



# Ramsar Information Sheet

Published on 26 August 2020

## United States of America Lower Wisconsin Riverway



Designation date	14 February 2020
Site number	2417
Coordinates	43°09'47"N 90°21'48"W
Area	17 700,00 ha

## Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

## 1 - Summary

### Summary

The Lower Wisconsin Riverway (LWR) includes approximately 17,700 ha of land located from the Prairie du Sac dam to the confluence with the Mississippi River. This 92-mile-long river stretch, with its characteristic gradient from river, sloughs, and marshes, to forested bottomlands, sand terraces, and bluff tops, harbors high species and community diversity and richness. Its importance is magnified through common boundaries with the nationally and internationally significant Mississippi River, the Driftless Area, and the Upper Mississippi migratory bird flyway. The LWR is part of the Lower Wisconsin State Riverway (LWSR), which was designated in 1989 and incorporates approximately 38,445 ha, including the river, associated wetlands, and adjacent uplands. The LWSR is owned by state, private, and federal entities and its land use is regulated by a public LWSR Board and managed by the Wisconsin Department of Natural Resources (WDNR). The LWR wetlands are a significant statewide, national, and international resource. Wisconsin's 2006 Land Legacy Report (WDNR 2006a) found the LWSR to be one of Wisconsin's most significant conservation and recreational areas. Further, the WDNR Wildlife Action Plan (WDNR 2005, 2018) and Implementation Report (WDNR 2008) identifies the river corridor as having Continentally Important Resources. The LWR is listed as an Important Bird Area by the Wisconsin Bird Conservation Initiative for the critical habitat it provides for many wetlands, forest, and grassland birds of conservation concern. The LWR within the LWSR boundary is listed as an Exceptional Resource Waterway by statute (ch. NR 102, Wis. Adm. Code), affording increased water quality protection. Furthermore, the extensive network of natural communities functions as ecologically significant areas for rare fishes, mussels, aquatic insects, reptiles and amphibians. These wetlands are sanctuaries for aquatic plants and fish not typically found in the main river channel, and they contain the most abundant populations of rare and endangered aquatic species in southern Wisconsin.

## 2 - Data & location

### 2.1 - Formal data

#### 2.1.1 - Name and address of the compiler of this RIS

##### Compiler 1

Name	Jean Unmuth
Institution/agency	Wisconsin Department of Natural Resources
Postal address	1500 N. Johns St. Dodgeville, WI, 53533
E-mail	jean.unmuth@wisconsin.gov
Phone	16089351926

#### 2.1.2 - Period of collection of data and information used to compile the RIS

From year	2013
To year	2018

#### 2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Lower Wisconsin Riverway
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## 2.2 - Site location

### 2.2.1 - Defining the Site boundaries

b) Digital map/image  
<1 file(s) uploaded>

Former maps	0
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#### Boundaries description

The proposed site extends along 92.3 miles of the lower Wisconsin River from the hydroelectric dam at Prairie du Sac downstream to the confluence with the Mississippi River. It comprises those parts of the LWSR that are owned by State and Federal public agencies, the Ho-Chunk Nation, and one consenting private landowner. The LWR consists primarily of the Wisconsin River, tributary streams, backwater wetlands, and floodplain habitats. It also includes adjacent upland habitats protective of ground and surface waters, and which are functionally linked to wetland plant-animal communities.

### 2.2.2 - General location

a) In which large administrative region does the site lie?	The LWR is located in the Midwest U.S. in southwestern Wisconsin, United States of America.
b) What is the nearest town or population centre?	Madison 60 miles/97 kilometres

### 2.2.3 - For wetlands on national boundaries only

- a) Does the wetland extend onto the territory of one or more other countries? Yes  No
- b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes  No

### 2.2.4 - Area of the Site

Official area, in hectares (ha):	17700
Area, in hectares (ha) as calculated from GIS boundaries	17683.391

### 2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
WWF Terrestrial Ecoregions	Biome: Temperate broadleaf and mixed forests
WWF Terrestrial Ecoregions	Ecoregion: Upper Midwest forest-savanna transition

[Other biogeographic regionalisation scheme](#)

Description of Ecological Subregions: Sections of the Coterminous United States”  
Compiled by WH. McNab, D.T Cleland, JH.A. Freeouf, J.E. Keyes, G.J. Nowacki, and C.A.Carpenter, USDA, Forest Service General Technical Report WO-76B, January 2007

### 3 - Why is the Site important?

#### 3.1 - Ramsar Criteria and their justification

- Criterion 1: Representative, rare or unique natural or near-natural wetland types

Hydrological services provided

The riverway's natural continua along gradients of topography, aspect, soils, and hydrology maintain a natural dynamic, both along the riverway and across it from river to floodplain forest and savanna, marsh, shrub, terrace barrens/prairie to bluffside forest, savanna, and prairie. Some communities, like river barrens and oxbow sloughs, are better represented here than anywhere else in the State or Midwest and are essential to rare fauna. The extent, variety, connectedness, and relatively natural character of plant-animal communities of this area make it one of the most ecologically significant riverways in North America.

Other ecosystem services provided

These wetlands are sanctuaries for aquatic plants and fish not typically found in the main river channel, and they contain the most abundant populations of rare and endangered aquatic species in southern Wisconsin. The wetlands of the LWSR offer materials useful for the perpetuation of tribal culture. Sustainable forestry production of timber and pulp provides considerable value to local economies while preserving wildlife habitat.

- Criterion 2 : Rare species and threatened ecological communities

- Criterion 3 : Biological diversity

Justification

The LWR is within Wisconsin's Western Coulee and Ridges Ecological Landscape, covering the majority of the multi-state, unglaciated Driftless Area. The LWR includes high quality examples of the majority of characteristic species populations and native plant-animal communities that have been identified for conservation priority within that landscape, including all 12 fish species, 25 of 27 breeding-bird species, and 17 of 19 communities (WDNR 2008b). In addition to its large number of at-risk and characteristic plant and animal species and communities, the LWR is especially significant for the extent, continuity, and connectivity within and among these populations and communities. Extensive tracts are needed by many animal species that rely, for example, on mature forest (e.g., Red-shouldered Hawk), barrens (e.g., several lizard and snake species, ornate box turtle), and grasslands (many declining grassland bird and small mammal species, e.g., prairie vole) that are elsewhere increasingly fragmented, isolated, or of poor quality. The 149km-long river and its immediate floodplain corridor also connect myriad intraspecific populations with "friendly" traversable habitat—even for some species that use uplands primarily or secondarily (e.g., medium-to-large mammals, many forest birds). The presence of extensive floodplain forest makes adjacent upland forest more likely to be inhabited by forest interior birds (Mossman and Steele in litt.).

