderate to high in the northern portions of this region and very low to no probability of occurrence in the southern portions (figure 9.10). This is due to higher levels of habitat potential for brown trout found in the northern portions of the Region.

ii) Sport Fishery Performance

The best brown trout populations are found in the Upper Grant River watershed (Figure 9.11), harboring the highest median catch rate for stock, quality, and memorable size brown trout). Streams supporting good brown trout fisheries within the Upper Grant River watershed are Borah Creek, Rogers Branch, Little Grant River, Martin Branch, and the Grant River.

Even though the Platte and Little Platte River watersheds are listed as having low brown trout abundance (Figure 9.11) there are streams within these watersheds which support good brown trout populations, Mcpherson Branch, Rountree Branch, and the upper Little Platte River. Noteworthy local populations are sometimes “masked” by expressing median catch rates at the sub-watershed scale. An example of this is a tributary to the Little Platte River, the Rountree Branch; while not represented in Figure 9.11, the Rountree Branch supports a good population of stock, quality, and memorable size brown trout, which persists via natural reproduction.

Figure 9.11: Brown trout density – stock, quality, and memorable fish in the Platte River Region.



iii) Projected Resilience of Brook Trout to Climate Change

Unlike the projections of brook trout extirpation (Figure 9.8), brown trout are projected to persist to the mid-century, albeit at lower levels and mainly in the northern portion of the region. As can be seen on figure 9.12, about 50% of the current brown trout distribution within all watersheds is projected to remain stable by the mid-century. Watersheds projected to have the greatest loss and which are most at risk include the Lower Grant, Little Platte and Middle Grant Rivers. Portions of the upper Grant and Platte River have received the highest grade in brown trout resilience while much of the Platte Region remains average as seen in figure 9.13.

Figure 9.12: Projected climate effects on future brown trout distribution in the Platte River Region (2046 to 2065).

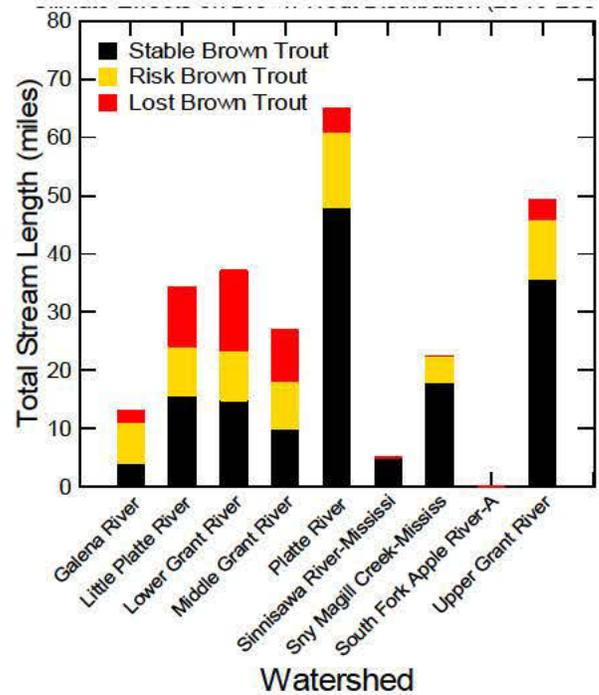
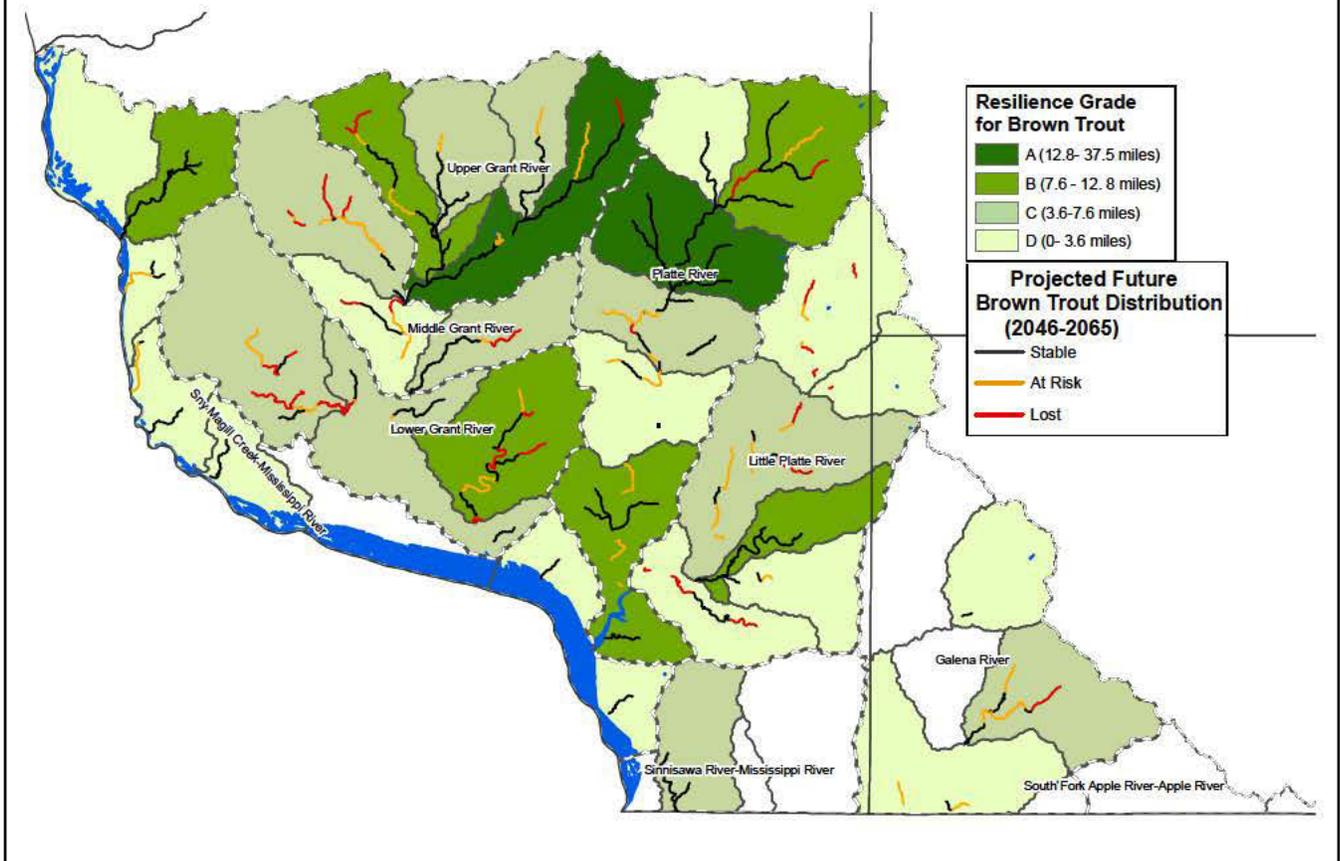


Figure 9.13: Projected resilience of brown trout to climate warming in the Platte River Region (2046 to 2065).



