

Upper Mississippi River Forestry Partnership Bottomland Hardwood Reference Site

State: Minnesota

Name: Vermillion Bottoms-Lower Cannon River Important Bird Area (IBA)

Ownership: Minnesota Department of Natural Resources; US Army Corps of Engineers; Prairie Island Indian Community; Independent School District #256; private

Acres: The IBA is 37,000 acres, including about 25,000 acres of floodplain.

Designation(s): Important Bird Area; various portions are State Forest, State Wildlife Management Area, State Scientific and Natural Area

Location: Dakota and Goodhue counties. Pool 3 of the Upper Mississippi River between Hastings on the northwest end and Red Wing on the southeast end, and bottomlands along the Lower Vermillion and Lower Cannon Rivers; portions of: T113N-R15W, T113N-R16W, T114N-R15W, T114N-R16W, T115N-R16W, T115N-R17W

Access Considerations: Multiple access points by road, boat, and trail. Road access to the north end of Gores WMA is one mile east of Hastings on Fourth Street East. The Cannon River Turtle Preserve SNA can be accessed from US Highway 61. Boat launch facilities on the Mississippi and Vermillion Rivers include: Mississippi River Hastings, Lower Vermillion, Upper Vermillion, North Lake, Sturgeon Lake, Bay Point Municipal Park. The Cannon Valley Trail, a 19.7 mile long bike trail paralleling the Cannon River between Cannon Falls and Red Wing, affords hiking, biking, and skiing access to the site. There are trail accesses near the IBA in Welch and along Highway 61 near Red Wing. There is a small fee for use, payable to the Cannon Valley Joint Powers Board; for more information: cannonvalleytrail.com

The Cannon River Turtle Preserve and Hastings Scientific and Natural Areas are lands within the IBA that are managed by the DNR's Division of Ecological Resources. They are open to the public year-round for passive recreation, but no motorized vehicles are allowed. For further rules and regulations: <http://www.dnr.state.mn.us/snas/rules.html>

The Gores Wildlife Management Area, managed by the DNR's Division of Fish and Wildlife, is managed to preserve and provide recreation in a large, unbroken area of floodplain forest and to preserve waterfowl and furbearer habitat. There is a designated Migratory Waterfowl Refuge near the south end of the unit, which is off limits to all activities. Hunting options in the remainder of the WMA include deer, small game, forest game birds, and waterfowl.

The R.J. Dorer State Forest consists of scattered parcels of land in southeast Minnesota managed by the DNR Division of Forestry. In this site, State Forest land includes the Collischan Bottoms area along portions of the Vermillion River, and scattered parcels along the Cannon River. State Forest lands are open to nearly all forms of recreation. The exception is that off-road vehicles and horseback riding are only permitted in areas that are posted open for those uses, and none of the lands within this project area are posted as such. State forest lands are actively managed for forest production and timber sales are a routine activity. Subsection management plans developed with all other DNR partners and with input from outside partners determine which areas will be harvested. All harvested areas must be regenerated and various types of methods are used to assure this occurs.

The Red Wing Wildlife League is an 800-member private sportsmen's club with ownership of over 2700 acres of land within the IBA. The land is used by its owners and the public for hunting, fishing, cross-country skiing, snowshoeing, bird watching, hiking, camping, and natural resource education for youth. Most of the property is protected by a conservation easement with the Minnesota Land Trust. The Red Wing Wildlife League has been involved in habitat management for game and nongame species on the property, and is guided by a habitat rehabilitation and enhancement management plan that was completed in 2005.

The Prairie Island Indian Community owns over 1500 acres of land within the IBA. There is one small fee-access boat launch that accesses Sturgeon Lake, for use by Tribal members and Prairie Island Casino patrons.

Maps:

Location Map: <http://www.audubon.org/bird/iba/minnesota/VermilBottoms.jpg>

Landscape Considerations: The Vermillion Bottoms-Lower Cannon River IBA is within the Paleozoic Plateau Ecological Section and the Blufflands Ecological Subsection. At the northwest end of the site, the St. Croix River empties into the Mississippi River from the north, and the Vermillion River flows toward the Mississippi River from the south, but encounters the high terrace of Prairie Island and turns southeast, where it parallels the Mississippi for 15 miles. The floodplain, lakes, bluffs, and terraces between the Mississippi and Vermillion Rivers are all part of the IBA. The southeastern portion of the site is a large delta where the Vermillion River, the Cannon River, Spring Creek, and Hay Creek all join the Mississippi River, creating an extensive complex of meandering streams, areas of deposition, and floodplain forest and marsh vegetation. The IBA also includes the Lower Cannon River and the floodplain and bluffs along it. The city of Hastings is located on the northwest edge of the IBA, Red Wing at the southeast edge, and Welch at the southwest edge.

Floodplain Forest Types: This site contains one of the largest expanses of floodplain forests in the Minnesota portion of the Paleozoic Plateau. The quality of the forest varies (ranging from excellent to moderate), with disturbances reflecting the altered hydrology due to the presence of locks and dams on the Mississippi as well as the effects of sedimentation and invasive species. There are three bottomland forest native plant communities in the site. The largest expanses, covering the lowest areas that flood for a prolonged period in the spring, are classified as Silver Maple (Virginia Creeper) Floodplain Forest (FFs68a). Terraces and levees of slightly higher elevation and therefore less prolonged and less frequent flooding support two types of forest: Silver Maple – Green Ash – Cottonwood Terrace Forest (FFs59a), and Elm – Ash – Basswood Terrace Forest (FFs59c). The Minnesota DNR website has more information on Minnesota's native plant community classification: <http://www.dnr.state.mn.us/npc/index.html>

Composition of Silver Maple (Virginia Creeper) Floodplain Forest (FFs68a)

Overstory - Canopies are dominated by silver maple (*Acer saccharinum*), with a strong component of green ash (*Fraxinus pensylvanica*), American elm (*Ulmus americana*) and box elder (*Acer negundo*). Other canopy species have much lower cover, including black ash (*Fraxinus nigra*), willow (*Salix* spp.), and cottonwood (*Populus deltoides*).