The riverway's natural continua along gradients of topography, aspect, soils, and hydrology maintain a natural dynamic, both along the riverway and across it from river to floodplain forest and savanna, marsh, shrub-carr, terrace barrens/prairie to bluffside forest, savanna, and prairie. Many species benefit from these dynamic ecotones and the connections among community types, e.g. terrestrial amphibians that migrate to wetlands to breed; aquatic turtles that do the opposite; xerophytic plants and animals that rely on deposition of river sands; and fish and other aquatic species that migrate to oxbow sloughs and other shallow or special microhabitats to breed. Many species are particularly adapted to wetland-upland ecotones and associated natural disturbance (e.g., Kentucky Warbler, Bell's Vireo, many "wetland edge" plants and insects). Consequently, the LWR has been recognized as an Important Bird Area (Steele 2007), priority grassland bird management area (Sample and Mossman 1997), a critical watershed for at-risk fish and mussels (Master 1998), Wisconsin Wetland Gem® (WWA 2009), a Conservation Opportunity Area of continental significance (WDNR 2008b), and a "functional landscape" (TNC 2001).

Criterion 4 : Support during critical life cycle stage or in adverse conditions

Criterion 7 : Significant and representative fish

Justification

The LWR is one of the highest-quality large warm water river reaches remaining in the Midwestern U.S. (Lyons 2005, Marshall and Lyons 2008). Unimpeded by dams, the 147 km (92 mile) stretch of the braided channel river includes diverse floodplain habitats that support 98 species of native fish: 10 fish species listed as state special concern, 6 species listed as state threatened, and 4 species listed as state endangered. Within the actively flowing braided channels, a number of rare species are found including state threatened paddlefish and river herring, state endangered goldeye and crystal darter, and state special concern lake sturgeon and western sand darter.

The LWR main channel also supports outstanding sport fisheries including smallmouth bass (*Micropterus dolomieu*), walleye (*Stizostedion vitreus*), channel catfish (*Ictalurus punctatus*), and northern pike (*Esox lucius*). Within the vast LWR floodplain lays a network of off channel habitats including cut off channel oxbow lakes, sloughs, creek bottoms and small streams impounded by beavers. These diverse habitats support fish species that generally avoid fast currents but also seasonally support main channel species as nursery and spawning habitats and as refuges during major floods. Rare species found within the off channel habitats include the state endangered starhead topminnow, state special concern mud darter, lake chubsucker, least darter, weed shiner, pugnose minnow and pirate perch. Popular sport fishing in the oxbow lakes and sloughs include bluegill (*Lepomis macrochirus*), northern pike (*Esox Lucius*) and largemouth bass (*Micropterus salmoides*). The current Exceptional Resources Waters (ERW) anti-degradation designation of the LWR in part reflects the designation of the river as supporting outstanding and diverse fisheries.

The high diversity of freshwater mussels found in the LWR is directly linked to the vast diversity of fish, since the glochidia larvae stage of the life cycle of mussels depends on fishes as hosts. The LWR and floodplain backwater lakes have one of the most diverse mussel faunas in the state, with 45 different species of mussels. A number of rare mussel species have their stronghold in the LWR. Several important mussel beds scattered throughout the LWSR support significant populations of the federally endangered Higgins' eye pearly mussel, and sheepsnose, along with 5 state endangered and 5 state threatened mussels.

Criterion 8 : Fish spawning grounds, etc.

Justification

The LWSR retains most of the natural features that the river exhibited centuries ago (Lyons 2005, Marshall and Lyons 2008). Dams are nonexistent in this stretch of river while other engineered modifications have been kept to a minimum. Consequently, lateral connections, in many spatial and temporal forms, within the floodplain are largely intact. Imbedded within the floodplain forest and other wetlands, cutoff channel oxbow lakes, sloughs, beaver ponds, delta ponds, and other floodplain aquatic features provide spawning habitats and food resources for seasonal migrations of walleye, northern pike, smallmouth bass and sauger (*Stizostedion canadense*) (Becker 1983). Some of the rare off channel fish species are also opportunistic and migrate during floods including the state endangered starhead topminnow, state special concern pirate perch and weed shiner (Roach et al. 2009, Marshall 2007, Ross and Baker 1983, Killgore and Miller 1995). These flood pulse migrations also likely influence species distributions across the floodplain. These important connections extend beyond the LWR and confluence with the Mississippi River.

Criterion 9 : >1% non-avian animal population

### 3.2 - Plant species whose presence relates to the international importance of the site

Scientific name	Common name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
<i>Agalinis skinneriana</i>	Pale False Foxglove	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Endangered in Wisconsin	
<i>Asclepias purpurascens</i>	Purple Milkweed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Endangered in Wisconsin	
<i>Platanthera flava herbiola</i>	Pale Green Orchid	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input type="checkbox"/>	CITES Appendix II	Also Threatened in Wisconsin
<i>Polygala incarnata</i>	Pink Milkwort	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Endangered in Wisconsin	
<i>Potamogeton confervoides</i>	Algal- Leaved Pondweed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>	Threatened in Wisconsin	
<i>Trillium nivale</i>	Snow Trillium	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>		<input type="checkbox"/>	Threatened in Wisconsin	

The LWR is a mosaic of plant communities. Extensive stretches of intact floodplain forest line the river margins, characterized by canopies of silver maple, eastern cottonwood, river birch, and swamp white oak. Grasses and forbs are often sparse while herbaceous and woody vines are abundant in forested floodplains, more so than in any other plant community in the region. The riverside margins support a unique flora of ephemeral forbs and grasses that emerge as adjacent river levels drop in the late summer. Floodplain forests are pocked and sliced by patches of sedge meadows, backwater sloughs, and marshes. Backwater areas typically have 24 different species of submergent and floating leaf plants that fish, insects, herps, ducks, and mammals are highly dependent upon during certain life stages. This includes state threatened algal leaved pondweed, and state special concern Oakes' pondweed. Fringing the backwater areas are emergents such as arrowhead and bullrushes, wild rice, bur-reed, among others. Over 80% of the state's population of purple rocket is found in the corridor of the river. Other, more typically southern species like sycamore, pin oak and spreading chervil reach their northwestern limit in this area.

### 3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Common name	Species qualifies under criterion			Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7								
<b>Birds</b>																	
CHORDATA/AVES	<i>Ammodramus henslowii</i>	Henslow's Sparrow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	utilizes wet meadows as habitat
CHORDATA/AVES	<i>Ammodramus savannarum</i>	Grasshopper Sparrow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Special Concern	utilizes wet meadows as habitat
CHORDATA/AVES	<i>Ardea alba</i>	Great Egret	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	important habitat for sp.
CHORDATA/AVES	<i>Buteo lineatus</i>	Red-shouldered Hawk	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened & CITES Appendix II	important habitat for sp.
CHORDATA/AVES	<i>Caprimulgus vociferus</i>	Whip-poor-will	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	WI Special Concern	nests in upland areas upland mixed deciduous-pine forests. Suspected to be declining.
CHORDATA/AVES	<i>Chaetura pelagica</i>	Chimney Swift	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>		utilizes uplands within site
CHORDATA/AVES	<i>Chondestes grammacus</i>	Lark Sparrow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	utilizes uplands and fields as habitat
CHORDATA/AVES	<i>Colinus virginianus</i>	Northern Bobwhite	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	
CHORDATA/AVES	<i>Empidonax minimus</i>	Least Flycatcher	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	
CHORDATA/AVES	<i>Empidonax virescens</i>	Acadian Flycatcher	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	utilizes lowlands as habitats