c) Smallmouth Bass

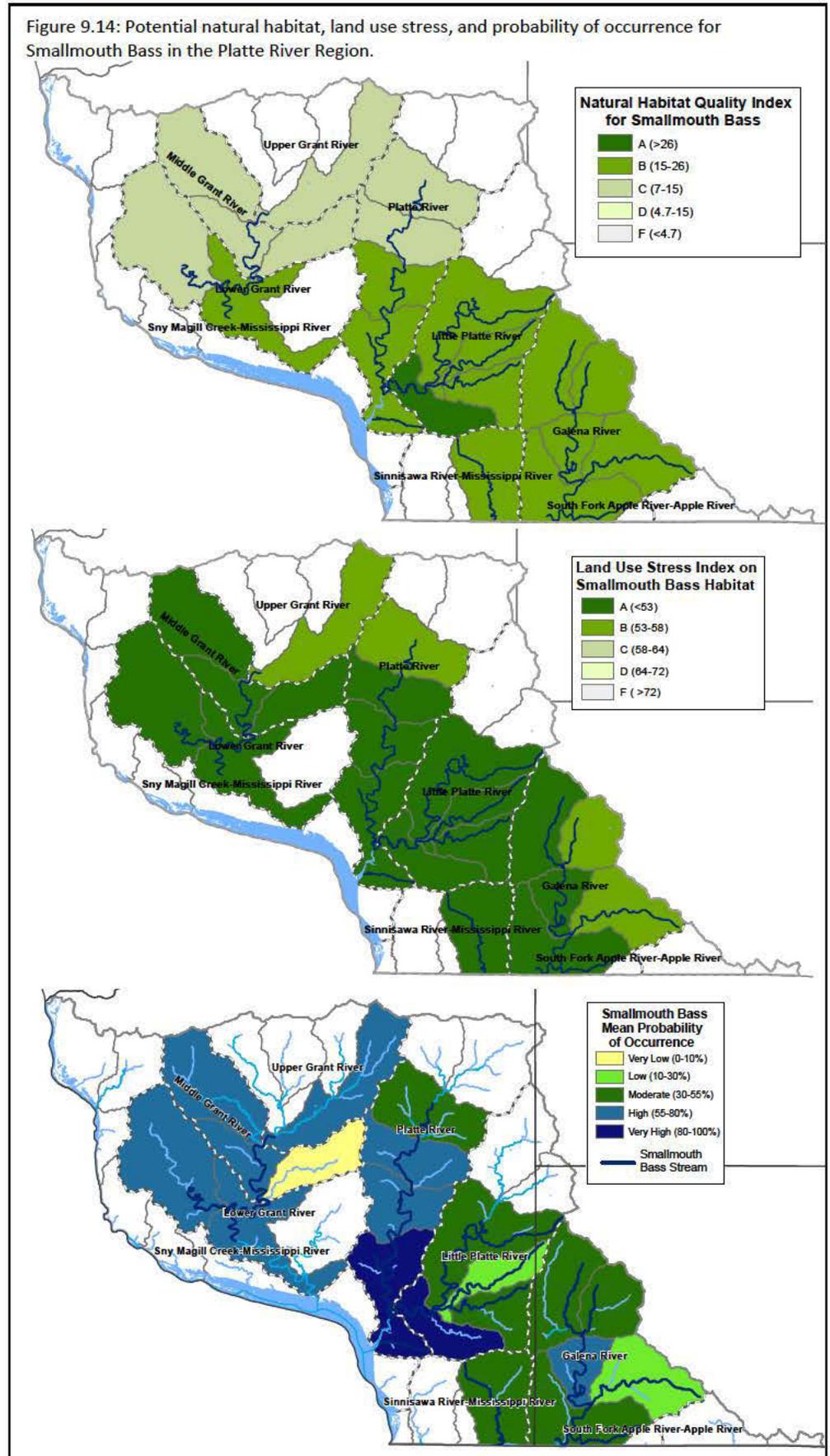
i) Stream Health and Habitat Quality

Figure 9.14 shows the levels of natural habitat potential, land use stress and probability of occurrence for smallmouth bass in the Platte River Region.

Natural Habitat Potential

Other than the “big rivers” in other parts of the state, the Platte River Region is smallmouth bass country, owing to the fact that the most influential factors for SMB habitat potential index are: 1) network drainage area; 2) mean annual air temperature; 2) mean annual precipitation; 4) minimum catchment elevation; and 5) network sandstone bedrock geology. The habitat potential for smallmouth bass is good to excellent for much of this region. This can be seen in figure 9.14. The Galena, Sinsinawa, Platte, Little Platte, and Grant River watersheds all offer good habitat for smallmouth bass. This region is unique with the majority the smallmouth bass water being wadable and containing nearly ¼ of all smallmouth bass stream habitat in Wisconsin. Smallmouth bass streams within this region capable of sustaining a fully developed smallmouth bass population are typically characterized by summer water

Figure 9.14: Potential natural habitat, land use stress, and probability of occurrence for Smallmouth Bass in the Platte River Region.



temperature exceeding 72° F, coarse rock/gravel substrate, watershed drainages from 16 to 324 square miles, annual flow ranging 30-207 cfs, mean width 15-40 feet, mean pool depth 3-4 foot deep, and gradients > 5.0 feet/mile. Many of the smaller warm water streams within these watersheds lack the habitat to support a fully developed population but still act as smallmouth bass nursery streams contributing to the reproductive success and recruitment into the adult population.

Land Use Stress (middle of Figure 9.14)

The levels of anthropogenic stress on smallmouth bass are consistent across the region. The largest smallmouth bass stressor is sediment and the accompanying nutrient and biological oxygen demand load. Sediment represents the greatest impact in terms of loss of hard, clean rock substrates and interstitial space found in coarse bed materials. The negative impacts of sedimentation include loss of depth, reduction of suitable spawning and nursery cover, impacts to benthic invertebrates which serve as food resources for bass, and the periodic delivery of ammonia in concentrations sufficient to kill fish and aquatic life. Many fish kills are often reported after rain events when re-suspension of sediment results in decreased dissolved oxygen levels.

Smallmouth bass streams have also suffered fish kills from concentrated feeding operations, land spreading and poor storage techniques of liquid animal waste. Smallmouth bass streams do not have the buffering capacity of trout streams and are more likely to suffer from anthropogenic stress in the form of animal waste and sediment runoff. During the overnight period, smallmouth bass streams have naturally occurring dissolved oxygen sags which approach lethal levels. When these low dissolved oxygen levels are combined with an anthropogenic stress, the result is often a fish kill.

Other stressors impacting water quality within this region are due to historic lead and zinc mine operations. Many occurred in the Galena River watershed and Little Platte River watershed near Platteville. Remnants left from mining activity include abandoned piles of mine waste (roaster piles), mine holes, and air shafts. This has led to leaching of mine waste into streams and negatively impacted water quality. Roaster piles left by mining contain iron sulfide. Water and oxygen combine with iron sulfide to form iron sulfate minerals and sulfuric acid. While remediation efforts have reduced much of the leaching from mine waste, there are still some areas where leaching from mine waste is still evident.

Probability of Occurrence (middle of Figure 9.14)

The probability of smallmouth bass to occur within the Platte River region is greater than any other region in the Driftless Area. The probability of occurrence is very high in the lower reaches of the Platte and Little Platte watersheds (figure 9.14). High probability of occurrence can be found in portions of the Galena River, Platte River, and Grant River watersheds. Low to moderate probabilities can be found in the Upper Platte River, Little Platte River, Galena River, and Sinsinawa River watersheds.

ii) Sport Fishery Performance

The Platte River Region provides the best opportunities in the Driftless Area for anglers to pursue smallmouth bass in wadable streams. As can be seen in Figure 9.15, the upper Grant River has the highest median catch rate for both stock and memorable size smallmouth bass. Catch rates across the entire region are considered good for smallmouth bass. While the median catch rate for the Little Platte River is low it still supports one of the better populations in the region and is not represented by Figure 9.16. Other streams not represented by Figure 9.16 but still supporting good smallmouth bass fisheries are Rattlesnake Creek (Lower Grant River Watershed), Blockhouse Creek (Little Platte River Watershed), Mounds Branch (Little Platte River Watershed), and the Menominee River (Mississippi River Watershed).

Figure 9.15: Smallmouth bass abundance in the Platte River Region.