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/AVES	<i>Euphagus carolinus</i>	Rusty Blackbird	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	WI Special concern	utilizes bogs and stream edges for nesting
CHORDATA/AVES	<i>Falco peregrinus</i>	Peregrine Falcon	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input checked="" type="checkbox"/>	<input type="checkbox"/>	WI Endangered & CITES Appendix II	nesting within site boundaries
CHORDATA/AVES	<i>Geothlypis formosa</i>	Kentucky Warbler	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	breeds in sites that are moist, with heavy undergrowth, thickets and ground vegetation.
CHORDATA/AVES	<i>Grus americana</i>	Whooping Crane	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	U.S. Endangered	depend on large, open wetland ecosystems to eat, roost, and make their nests.
CHORDATA/AVES	<i>Helminthos vermivorum</i>	Worm-eating Warbler	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	utilizes uplands as habitat
CHORDATA/AVES	<i>Hylocichla mustelina</i>	Wood Thrush	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>		utilizes uplands within site
CHORDATA/AVES	<i>Icteria virens</i>	Yellow-breasted Chat	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Special concern	nesting in second-growth habitats, old pastures, thickets and brush, particularly near streams and ponds
CHORDATA/AVES	<i>Ixobrychus exilis</i>	Least Bittern	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Special concern	utilizes lowlands within site as habitat
CHORDATA/AVES	<i>Melanerpes erythrocephalus</i>	Red-headed Woodpecker	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Special concern	
CHORDATA/AVES	<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron; Yellow-crowned Night Heron	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	utilizes lowlands within site as habitat
CHORDATA/AVES	<i>Poocetes gramineus</i>	Vesper Sparrow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Special concern	utilizes uplands within site as habitat
CHORDATA/AVES	<i>Progne subis</i>	Purple Martin	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Special concern	
CHORDATA/AVES	<i>Protonotaria citrea</i>	Prothonotary Warbler	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	breeds in floodplain habitats
CHORDATA/AVES	<i>Rallus elegans</i>	King Rail	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	utilizes shallow marshes as habitat
CHORDATA/AVES	<i>Scolopax minor</i>	American Woodcock	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	
CHORDATA/AVES	<i>Setophaga cerulea</i>	Cerulean Warbler	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input checked="" type="checkbox"/>	WI Threatened	important habitat for sp.
CHORDATA/AVES	<i>Setophaga citrina</i>	Hooded Warbler	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI threatened	utilize uplands within site as habitat
CHORDATA/AVES	<i>Spiza americana</i>	Dickcissel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	
CHORDATA/AVES	<i>Sturnella magna</i>	Eastern Meadowlark	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	nesting in site's mesic areas
CHORDATA/AVES	<i>Sturnella neglecta</i>	Western Meadowlark	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	utilizes site's grasslands for nesting
CHORDATA/AVES	<i>Vireo bellii</i>	Bell's Vireo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	utilizes site's uplands as habitat
CHORDATA/AVES	<i>Xanthocephalus xanthocephalus</i>	Yellow-headed Blackbird	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	nesting near emergent aquatic habitats
<b>Fish, Mollusc and Crustacea</b>																		
CHORDATA/ACTINOPTERYGII	<i>Ammocrypta clara</i>	Western sand darter; Western sand darter	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	IUCN Red List VU	



Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
MOLLUSCA/ BIVALVIA	<i>Arcidens confragosus</i>	rock pocketbook	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	Utilize wetland in larval stage
CHORDATA/ ACTINOPTERYGII	<i>Crystallaria asprella</i>	Crystal darter; Crystal darter	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	WI Endangered	critical habitat for sp.
CHORDATA/ ACTINOPTERYGII	<i>Cycleptus elongatus</i>	Blue sucker; Blue sucker; Blue sucker	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	important habitat for sp.
CHORDATA/ ACTINOPTERYGII	<i>Fundulus dispar</i>	Northern starhead topminnow; Starhead topminnow	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Endangered	critical habitat for sp.
CHORDATA/ ACTINOPTERYGII	<i>Hiodon alosoides</i>	Shad mooneye	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Endangered	important habitat for sp.
CHORDATA/ ACTINOPTERYGII	<i>Hybopsis amnis</i>	Pallid shiner	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Endangered	important habitat for sp.
CHORDATA/ ACTINOPTERYGII	<i>Ictiobus niger</i>	Black buffalo; Black buffalo; Black buffalo; Black buffalo; Black buffalo; Black buffalo	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	important habitat for sp.
MOLLUSCA/ BIVALVIA	<i>Lampsilis higginsii</i>	Higgins eye	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	1998	1988 to 2016	2	EN	<input checked="" type="checkbox"/>	<input type="checkbox"/>	US Endangered & Wisconsin Endangered	Estimated global population – 100,000. This species is endemic to the Upper Mississippi River and tributaries including the St. Croix River and Lower Wisconsin River.
MOLLUSCA/ BIVALVIA	<i>Lampsilis teres</i>	yellow sandshell	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Endangered	Utilize wetland in larval stage
CHORDATA/ ACTINOPTERYGII	<i>Macrhybopsis hyostoma</i>	Shoal chub	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	important habitat for sp.
MOLLUSCA/ BIVALVIA	<i>Plethobasus cyphus</i>	Sheepnose	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>	US Endangered & Wisconsin Endangered	
CHORDATA/ ACTINOPTERYGII	<i>Polyodon spathula</i>	Paddlefish	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	CITES Appendix II & WI Threatened	important habitat for sp. at risk of exploitation
MOLLUSCA/ BIVALVIA	<i>Simpsonaias ambigua</i>	salamander mussel	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				VU	<input type="checkbox"/>	<input type="checkbox"/>	US candidate species & WI threatened	Utilize wetland in larval stage
MOLLUSCA/ BIVALVIA	<i>Theliderma metanevra</i>	monkeyface	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Wisconsin threatened	Utilize wetland in larval stage
MOLLUSCA/ BIVALVIA	<i>Tritogonia verrucosa</i>	Buckhorn	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Wisconsin Threatened	Utilize wetland in larval stage
<b>Others</b>																		
CHORDATA/ REPTILIA	<i>Apalone mutica</i>	Smooth Softshell	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	
CHORDATA/ REPTILIA	<i>Aspidoscelis sexlineata</i>	Six-lined Racerunner	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	
CHORDATA/ REPTILIA	<i>Coluber constrictor</i>	North American Racer	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	
CHORDATA/ REPTILIA	<i>Crotalus horridus</i>	Timber Rattlesnake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	
CHORDATA/ REPTILIA	<i>Diadophis punctatus amyi</i>	Prairie Ring-necked Snake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	
CHORDATA/ REPTILIA	<i>Emydoidea blandingii</i>	Blanding's Turtle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern & US candidate species	
CHORDATA/ MAMMALIA	<i>Eptesicus fuscus fuscus</i>	Big Brown Bat	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	WI threatened	utilize upland area as foraging habitat