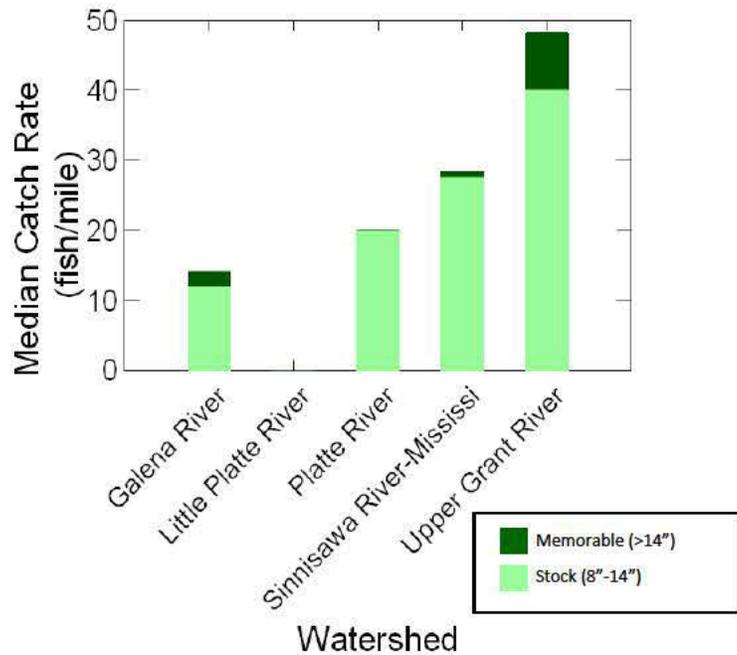
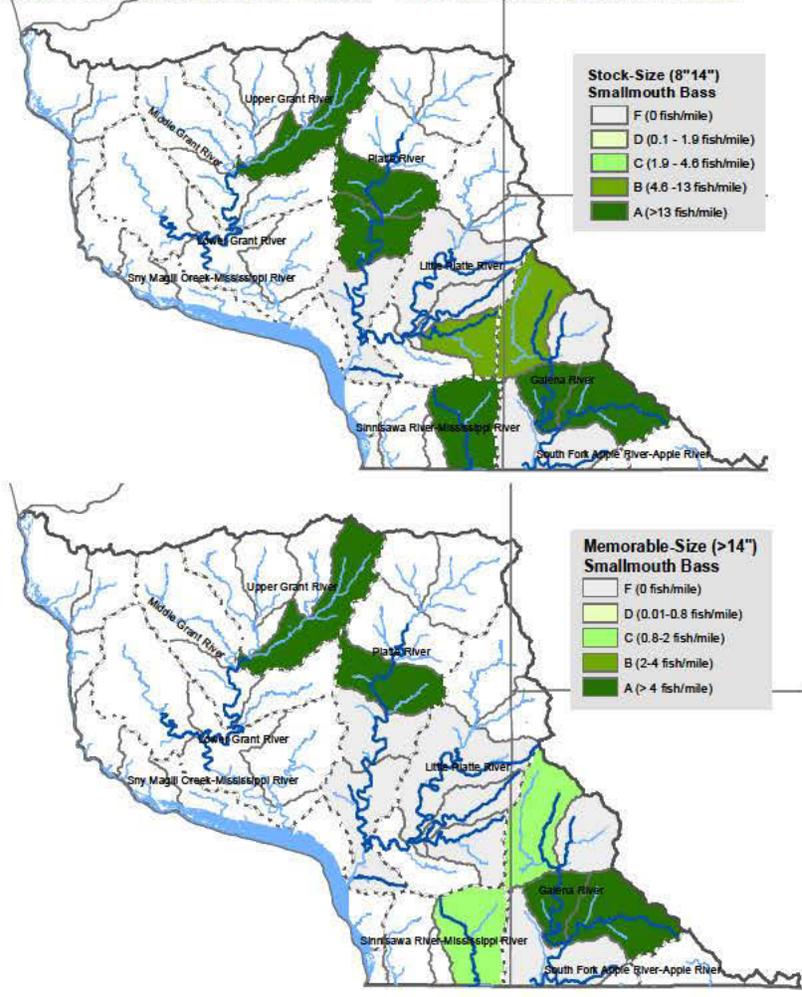


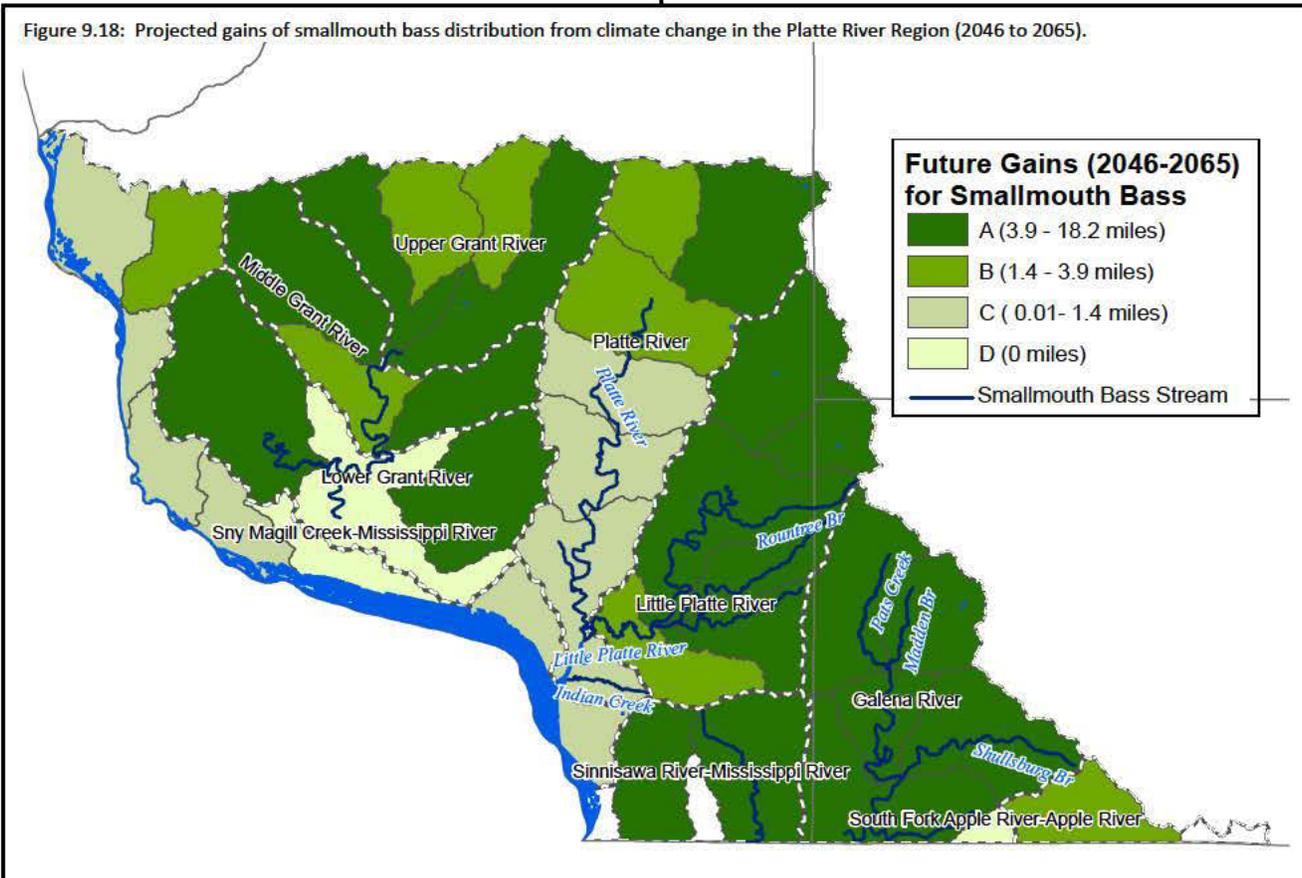
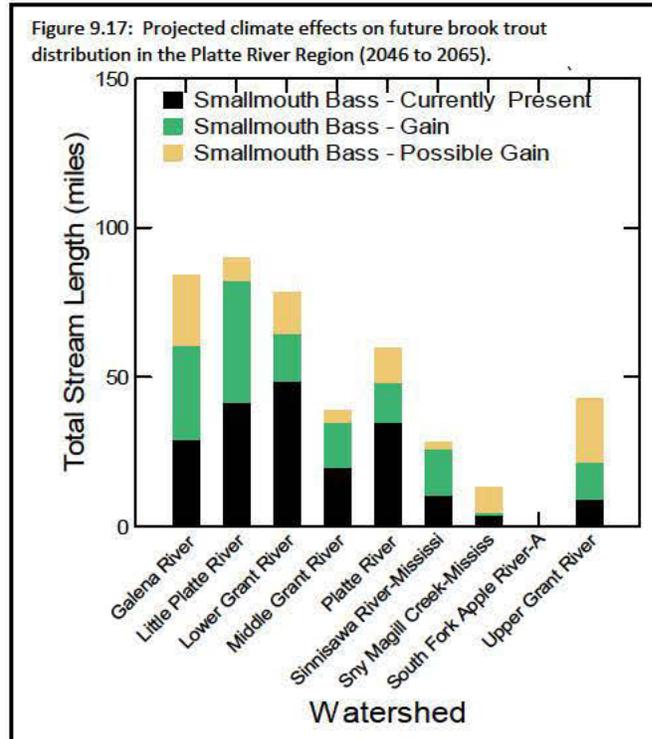
Figure 9.16: Smallmouth bass density – stock-size and memorable-size fish.