Phylum	Scientific name	Common name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
			2	4	6	9	3	5	7	8								
CHORDATA/ REPTILIA	<i>Glyptemys insculpta</i>	Wood Turtle	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				EN	<input type="checkbox"/>	<input type="checkbox"/>	WI Threatened	critical habitat for sp.	
CHORDATA/ AMPHIBIA	<i>Lithobates palustris</i>	Pickereel Frog	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern	prefers to overwinter in cold water streams, seepage pools or spring holes	
CHORDATA/ MAMMALIA	<i>Microtus ochrogaster</i>	Prairie Vole	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Special Concern		
CHORDATA/ REPTILIA	<i>Pantherophis spiloides</i>	Gray Ratsnake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern		
CHORDATA/ MAMMALIA	<i>Peromyscus maniculatus</i>	North American Deermouse; Deer Mouse	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI Special Concern		
CHORDATA/ REPTILIA	<i>Pituophis catenifer</i>	Gophersnake	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	WI special concern		
ARTHROPODA/ INSECTA	<i>Polyamia dilata</i>	Prairie leafhopper	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Wisconsin Threatened		
ARTHROPODA/ INSECTA	<i>Somatochlora hineana</i>	Hine's Emerald	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>	US Endangered, Wisconsin Endangered	Utilize wetland for egg and larval stages	
ARTHROPODA/ INSECTA	<i>Spinadis simplex</i>	Wallace's deepwater mayfly	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Wisconsin Endangered		
ARTHROPODA/ INSECTA	<i>Stenelmis knobeli</i>	Knobel's Riffle beetle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					<input type="checkbox"/>	<input type="checkbox"/>	Wisconsin Endangered		
CHORDATA/ REPTILIA	<i>Terrapene ornata</i>	Omate Box Turtle	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				NT	<input type="checkbox"/>	<input type="checkbox"/>	WI Endangered		

1) Percentage of the total biogeographic population at the site

Data sources for *Lampsilis higginsii* are below.

Mussel Coordination Team (USFWS, USGS, NPS, ACOE, WDNR, MDNR, IDNR, INR). February 2017. Results of 2016 Monitoring of Freshwater Mussel Communities of the Wisconsin River near Orion, Richland County, Wisconsin. 15p.

Mussel Coordination Team. 2011. Mussel Survey *Lampsilis higginsii* Re-location Site Wisconsin River near Prairie du Sac, Wisconsin. 10p.

Heath D. J. . 2003. Results of 2002 monitoring of freshwater mussel communities of the Wisconsin River near Orion, Richland County, Heath, D. J.. 1995. A description of the Orion mussel aggregation of the Wisconsin River, Wisconsin with reference to *Lampsilis higginsii* (Lea, 1957) (Bivalvia: Unionidae). Wisconsin Department of Natural Resources, Prairie du Chien, WI. 21 p.

U.S. Fish and Wildlife Service.2004. Higgins Eye Pearlymussel (*Lampsilis higginsii*) Recovery Plan: First Revision. Ft. Snelling, Minnesota. 126 p.

Heidi L. Dunn, EcoAnalysts, Inc. November 2018. Upper Mississippi River Higgins Eye (*Lampsilis higginsii*) Freshwater Mussel Monitoring Synthesis Report for the Rock Island, St. Paul, and St. Louis U.S. Army Corps of Engineers. 124 p.

### 3.4 - Ecological communities whose presence relates to the international importance of the site

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
Floodplain forest	<input checked="" type="checkbox"/>	Extensive along most of floodplain; large, continuous and mature tracts	WI Vulnerable
Sedge meadow	<input checked="" type="checkbox"/>	Small to extensive, on floodplain and perched along terraces	WI Vulnerable
Deep water marsh	<input checked="" type="checkbox"/>	In pockets of floodplain, especially where protected by natural and man-made berms, and beaver dams	
Hardwood swamp	<input checked="" type="checkbox"/>	In pockets, uncommon, generally in peaty sites above or isolated in floodplain	WI imperiled
Moist cliff	<input checked="" type="checkbox"/>	Fairly common in uplands and some wetland borders	
Dry prairie	<input checked="" type="checkbox"/>	On exposed bluffsides	WI Vulnerable Global Vulnerable
Dry-mesic prairie	<input checked="" type="checkbox"/>	Upland bluffs and terraces wetland borders	WI Vulnerable Global Vulnerable
Sand prairie	<input checked="" type="checkbox"/>	Upland bluffs and terraces wetland borders	WI Imperiled Global Vulnerable
Wet prairie	<input checked="" type="checkbox"/>	Several in floodplain, small to large, includes largest west of Mississippi River (Avoca) ; often mixed with sedge meadow	Global Vulnerable
Wet-mesic prairie	<input checked="" type="checkbox"/>	IN floodplain, often mixed with wet prairie, sedge meadow	WI Imperiled Global Imperiled
Oak barrens	<input checked="" type="checkbox"/>	Frequent, small to extensive on river sand deposits in and along floodplain ; high management priority by WDNR	WI Imperiled
Forested bluff	<input checked="" type="checkbox"/>	Common, quality fair to high	
Southern dry mesic forest	<input checked="" type="checkbox"/>	Oak forest with high management priority	WI Vulnerable
Pine relict	<input checked="" type="checkbox"/>	Scattered on bluffs and occasionally in wetland	Vulnerable

## 4 - What is the Site like? (Ecological character description)

### 4.1 - Ecological character

The 149 km-long LWR centers on the warm-water, slow-moving, braided Wisconsin River—spared from development and damming by its deep, shifting sand deposits, a legacy from outwash and fluvial deposition of Pleistocene glaciation. It is a relatively wild, continuous natural area with a wide variety of native plant-animal communities, wildlife-friendly non-native grasslands, low-intensity ag lands, wooded villages, and woodlots. The floodplain along the river includes many wooded and sand-beach islands. The river is usually bounded by a low natural levee, behind which the floodplain is characterized by wet- and wet-mesic forest, sloughs, and oxbow lakes, and sometimes marshes, wet prairies, or sedge meadows. These wetlands may be augmented by beaver dams or by artificial shallow impoundments maintained for shallow and deepwater marsh conditions. On deltas where small rivers enter, extensive wetlands have developed. At the edge of the floodplain, and often within it, are sand terraces that support xeric plant-animal communities. Farther from the river are typically more fine-soiled terraces on which agriculture, villages, woodlots, and some homes prevail. The steep unglaciated sandstone and dolomite hills that flank the valley along almost its entire course are mostly wooded but with some dry "goat" prairies, restored fire-maintained savannas and woodlands, and shaded or exposed cliffs. In other areas, sand terraces are lacking, the band of floodplain forest may be narrow or absent, and the forest bluffs rise directly from the riverbank.