iii) Projected Gains of Smallmouth Bass to Climate Change

This RPA utilizes these newest USGS Stream model outputs to evaluate impacts of global warming on future distributions of smallmouth bass. A more complete discussion of the methods and analysis can be found in Chapter 2. For smallmouth bass the RPA examines future distributions by classifying each stream reach into three categories: gain and possible gain. Unlike the projected declines in trout, the effects of climate warming will expand the future distribution of smallmouth bass by the mid-century.

The future gains values mapped in Figure 9.18 represent an estimate of the total amount stream miles in each sub-watershed that smallmouth bass is projected to expand into by the mid-century. As can be seen in figures 9.17 and 9.18, all watersheds are projected to gain smallmouth bass water, with the most gains coming in the east within the Little Platte and Galena River watersheds. Large gains are also projected in the Lower, Middle, and Upper Grant River watersheds. There is no projected loss of smallmouth bass water.



d) Thermal Resilience of Trout Streams to Climate Change

The Regional & Property Analysis uses thermal class definitions for the Driftless Area streams shown in Table 2.2 found in Chapter 2. Streams in the Driftless Area are categorized as: cold, cool-cold transition (sometimes referred to simply as cold transition), cool-warm transition, and warm. Trout streams of the Platte River Region are dominated by cool-cold transition thermal habitat (Figure 9.19).

Among the southerly planning regions, trout streams of the Platte and Pecatonica River regions are most vulnerable to shifts in thermal class due to climate warming. Here, most sub-watersheds had less than 41% of their trout stream miles thermally resilient to the mid-century (Figure 9.20). In the Platte River Region one-half of the “trout” sub-watersheds will shift at least 60% of their stream miles upward one thermal class. Most of the change will be from cold-transition water to warm-transition water, which cannot sustain trout populations. These changes from cold transition to warm transition habitat will favor survivorship and expansion of smallmouth as seen in figure 9.17 and 9.18. Very small pockets of cold thermal habitat are projected to remain by the mid-century, namely Sinnipee Creek and Upper Grant River watersheds.

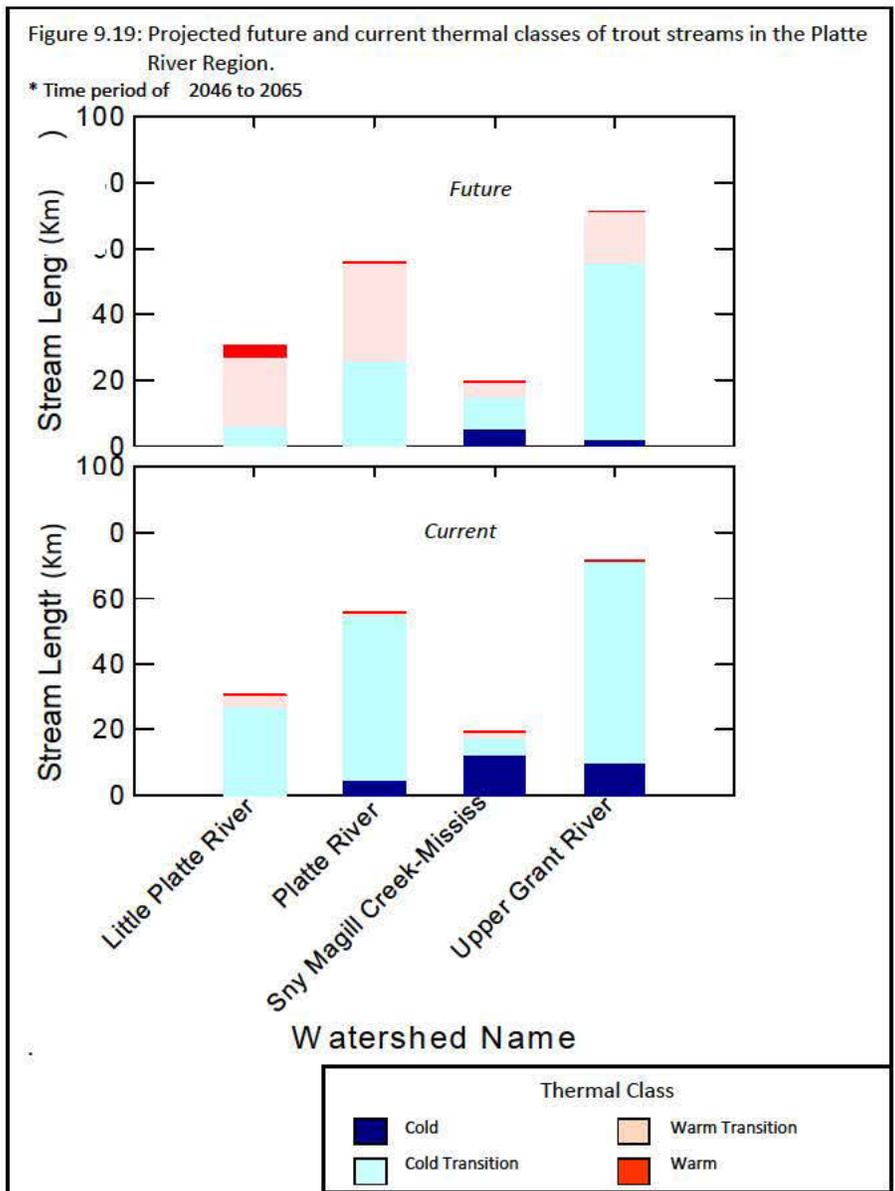
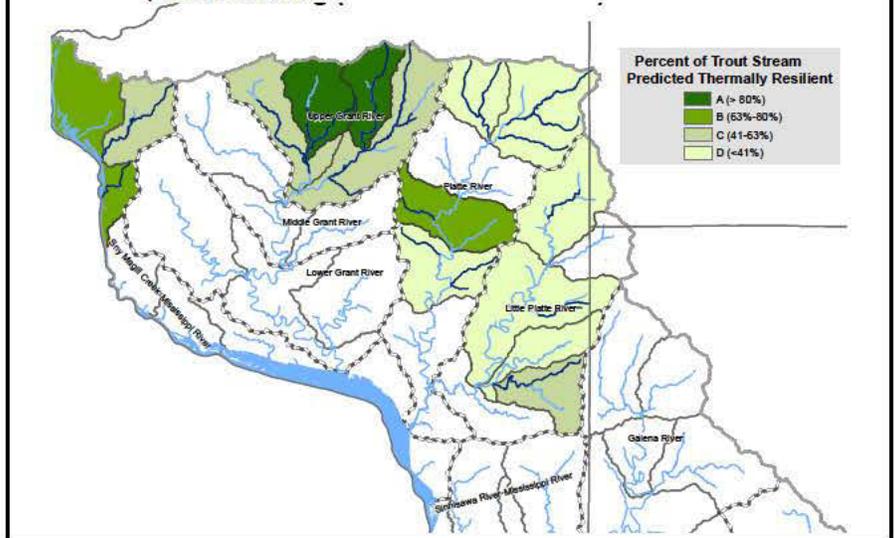
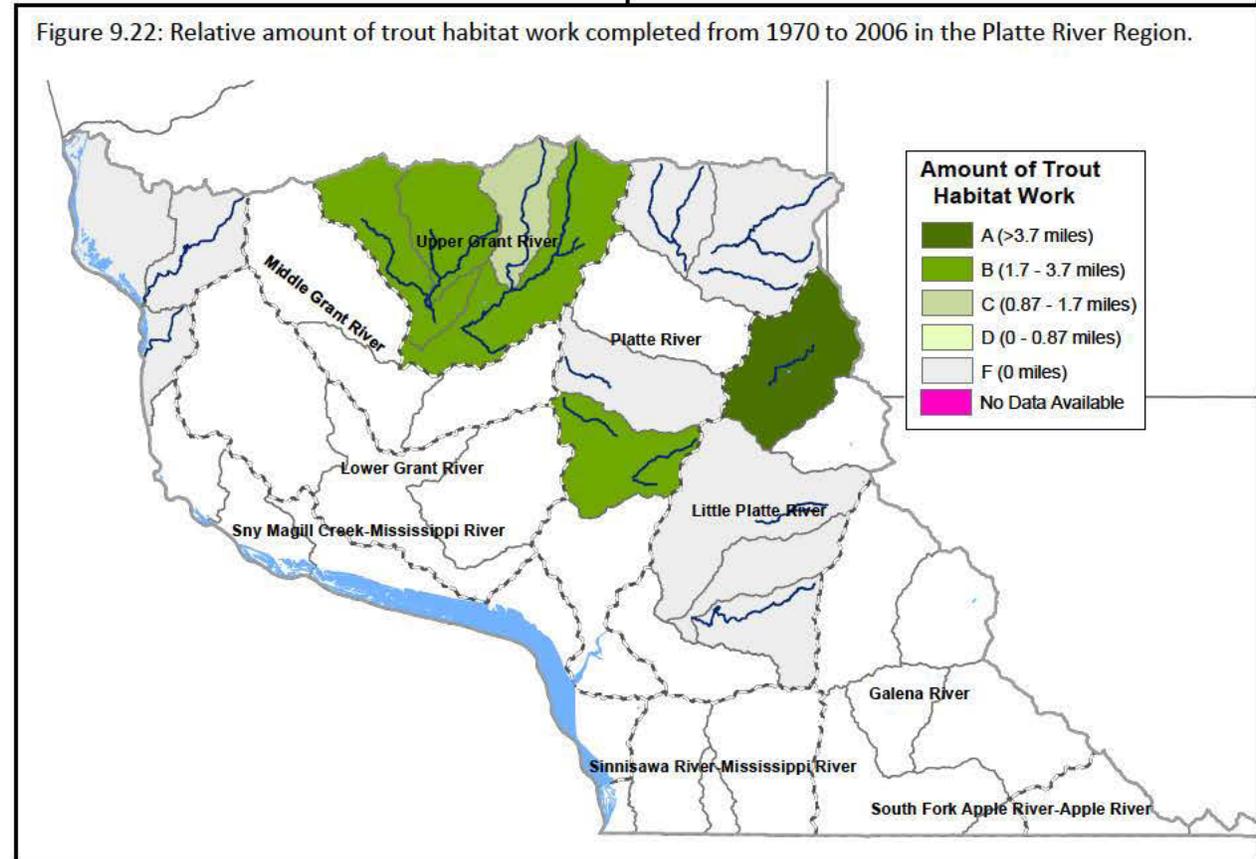
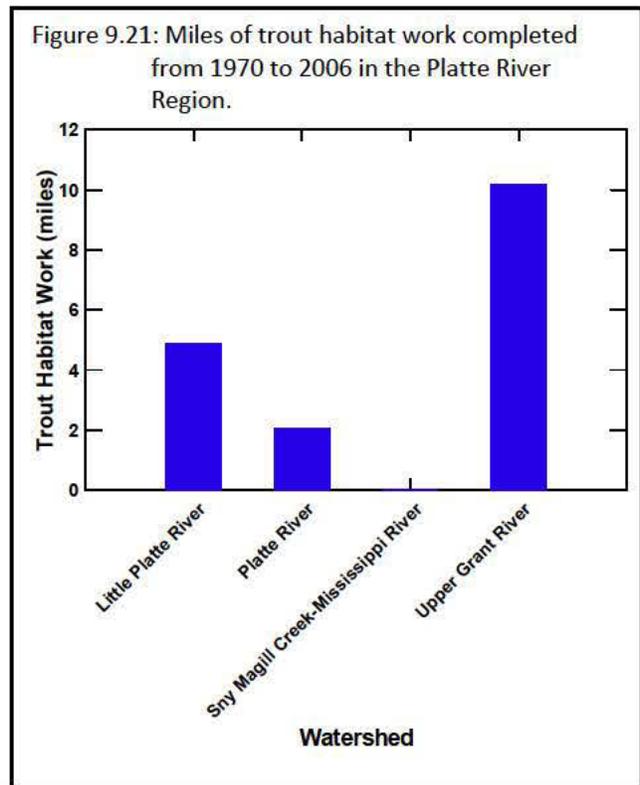


Figure 9.20: Projected changes in trout stream temperatures from current to the time period 2046-2065.



e) Trout Stream Restoration

As seen in Figure 9.21, approximately 17 miles of trout habitat work was completed within the Platte River Region from 1970 through 2006. Approximately 10 miles of the work was completed in the upper Grant River watershed which includes Borah Creek, Roger Branch, Grant River, and the Little Grant River. Trout habitat projects were also completed on the Little Platte River, which incorporated nearly 5 miles of habitat work, and on the McPherson Branch which involved 2 miles of habitat within the Platte River watershed. Work completed within this region has involved partnership efforts among private landowners, the Wisconsin Department of Natural Resources, Grant County Natural Resource Conservation Service, and the Harry and Laura Nohr Chapter of Trout Unlimited. Not represented in Figures 9.21 or 9.22 is the ½ mile of trout habitat work completed by the University of Wisconsin, Platteville on the Rountree Branch in the city of Platteville.