Dynamic and widespread ecotones connect these communities, one wetland to another and between wetlands and they're adjacent and contained uplands. This allows for plant and animal migrations and responses by communities and species populations to seasonal and longer-term changes in hydrology, rainfall, weather, fire, disturbance, and probably climate. Many species are specially adapted to these ecotones. Some communities, like river barrens and oxbow sloughs, are better represented here than anywhere else in the State or Midwest and are essential to rare fauna. The LWR connects directly with the nationally significant Mississippi River (also a Ramsar Wetland of International Importance), the Driftless Area, and the Upper Mississippi migratory bird flyway. The extent, variety, connectedness, and relatively natural character of plant-animal communities of this area make it one of the most ecologically significant riverways in North America.

### 4.2 - What wetland type(s) are in the site?

#### Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Lakes and pools >> O: Permanent freshwater lakes		0	96.96	Rare
Fresh water > Lakes and pools >> P: Seasonal/intermittent freshwater lakes		0	43.25	Rare
Fresh water > Lakes and pools >> Tp: Permanent freshwater marshes/pools		2	1706.56	Representative
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/intermittent freshwater marshes/pools on inorganic soils		3	851.13	Unique
Fresh water > Marshes on inorganic soils >> W: Shrub-dominated wetlands		0	533.89	Rare
Fresh water > Marshes on inorganic soils >> Xf: Freshwater, tree-dominated wetlands		1	7446.31	Representative
Fresh water > Marshes on peat soils >> Xp: Permanent Forested peatlands		4	813.46	Unique

#### Other non-wetland habitat

Other non-wetland habitats within the site	Area (ha) if known
Oak barrens	
Oak opening	
Oak woodland	
Moist cliff	
Dry prairie	
Dry-mesic prairie	
Mesic prairie	
Wet-mesic prairie	
Dry cliff	
Sand prairie	
Forested bluff	
Southern mesic forest	
Southern dry-mesic forest	
Southern dry forest	
Pine relict	
Pine barrens	

(ECD) Habitat connectivity

The connection of upland forests with bedrock outcrops of Dry Prairie to the expansive lowland forests and wetlands of the river valley bottom are exceptional

### 4.3 - Biological components

#### 4.3.1 - Plant species

Other noteworthy plant species

Scientific name	Common name	Position in range / endemism / other
<i>Acer saccharinum</i>	Silver maple	
<i>Betula nigra</i>	River birch	
<i>Chaerophyllum procumbens</i>	Spreading chervil	
<i>iodanthus pinnatifidus</i>	Purple Rocket	
<i>Platanus occidentalis</i>	Sycamore	Northern extent of range
<i>Populus deltoides</i>	Eastern cottonwood	
<i>Potamogeton oakesianus</i>	Oakes' pondweed	
<i>Quercus bicolor</i>	Swamp white oak	
<i>Zizania aquatica</i>	Wild rice	
<i>Zizania palustris</i>	Wild rice	

Invasive alien plant species

Scientific name	Common name	Impacts	
<i>Lonicera tatarica</i>	Eurasian honeysuckle	Actual (minor impacts)	No change
<i>Lythrum salicaria</i>	Purple loosestrife	Actual (minor impacts)	No change
<i>Phalaris arundinacea</i>	Reed-canary grass	Actual (major impacts)	No change
<i>Potamogeton crispus</i>	Curly-leaf pondweed	Actual (minor impacts)	No change
<i>Rhamnus cathartica</i>	Common buckthorn	Actual (minor impacts)	No change

#### 4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Common name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/ACTINOPTERYGII	<i>Acipenser fulvescens</i>	Lake Sturgeon;Lake Sturgeon;Lake Sturgeon;Lake Sturgeon				
CHORDATA/ACTINOPTERYGII	<i>Aphredoderus sayanus</i>	Pirate perch				
CHORDATA/ACTINOPTERYGII	<i>Erimyzon sucetta</i>	Lake chubsucker;Lake chubsucker				
CHORDATA/ACTINOPTERYGII	<i>Etheostoma asprigene</i>	Mud darter				
CHORDATA/ACTINOPTERYGII	<i>Etheostoma microperca</i>	Least darter				
ARTHROPODA/INSECTA	<i>Libellula cyanea</i>	Spangled Skimmer				Northwestern extent of range
CHORDATA/ACTINOPTERYGII	<i>Macrhybopsis storeriana</i>	Silver chub;Silver chub				
ARTHROPODA/INSECTA	<i>Nasiaeschna pentacantha</i>	Cyrano Darner				Northwestern extent of range
CHORDATA/ACTINOPTERYGII	<i>Notropis texanus</i>	Weed shiner;Weed shiner				
CHORDATA/ACTINOPTERYGII	<i>Opsopoeodus emiliae</i>	Pugnose minnow;Pugnose minnow				

Invasive alien animal species

Phylum	Scientific name	Common name	Impacts	
CHORDATA/ACTINOPTERYGII	<i>Ctenopharyngodon idella</i>	Glass carp	Potential	No change
MOLLUSCABIVALVIA	<i>Dreissena polymorpha</i>	many-shaped dreissena;zebra mussel	Actual (major impacts)	No change

### 4.4 - Physical components

#### 4.4.1 - Climate

Climatic region	Subregion
D: Moist Mid-Latitude climate with cold winters	Dfb: Humid continental (Humid with severe winter, no dry season, warm summer)

Spring bird migration phenology has advanced. Flooding patterns appear to be changing, with more frequent and intense summer floods—these often flood out turtle nests and sometimes prothonotary warblers. The effect of floods on tree seedling survival and herbaceous vegetation within the floodplain is uncertain.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- Entire river basin
- Upper part of river basin
- Middle part of river basin
- Lower part of river basin
- More than one river basin
- Not in river basin
- Coastal

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

The site lies is part of the Lower Wisconsin River sub-basin, which lies within the Mississippi River basin.

4.4.3 - Soil

Mneral

Organic

No available information

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes  No

4.4.4 - Water regime

Water permanence

Presence?	
Usually permanent water present	No change

Source of water that maintains character of the site

Presence?	Predominant water source	
Water inputs from surface water	<input checked="" type="checkbox"/>	No change
Water inputs from groundwater	<input type="checkbox"/>	No change
Water inputs from rainfall / snowfall	<input type="checkbox"/>	No change

Water destination

Presence?	
To downstream catchment	No change

Stability of water regime

Presence?	
Water levels fluctuating (including tidal)	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology.

approximately 88.5 km (55 mi.) above the confluence with the Mississippi River, the river drains a catchment area of about 26,936 square kilometers (10,400 sq. mi.). The long term median and mean flows are 348.3 cm/sec (12,300 cfs) and 412.9 cm/sec (14,900 cfs) respectively. The extremes in river flows are represented by the lowest recorded flow in 1964 at 54 cm/sec (1,916 cfs) and highest recorded flow in 1916 at 1,430 cm/sec (50,500 cfs). The combined dynamics of fluctuating and significant flow rates across braided channels and natural floodplain combine for a rare diverse large river ecosystem.

(ECD) Connectivity of surface waters and of groundwater The numerous cutoff channel oxbow lakes are dynamic ecosystems that change and connect around three dominant hydrologic phases.