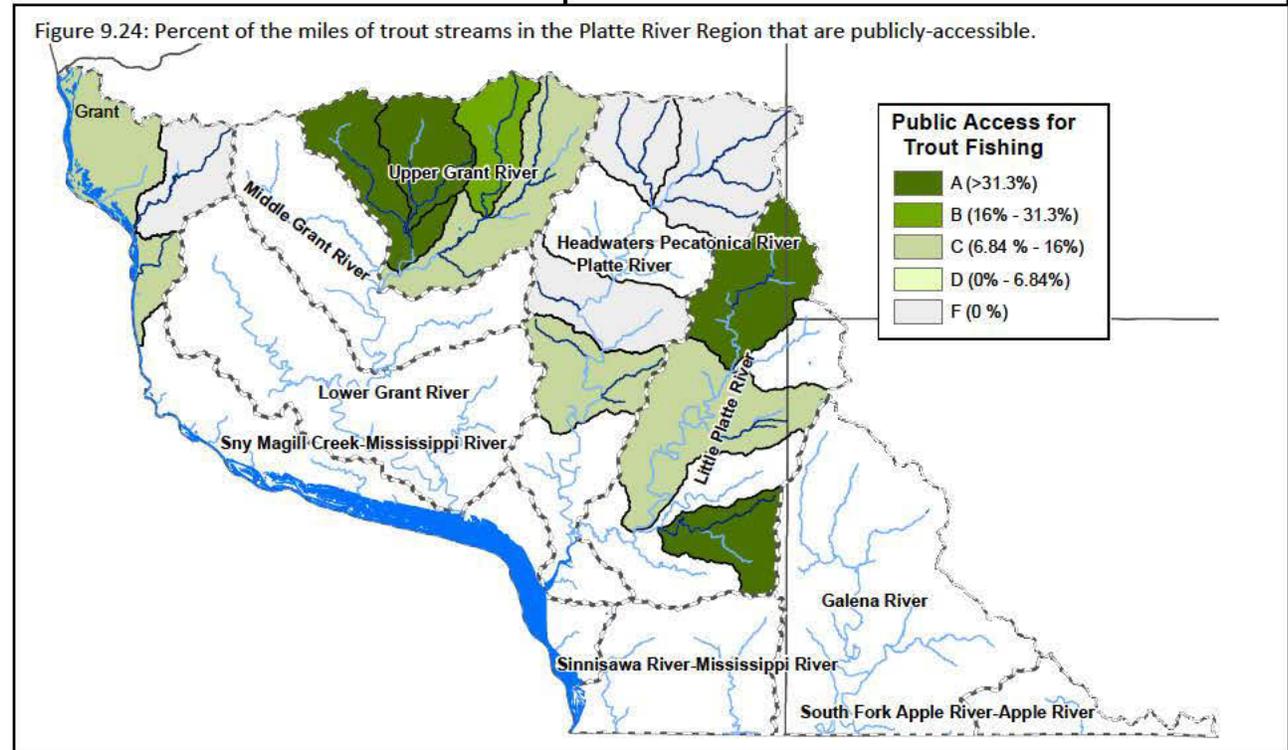
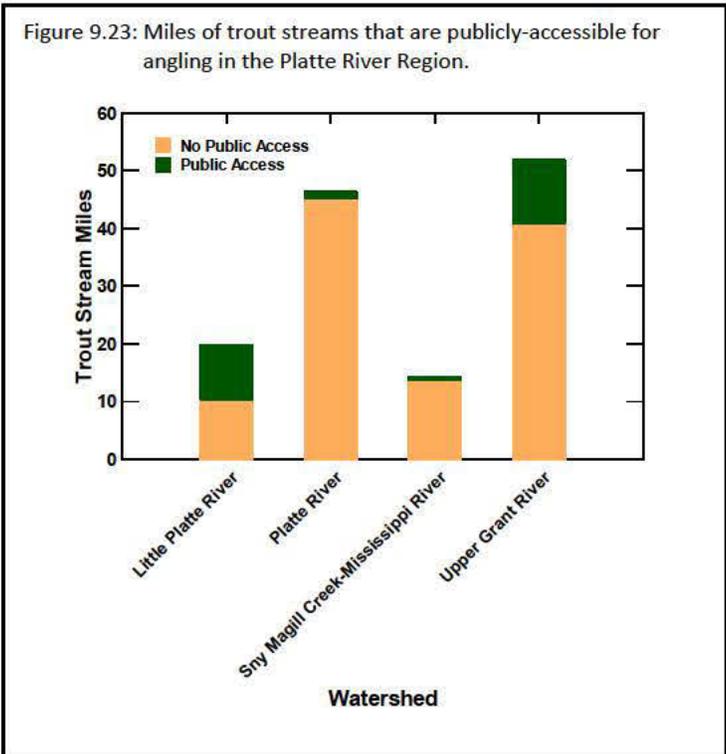


f) Recreation Opportunities

i) Trout angling opportunities

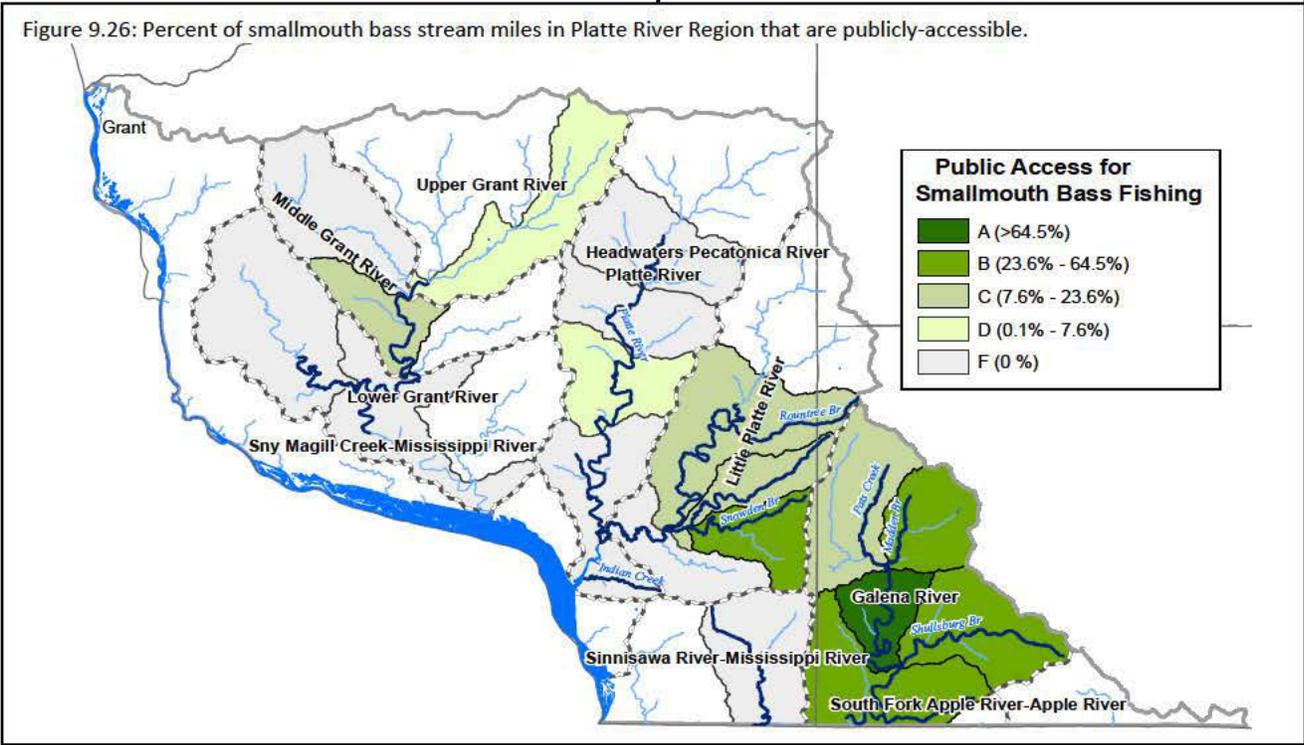
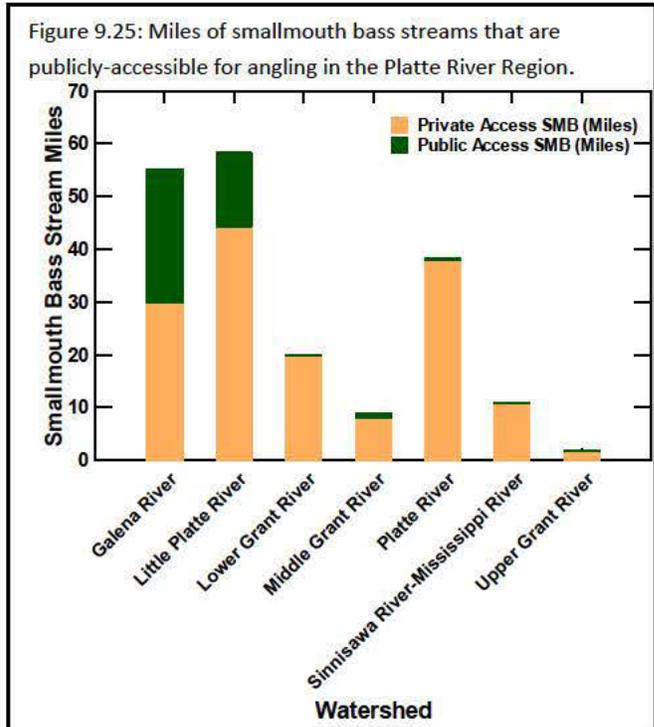
With the wide absence of brook trout within this region, trout angling opportunities are limited to brown trout with the occasional stocked brook or rainbow trout. The majority of trout angling opportunities are located in the northern and eastern portions of the Platte River Region. The highest percent of public access per trout stream mile exists in the Little Platte and Upper Grant River watersheds (Figures 9.23 and 9.24). The Little Platte River and Snowden Branch are the primary sources of public access within the Little Platte watershed. Borah Creek, Rogers Branch, Grant River, Little Grant River, and Martin Branch all offer public access within the Upper Grant River watershed. The majority of public access is secured by perpetual stream bank fishing easements. There is a small fee title parcel on the Little Platte River just upstream from state highway 80.

Also of note is the Rountree Branch located within the city limits of Platteville. There is public access available via land owned by the City of Platteville and public recreational easements held by non-profit organizations.



ii) *Smallmouth bass angling opportunities*

With nearly 25% of all smallmouth bass stream habitat in Wisconsin, this region has the potential to offer many opportunities for anglers to pursue smallmouth bass. As seen in figure 9.25 the Galena River and Little Platte River watersheds contain the highest percentage of public access per mile of smallmouth bass water. While these two watersheds contain a fair amount of public access, overall the percent of public access available per mile of smallmouth bass streams throughout the entire region is low. Figure 9.26 represents grades given to watersheds for the percent of smallmouth bass stream miles publicly accessible. The Galena River is the only stream that scores an “A”. Some watershed areas scoring an “F” (no public access) for percent of smallmouth bass stream miles publicly accessible do support quality smallmouth bass fisheries. The Lower Grant and Platte River watersheds are the most prominent which have outstanding fisheries with no public access. Notable smallmouth bass streams with very little to no public access include Rattlesnake Creek, Menominee River, Lower Grant River, Lower Platte River, and the Sinsinawa River. The majority of public access is held by perpetual stream bank fishing easements. There is one small fee title parcel located along Blockhouse Creek, a tributary to the Little Platte River. The smallmouth bass waters in this region are small wadable streams and are generally not navigable by boat or canoe. Stream bank fishing easements are the best management tool to secure angling opportunities to these unique warm water sport fisheries.



iii) Other recreation opportunities
 Beyond fishing, the stream bank easements only allow for scenic viewing and hiking. Because of this, additional recreational opportunities are limited.

Canoeing has become more popular on the lower portions of the Platte and Grant Rivers. Non-profit organizations have developed canoe access points on properties not owned or controlled by the State of Wisconsin.

iv) Recreation supply and demand

The Platte River Region is one of the most remote parts of the Driftless region. Figure 9.27 displays the population numbers within a one hour drive of the sub-watersheds in the Platte River Region. The total number of people within an hour drive from the eastern portion of this region ranges from 250,000 to 348,000 people. The western portion ranges from 150 to 250,000 people. Large population centers near this area do not exist in Wisconsin. The largest population center adjacent to this region is Dubuque, Iowa just west of the Mississippi River.

As can be seen in figures 9.28 and 9.29 there are portions of this region which offer a significant amount of public access for the recreational demand of "day-trippers". The Upper Grant River, Little Platte River, and Galena River score high in supply of publicly accessible trout and smallmouth bass stream miles per 100,000 thousand people within a one hour drive. While these streams may score high there are still good resources on which public access is inadequate. This can best be seen in

Figure 9.27: Population within a one-hour drive of sub-watersheds in the Platte River Region.

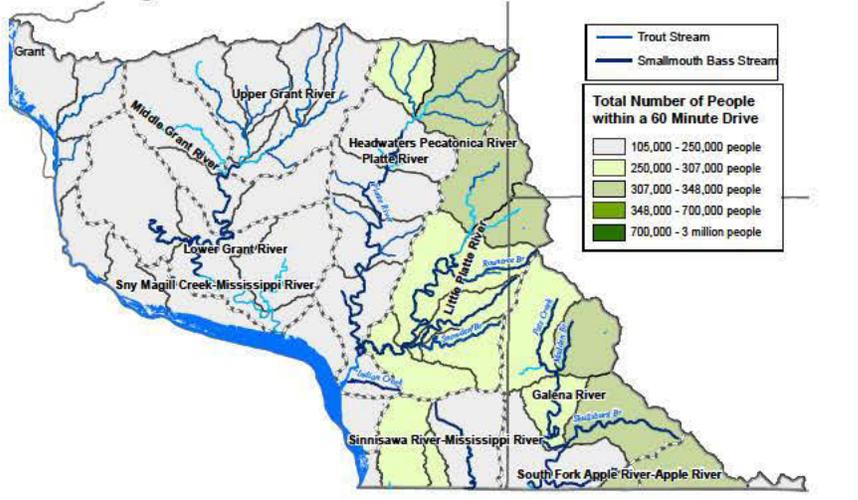


Figure 9.28: Publicly-accessible miles of trout and smallmouth bass streams per 100,000 people within a one-hour drive of watersheds in the Platte River Region

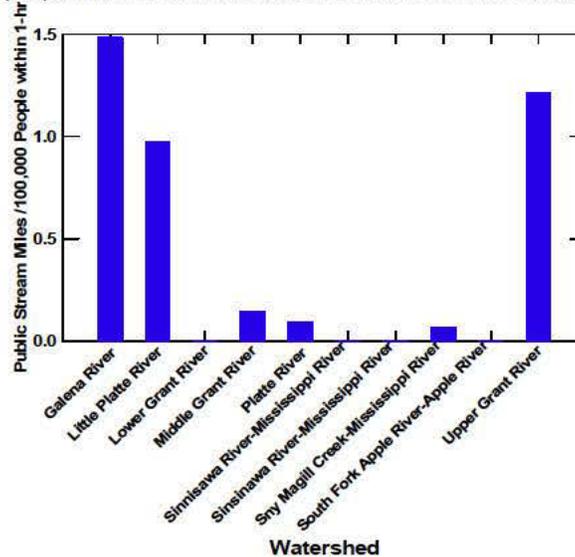


Figure 9.29: Supply of publicly-accessible trout and smallmouth bass stream miles per 100,000 people within a one-hour drive of sub-watersheds in the Platte River Region.

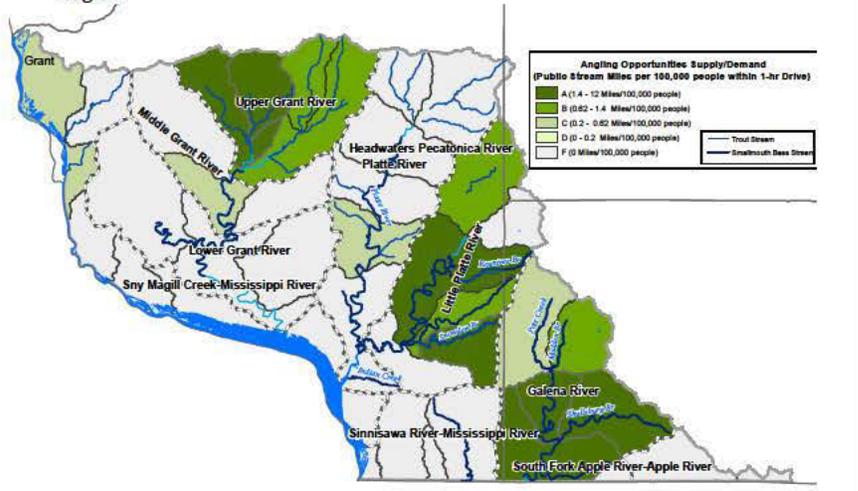


Figure 9.29 where the sub-watersheds of Lower Grant River, Sinsinawa River, and portions of the Platte River that have no publicly-accessible angling opportunities.