(ECD) Stratification and mixing regime Wetlands are a mix of very shallow mixed water wetlands to deeper oxbow lakes that stratify due to depth.

4.4.5 - Sediment regime

Significant erosion of sediments occurs on the site

Significant accretion or deposition of sediments occurs on the site

Significant transportation of sediments occurs on or through the site

Sediment regime is highly variable, either seasonally or inter-annually

Sediment regime unknown

Please provide further information on sediment (optional):

The LWR is a low gradient stream (1.5 feet per mile) with braided relatively shallow side channels and sluggish flow under normal conditions. The sand and gravel material (from outwash) is constantly being picked up as bed load and re-deposited through the active river floodplain. This results in ongoing island and sandbar building and destruction while the main channel of the river moves laterally throughout the valley. Soils within the valley reflect their position on the landscape. The bluff tops are covered with a loess cap at many locations with silt to clay loams formed from the underlying bedrock. Sand terraces with little organic matter occur within the valley. Bottomland soils in the active floodplain range from mucky sands with some peat in swales to low sandy ridges. Unique aquatic habitat niches, micro-topography, and climate are the products of shape of the valley, physiographic setting, the soils, and the quantity and quality of the water and sediment moving through the

(EOD) Water turbidity and colour	Turbidity in backwater areas averages 2.3 Nephelometric Units (NTU), compared to river turbidity averaging 10.6 NTU.
(EOD) Water temperature	range from 11.0 degrees Celsius to 22.7 degrees Celsius.

4.4.6 - Water pH

- Acid (pH<5.5)
- Circumneutral (pH: 5.5-7.4)
- Alkaline (pH>7.4)
- Unknown

Please provide further information on pH (optional):

Summer pH in profiles collected from backwater areas ranged from 7.0 to 8.3 SU, with the majority of readings alkaline.

4.4.7 - Water salinity

- Fresh (<0.5 g/l)
- Mixohaline (brackish)/Mixosaline (0.5-30 g/l)
- Euhaline/Eusaline (30-40 g/l)
- Hyperhaline/Hypersaline (>40 g/l)
- Unknown

Please provide further information on salinity (optional):

Chlorides are low in the Wisconsin River. Surface water chloride samples collected over a period of 2.5 years on a monthly basis from the Wisconsin River main channel ranged from 11.9 to 24 mg/l. Samples were analyzed by the Wisconsin State Lab of Hygiene.

4.4.8 - Dissolved or suspended nutrients in water

- Eutrophic
- Mesotrophic
- Oligotrophic
- Dystrophic
- Unknown

Please provide further information on dissolved or suspended nutrients (optional):

Summer dissolved phosphorus concentrations, collected over a period of seven years from many backwater wetlands, ranged from 15 to 3000 ug/l, while chlorophyll concentrations ranged from 0.68 to 62.3 ug/l. Nitrate samples collected over a two-year period in some backwater wetlands ranged from low at 0.0295 to high at 13.3 mg/l. Samples were analyzed by the Wisconsin State Lab of Hygiene. Data indicated that some backwater wetlands were oligotrophic, while many were eutrophic.

(EOD) Dissolved organic carbon	Data on Carbon has not been collected or measured in backwater wetlands
(EOD) Redox potential of water and sediments	Data on Redox potential has not been collected or measured in backwater wetlands
(EOD) Water conductivity	collected in profiles from backwater wetlands indicated conductivity ranged from 246 to 606 UMHOS/CM.

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the i) broadly similar  ii) significantly different  site itself:

- Surrounding area has greater urbanisation or development
- Surrounding area has higher human population density
- Surrounding area has more intensive agricultural use
- Surrounding area has significantly different land cover or habitat types

Please describe other ways in which the surrounding area is different:

In the catchment area surrounding the LWR, agricultural lands comprise 50-75% of the land. Forest lands make up 20% to 30% of the landscape. Less than 6% of the area surrounding the proposed site is in public conservation and these are small and scattered parcels. There are seven incorporated cities/villages in the surrounding area, yet the LWR counties are the least densely populated in southern Wisconsin with an estimated 42 people per square mile.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Food for humans	Sustenance for humans (e.g., fish, molluscs, grains)	High
Fresh water	Drinking water for humans and/or livestock	Low
Wetland non-food products	Timber	Medium
Wetland non-food products	Fuel wood/fibre	Medium

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Maintenance of hydrological regimes	Storage and delivery of water as part of water supply systems for agriculture and industry	High
Erosion protection	Soil, sediment and nutrient retention	High
Pollution control and detoxification	Water purification/waste treatment or dilution	High
Hazard reduction	Flood control, flood storage	High
Hazard reduction	Coastal shoreline and river bank stabilization and storm protection	High

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	High
Recreation and tourism	Water sports and activities	High
Recreation and tourism	Picnics, outings, touring	High
Recreation and tourism	Nature observation and nature-based tourism	High
Spiritual and inspirational	Inspiration	High
Spiritual and inspirational	Cultural heritage (historical and archaeological)	High
Spiritual and inspirational	Contemporary cultural significance, including for arts and creative inspiration, and including existence values	High
Spiritual and inspirational	Spiritual and religious values	High
Spiritual and inspirational	Aesthetic and sense of place values	High
Scientific and educational	Educational activities and opportunities	High
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High
Scientific and educational	Long-term monitoring site	High
Scientific and educational	Major scientific study site	High

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganisms, the genes they contain, and the ecosystems of which they form a part	High
Soil formation	Sediment retention	Medium
Soil formation	Accumulation of organic matter	Medium
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	Medium
Nutrient cycling	Carbon storage/sequestration	Medium
Pollination	Support for pollinators	Medium

Other ecosystem service(s) not included above:

For a summary of ecosystem services in the words of users, residents and scientists, see two video documentaries listed in the Bibliography (Erickson 1994, 2011).

Within the site:

Outside the site:

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes  No  Unknown

Where economic studies or assessments of economic valuation have been undertaken at the site, it would be helpful to provide information on where the results of such studies may be located (e.g. website links, citation of published literature):

In recent decades, tourism associated with winter Bald Eagle watching along the LWR brings about 1,000 cars of visitors weekly and up to \$1.2 million annually into the economy of the Sauk Prairie area (Hedemark and Winesett 2015). A review of recreational user surveys (FLOW 2014) documented high numbers of users daily throughout the rest of the year, e.g., a riverway-long aerial survey on 9 Aug 2014 recorded 500 camping tents and 968 motorized and (mostly) nonmotorized craft. Two of the many canoe liveries have an annual average of about \$237K gross income, 11 employees, and 4.7K paddlers served; and 288K angler-hours in 1990.

4.5.2 - Social and cultural values

- i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and  use that maintain the ecological character of the wetland

Description if applicable



The LWSR is managed to promote a variety of traditional and recreational uses. The wetlands of the LWSR offer materials useful for the perpetuation of tribal culture. Sustainable forestry production of timber and pulp provides considerable value to local economies while preserving wildlife habitat.

The LWSR features many campgrounds, trails, shore angling areas, boat landings, public hunting grounds, and fishing and guide services, all of which support ecotourism. Part of the Site was designated the LWSR in 1989, a status earned due to the tremendous scenic quality of the surrounding valley as well as the undeveloped character of the final 92 miles of the Wisconsin River.

With approximately 45,000 acres of LWSR under state ownership, an additional 5,000 acres under easement, and the remaining 30,000 acres of private lands having some scenic beauty and habitat protection (through ss. Ch. 30.40), the LWSR stands as a marvelous model of wise wetland use.

- ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland

Description if applicable

Human presence in the LWR valley dates back to the end of the last glacial period (12,000 BCE), as evinced by the 1897 discovery of the Boaz Mastodon skeleton and accompanying quartzite spear point just 20 miles from the present-day LWR. Archaeological excavations have also revealed evidence of human habitation in southwestern Wisconsin during the Archaic and Woodland periods. As the hunter-gathers progressed toward a more sedentary and agrarian lifestyle, the river was a reliable source of irrigation and many societies settled in the valley.

Father Jacques Marquette wrote the first European record of the valley when he and Louis Jolliet made their historic voyage in 1673 across Lake Michigan, up the Fox River to modern-day Portage, WI, and down the LWR to the Mississippi River. The explorations of Marquette and Jolliet opened the region to eventual exploitation by the fur trade in pursuit of beaver, muskrat, and other desirable mammals.

Trappers and traders established relations with the indigenous people and trade flourished, as did frequent hostilities. By 1766, the Ho-Chunk (formerly Winnebago) Nation had been forced to share lands with other tribes who had been pushed westward by French and British expansion. The Ho-chunk historically managed wetlands through fire and animal husbandry, and wetlands continue to play a critical role in their cultural heritage. During early American influence in the region, a great deal of maltreatment through broken promises and treaty brokering chicanery occurred, leading to various tribal uprisings in the early 1800s.

The most famous is the Black Hawk War of 1832, which began when the chief Black Hawk led a band of Sauk and Meskwaki (Fox) into northwestern Illinois in an attempt to reclaim tribal lands. Although women, children, and elderly comprised the majority of the migrants, US officials mobilized militia and government troops to confront the natives. In response, the Sauk and Fox fled north up the Rock River and then traveled west around Madison's four lakes and along the LWR. On July 21, 1832, the Battle of Wisconsin Heights occurred near present-day Sauk City, WI. Despite being vastly outnumbered and sustaining heavy casualties, Black Hawk's warriors managed to delay the military forces long enough to allow most of the civilians to escape across the LWR. As demonstrated by these events and discoveries, the LWR and its associated wetlands played an integral role in the region's history.

- iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples
- iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland

Description if applicable

The proposed Site contains a rich tapestry of effigy mounds and places of anthropological importance. Some of the peoples who lived along the upper Mississippi River east to Lake Michigan during the Woodland period (1000 BCE – 1000 CE) were part of the Effigy Moundbuilders. This culture is named for the distinctive mounds they created from raised piles of earth, many of which functioned as burial sites. The effigies are recognizable animals such as bears, turtles, deer, and birds, while other mounds are abstract long linear embankments or conical domes. More mounds were built by ancient Native American societies in Wisconsin than in any other region of North America. Of the estimated 15,000 to 20,000 effigy mounds originally in Wisconsin, fewer than 4,000 remain. Early European settlers and their descendants plowed over mounds or destroyed them to construct homes, roads, and towns. Historically, large concentrations of effigy mounds were found along the shores of Madison's four lakes and in the southwestern part of the state along the LWR and Mississippi River. That the mounds were formed in close proximity to waterways and wetlands indicates the strong tie of these areas in tribal culture.

In addition to effigy mounds, another special site is the famous Gottschall Rockshelter near Muscoda, WI, which borders the LWR. Here the influence of the Mississippian culture is represented by the artistic style of the pictographs displaying Red Horn, a mythic figure in Siouan oral traditions.

These sacred Native American sites and the artifacts they contain are protected through national legislation and a 1985 Wisconsin state law. Furthermore, several mound groups along the LWR are listed on the National Register of Historic Places to support the preservation of this significant cultural resource.

4.6 - Ecological processes

<no data available>

## 5 - How is the Site managed? (Conservation and management)

### 5.1 - Land tenure and responsibilities (Managers)

#### 5.1.1 - Land tenure/ownership

##### Public ownership

Category	Within the Ramsar Site	In the surrounding area
Provincial/region/state government	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
National/Federal government	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Local authority, municipality, (sub)district, etc.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

##### Private ownership

Category	Within the Ramsar Site	In the surrounding area
Commercial (company)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Other types of private/individual owner(s)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

##### Other

Category	Within the Ramsar Site	In the surrounding area
Unspecified mixed ownership	<input type="checkbox"/>	<input checked="" type="checkbox"/>

#### 5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

Wisconsin Department of Natural Resources (responsible for managing land within its ownership. Lands owned by other agencies, nations, and private individuals are managed by those owners.)

Provide the name and/or title of the person or people with responsibility for the wetland:

Matt Sequin

Postal address:

Department of Natural Resources  
5808 County Highway C  
Spring Green WI, 53588

E-mail address:

matthew.sequin@wisconsin.gov

## 5.2 - Ecological character threats and responses (Management)

### 5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

#### Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Housing and urban areas	Low impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Commercial and industrial areas	Low impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

#### Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Drainage	Medium impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Canalisation and river regulation	High impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

#### Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Annual and perennial non-timber crops	Medium impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

#### Energy production and mining

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Mining and quarrying	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

#### Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Roads and railroads	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Logging and wood harvesting	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Unspecified	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Recreational and tourism activities	Low impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Unspecified/others	Low impact	Low impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fire and fire suppression	Medium impact	Medium impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Dams and water management/use	High impact	High impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Unspecified/others	High impact	High impact	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Invasive non-native/ alien species	High impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Agricultural and forestry effluents	Medium impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Temperature extremes	unknown impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Storms and flooding	Medium impact	High impact	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Please describe any other threats (optional):

Fish passage obstruction, Boat propeller fish injury, High deer populations and browse pressure, terrestrial animal pests, diseases e.g. Dutch elm

5.2.2 - Legal conservation status

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Lower Wisconsin River	<a href="http://www.wisconsinbirds.org/iba/sites.htm">http://www.wisconsinbirds.org/iba/sites.htm</a>	whole
Other non-statutory designation	Conservation Opportunity area: Lower Wisconsin River Bluffs and Floodplain	<a href="http://dnr.wi.gov/topic/WildlifeHabitat/COA.html">http://dnr.wi.gov/topic/WildlifeHabitat/COA.html</a>	whole
Other non-statutory designation	Wisconsin Wetland Association Wetland Gem	<a href="http://wisconsinwetlands.org/wp-content/uploads/2015/06/Wetland-Gems-Intro.pdf">http://wisconsinwetlands.org/wp-content/uploads/2015/06/Wetland-Gems-Intro.pdf</a>	whole

5.2.3 - IUCN protected areas categories (2008)