This region offers a unique opportunity to for anglers to fish small wadeable smallmouth bass streams. Because of this, many anglers still travel to this remote region to fish these unique smallmouth bass fisheries. It should also be noted that because of this region's close proximity, non-resident anglers from Illinois and Iowa also utilize these resources.

4. The Watersheds

Galena River

The Galena River watershed consists of 12 main streams: Galena River, Pats Creek, Madden Branch, Ellis Branch, Spring Branch, Shullsburg Branch, Diggins Creek, Kelsey Branch, Coon Branch, Bull Branch, Scrabble Branch, and Blacks Creek.

Fishing opportunities consist primarily of smallmouth bass. There is ample public access located within this watershed with over 22 miles of easement area available to anglers.

The Galena River is considered one of the best smallmouth bass streams in the Driftless Area. It also has the most public fishing easements within this watershed at 15.1 miles. Other streams within this watershed sustaining good smallmouth bass populations are Shullsburg Branch and Madden Branch.

Little Platte River

The Little Platte River watershed consists of ten main streams, the Little Platte River, McAdam Branch, Snowden Branch, French Creek, Blockhouse Creek, Rountree Branch, Whig Branch, Young Branch, Bear Branch, and Mounds Branch.

Fishing opportunities consist of smallmouth bass, walleye, and brown trout. There are over 18 miles of public fishing easements available within this watershed. The Little Platte River offers the most with just over 11.5 miles. Other streams with public fishing easements are Blockhouse Creek, Snowden Branch, and French Creek. The Rountree Branch located within the city of Platteville offers public access, but it does not have public fishing easements owned by the State.

There are three classified trout streams, Little Platte River, Snowden Branch and Rountree Branch. All three streams maintain fishable populations of brown trout. Trout habitat work has been completed in the upper reach of the Little Platte River.

The Little Platte River, Blockhouse Creek, and Mounds Branch sustain populations of smallmouth bass. Each of these streams offer quality fishing opportunities for smallmouth bass. The Little Platte River and Blockhouse Creek have areas open to public fishing access.

Lower Grant River

The Lower Grant River watershed consist of twelve main streams, the Grant River, Rigsby Hollow, Arrow Branch, Willow Creek, Boice Creek, Marlowe Branch, Beetown Branch, Rattlesnake Creek, Muskellunge Creek, Flat Rock Creek, Kuenster Creek, and Heiler Creek.

Fishing opportunities consist of smallmouth bass, walleye, and channel catfish. There are no classified trout streams within the Lower Grant River Watershed. The Lower Grant River offers the most diverse fishing opportunities. Anglers have available fishable populations of walleye, channel catfish, and smallmouth bass. Rattlesnake Creek sustains a fishable population of smallmouth bass.

Many of the other streams within this watershed are considered nursery streams for smallmouth bass. Nursery streams are too small to support adult populations of smallmouth bass but can support significant numbers of juvenile smallmouth bass. Adult smallmouth bass may seasonally use nursery streams during the spawning season. Nursery streams are vital in maintaining healthy smallmouth bass populations. Protection and management plans should consider these streams of high priority along with the streams which sustain adult populations. Boice Creek, Beetown Branch, Muskellunge Creek, Flat Rock Creek, and Kuenster Creek are all streams which have recent use as nursery streams.

Middle Grant River

The Middle Grant River watershed consists of four main streams, the Grant River, Pigeon Creek, Blake Fork, and Hackett Branch.

Fishing opportunities consist mainly of smallmouth bass on the Grant River. There are some seasonal opportunities for walleye and brown trout as well. While there are no classified trout streams within this watershed the Grant River and Hackett Branch have both been shown to support small populations of brown trout.

The Grant River is the primary fishery for smallmouth bass with all other streams within the Middle Grant River watershed acting as smallmouth bass nursery streams. The Middle Grant River has just over 4300 feet of public fishing easement available.

Platte River

The Platte River watershed consists of 16 main streams, Platte River, British Hollow, Yankee Hollow, Blakely Branch, Lee Branch, Culver Branch, McPherson Branch, Willow Branch, Cannon Branch, Austin Branch, Bacon Branch, Bull Branch, Crown Branch, Leggett Creek, Newell Creek, and Martinville Creek.

The Platte River watershed offers diverse fishing opportunities of smallmouth bass, walleye, channel catfish, and brown trout. The Platte River sustains the most significant fisheries of smallmouth bass, walleye, and channel catfish. With wadable and non-wadable water, it also offers a large diversity of habitat types.

The Platte River supports a significant population of adult smallmouth bass, while many of the tributaries are nursery streams for smallmouth bass.

There are nine streams in which all or portions are classified trout streams, Crow Branch, Martinville Creek, Platte River, Leggett Creek, Newell Creek, Austin Branch, Culver Branch, Lee Branch, and McPherson Branch. The McPherson Branch is classified as a class I trout water. All other streams are classified as class II trout water with

the lower portion of the Crow Branch classified a class III. The McPherson Branch and portions of the Platte River support fishable populations of brown trout, while all other streams support low density populations.

Public fishing easements are available on the McPherson Branch and Platte River. McPherson has approximately 4300 feet while the Platte River only has 700 feet. Tree removal and trout habitat work was completed along the lower and middle portions of the McPherson Branch.

Sinsinawa River-Miss. River

The Sinsinawa River – Mississippi River watersheds consist of seven main streams, the Sinsinawa River, Little Menominee River, Menominee River, Fair Play Creek, Hollow Branch, Kieler Creek, and Louisburg Creek.

Smallmouth bass are the only fishing opportunity within this watershed. The Sinsinawa and Menominee Rivers are the only two streams which support fishable populations of smallmouth bass. There are no public fishing easements within this watershed.

Sny Magill Creek-Miss. River

The Sny Magill Creek – Mississippi River watershed contains 8 main streams, Glass Hollow Creek, Sandy Creek, Chase Creek, Muddy Creek, Furnace Branch, Mill Branch, McCartney Branch, and Sinnipee Creek.

Streams within this watershed harbor non-game fisheries. There are two classified trout waters, Sandy Creek and Chase Creek. Both sustain low density trout populations which are not considered fishable.

South Fork Apple River

The South Fork of the Apple River watershed consists of 2 main stem streams, the Apple River and West Fork of the Apple River. The Apple River flows south for approximately 5 miles before entering Illinois. The Apple River does not support a smallmouth bass or trout fishery within Wisconsin. The Wisconsin portion of the Apple River supports a diverse non-game fishery including the Ozark Minnow (State Threatened).

Upper Grant River

The Upper Grant River watershed consists of 6 main streams, Grant River, Little Grant River, Martin Branch, Borah Creek, Rogers Branch, and Gregory Branch.

Fishing opportunities consist primarily of brown trout. There are seasonal opportunities for smallmouth bass and walleye.

All 6 of the main stem streams are classified trout water: Grant River, Little Grant River, Martin Branch, Borah Creek, Rogers Branch, and Gregory Branch. All support fishable populations of brown trout. One unnamed tributary to the Martin Branch (963500) is also classified as trout water and supports a fishable population of brown trout.