- Ia Strict Nature Reserve
- Ib Wilderness Area: protected area managed mainly for wilderness protection
- II National Park: protected area managed mainly for ecosystem protection and recreation
- III Natural Monument: protected area managed mainly for conservation of specific natural features
- IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention
- V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation

VI Managed Resource Protected Area: protected area managed mainly  for the sustainable use of natural ecosystems

### 5.2.4 - Key conservation measures

#### Legal protection

Measures	Status
Legal protection	Implemented

#### Habitat

Measures	Status
Catchment management initiatives/controls	Proposed
Improvement of water quality	Proposed
Habitat manipulation/enhancement	Implemented

#### Species

Measures	Status
Threatened/rare species management programmes	Implemented
Control of invasive alien plants	Implemented
Control of invasive alien animals	Implemented

#### Human Activities

Measures	Status
Management of water abstraction/takes	Implemented
Regulation/management of wastes	Implemented
Livestock management/exclusion (excluding fisheries)	Partially implemented
Fisheries management/regulation	Implemented
Harvest controls/poaching enforcement	Implemented
Regulation/management of recreational activities	Implemented
Communication, education, and participation and awareness activities	Implemented
Research	Implemented

### 5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes  No

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes  No

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

Educational and visitor programmes are located at Tower Hill State Park, Wyalusing State Park, and the Lower Wisconsin State Riverway Board office

URL of site-related webpage (if relevant):

### 5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Yes, there is a plan

### 5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water regime monitoring	Implemented
Water quality	Implemented
Plant community	Implemented
Plant species	Implemented
Animal species (please specify)	Implemented
Birds	Implemented

Animal species (waterfowl)  
Animal species (frogs and toads)  
Animal species (Ouachita Map turtle nests)  
Animal species (white-tailed deer)  
Animal Species (bobcat)  
Animal Species (molluscs)  
Animal Species (fish)

## 6 - Additional material

### 6.1 - Additional reports and documents

#### 6.1.1 - Bibliographical references

Durbin, R.D. 1977. The Wisconsin River: An Odyssey Through Time and Space. Spring Freshet Press, Cross Plains, WI.

Marshall, D.W. 2013. Lower Wisconsin River Floodplain Lakes Water Pollution Investigation. Diagnostic and Feasibility Study Part 1. River Alliance Lake Planning Grant Study.

Marshall, D.W. 2012. Surveys of River Floodplain Habitats for Fish Species with Inventory Needs, SGCN and Associated Off-channel Fish Populations. WDNR State Wildlife Grant (SWG-11) Final Report.

Marshall, D.W., J. Lyons, J. Unmuth, and J. Parker. 2010. Surveys of river floodplain habitats for fish species with inventory needs, SGCN and associated off-channel fish populations. WDNR State Wildlife Grant (SWG-09) Final Report, 19 pp.

Marshall, D.W. and J. Lyons. 2008. Documenting and Halting Declines of Nongame Fishes in Southern Wisconsin. Pp 171-181 in D. M. Waller and T.R. Rooney, ed., The Vanishing Present: Wisconsin's Changing Lands, Waters, and Wildlife. University of Chicago Press.

Marshall, D.W., Wade, K., Unmuth, J., and Schlaudt, E., 2016. Restoring Lower Wisconsin State Riverway Oxbow Lakes Phase 2: Diagnostic and Feasibility Study, DNR Lakes Planning Grant.

Sauer, S. 2008b. Invertebrates collected at Blue River Sand Barrens (SNA 069). From DNR Study 053 Records as of August 1, 2008. Unpub. Report.

Pfeiffer, S.M., J.M. Bahr, and R.D. Beilfuss. 2006. Identification of groundwater flowpaths and denitrification zones in a dynamic floodplain aquifer. J. Hydrology 325(1-4): 262- 272. WDNR. 2019. Ecological Landscapes of Wisconsin. <https://dnr.wi.gov/topic/landscapes/>

WDNR. 1995. Wisconsin's Biodiversity as a Management Issue: A Report to DNR Managers. Madison, WI.

WDNR. 2004. Wisconsin's Statewide Forest Plan: Ensuring a Sustainable Future. <http://dnr.wi.gov/forestry/assessment/>

WDNR. 2006a. Wisconsin Land Legacy Report: an inventory of places critical in meeting Wisconsin's future conservation and recreation needs. Madison, WI. WDNR. 2006b. Wisconsin Wildlife Action Plan. <http://dnr.wi.gov/org/land/er/wwap/plan/>.

WDNR. 2007. Important Bird Areas of Wisconsin: Critical Sites for the Conservation and Management of Wisconsin's Birds.

WDNR. 2010a. Lower Wisconsin State Riverway Implementation Plan: 2010 – 2014.

WDNR. 2011. Biotic Inventory and Analysis of the Lower Wisconsin State Riverway: Baseline Inventory and Analysis of Natural Communities, Rare Plants, and Animals. Madison, WI.

WDNR. 2016. Lower Wisconsin State Riverway Master Plan. <https://dnr.wi.gov/files/PDF/pubs/lf/LF0093.pdf>

Erickson, Dave. 1994. Gather like the Waters. 2 hr video documentary. Ootek Productions and Wisconsin Public Television, Madison. <http://www.caughtintime.com/OotekProductionsHOME.html>

Erickson, Dave. 2011. Rhythm of the River. 1 hr video documentary. Ootek Productions and Wisconsin Public Television, Madison.

Mussel Coordination Team (USFWS, USGS, NPS, ACOE, WDNR, MDNR, IDNR, INR). February 2017. Results of 2016 Monitoring of Freshwater Mussel Communities of the Wisconsin River

#### 6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

<no file available>

ii. a detailed Ecological Character Description (ECD) (in a national format)

<no file available>

iii. a description of the site in a national or regional wetland inventory

<no file available>

iv. relevant Article 3.2 reports

<no file available>

v. site management plan

<no file available>

vi. other published literature

<no file available>

<no data available>

#### 6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Woodland Phlox along LWR slough ( Steve S. Meyer, 01-05-2012 )



Nesting prothonotary warbler along LWR slough ( Steve S. Meyer, 01-05-2012 )



Bluff woodland along LWR ( Mike Mossman, 01-05-2013 )



River paddlers ( Jean. Unmuth, 01-09-2011 )



Lower Wisconsin Riverway ( Timothy Jacobson , 07-06-2013 )



Lower Wisconsin Riverway ( Timothy Jacobson , 28-08-2020 )



Lower Wisconsin Riverway ( Timothy Jacobson , 28-08-2020 )



Lower Wisconsin Riverway ( Timothy Jacobson , 26-10-2015 )



Lower Wisconsin Riverway ( Timothy Jacobson , 14-05-2016 )



Lower Wisconsin Riverway ( Timothy Jacobson , 17-10-2015 )



Lower Wisconsin Riverway ( Timothy Jacobson , 15-06-2016 )



Lower Wisconsin Riverway ( Timothy Jacobson , 28-08-2020 )

#### 6.1.4 - Designation letter and related data

##### Designation letter

<2 file(s) uploaded>

Date of Designation