Understory – Vines are abundant; dominant species are common moonseed (*Menispermum canadense*) and wild grape (*Vitis riparia*). First-year seedlings of silver maple are often very common. Silver maple is the most common species in the understory, but cottonwood, box elder, and *Salix* spp. also occur.

Herbaceous species composition is highly variable. Under shady canopies, diversity is generally low, with common species including wood nettle (*Laportea canadensis*), Ontario aster (*Aster ontarionis*), dwarf clearweed (*Pilea pumila*), tall coneflower (*Rudbeckia laciniata*) and wild rye (*Elymus virginicus*). In areas with less shade, common species include leafy beggarticks (*Bidens frondosa*), mad dog skullcap (*Scutellaria lateriflora*), and rice cut grass (*Leersia oryzoides*), among others. Several non-native invasive species are present, with creeping charlie (*Glechoma hederacea*) and moneywort (*Lysimachia nummularia*) common throughout, and reed canary grass (*Phalaris arundinacea*) present in varying amounts, becoming dominant in areas that are wetter and with less shade.

Composition of Silver Maple – Green Ash – Cottonwood Terrace Forest (FFs59a)

No releve plot data are available from the site at the time of writing; data will be gathered during the 2010 field season.

Composition of Elm – Ash - Basswood Terrace Forest (FFs59c)

Overstory – Canopy includes black walnut (*Juglans nigra*), hackberry (*Celtis occidentalis*), cottonwood (*Populus deltoides*), slippery elm (*Ulmus rubra*), box elder (*Acer negundo*), basswood (*Tilia americana*), and bur oak (*Quercus macrocarpa*), with canopy associates and dominants varying from stand to stand. Understory species are similar. Common forbs include wood nettle, tall coneflower, stinging nettle (*Urtica dioica*), honewort (*Cryptotaenia canadensis*), cleavers (*Galium aparine*), spotted touch-me-not (*Impatiens capensis*), Virginia waterleaf (*Hydrophyllum virginiana*), and aniseroot (*Osmorhiza longistylis*).

Rare Plant Species: Bottomland hardwood forest in this site includes one of only two known populations in Minnesota of the state-endangered plant purple rocket (*Iodanthus pinnatifidus*). Five additional rare plant species have been documented in floodplain forests in this site: moschatel (*Adoxa moschatellina*), green dragon (*Arisaema dracontium*), Gray's sedge (*Carex grayi*), Walter's barnyard grass, (*Echinochloa walteri*), and Virginia water horehound (*Lycopus virginicus*).

Bird Species: This site has the highest numbers of two state special concern bird species in southeast Minnesota: red-shouldered hawks and cerulean warblers. It also provides important nesting and/or migratory habitat for peregrine falcons (*Falco peregrinus*), bald eagles (*Haliaeetus leucocephalus*), and Acadian flycatchers (*Empidonax virescens*), and includes a bald eagle winter roost site and two colonial nesting sites for great blue herons (*Ardea herodias*) and great egrets (*Ardea alba*). A total of 14 bird species of greatest conservation need (SGCN) have been documented in the site, and a total of 153 bird species have been recorded as breeding in or migrating through the site, which is significant compared to other habitats in the region.

Soils: Most of the soil in floodplain forest areas is Calco silt loam, described as very deep, poorly drained and very poorly drained soils formed in calcareous alluvium. In slightly higher areas that are flooded less frequently, soil types include Minneiska loam and Colo silt loam.

Recent Management Activities: In 2008-09, a comprehensive invasive plant survey was conducted in the site to determine levels of infestation of reed canary grass and other non-native invasive species, and the results were compiled in a GIS layer. That same year, surveys of bird species utilizing the site for migration and for breeding habitat were conducted along with vegetation plot data to gather information about the relationships between forest vegetation and bird species use of the site. Additional forest plot data were also obtained to help with overall mapping of forest age and species composition.

State forest lands have been actively managed for many years, with timber cutting, reed canary grass control experiments, and floodplain forest tree planting. In the Scientific and Natural Area, there has been some non-native invasive species control. In the winter of 2009/2010, an experimental forest

management project on the Wildlife Management Area is being set up in order to monitor the effects of several silvicultural treatments on forest regeneration and bird populations in an area of about 110 acres.

Management challenges: Portions of the forest are relatively even-aged, between 50 and 70 years old, as much of the forest was logged at the time the locks and dams were put in. In addition, the change in flooding regime has led to somewhat less plant species diversity than was formerly in the site, with greater dominance by silver maple and green ash than in times prior to the locks and dams. With increasing cover by aggressive strains of reed canary grass, there is concern that portions of the forest may eventually convert to open, reed canary grass dominated habitats and much of the forest may be lost.

Sources of Information:

A technical guidance document was written by an inter-agency group of partners to record agreed-upon management goals for this site. The document and an executive summary are on the DNR website:

<http://www.dnr.state.mn.us/nrplanning/bigpicture/vermillion/index.html>

Fact sheet on Vermillion Bottoms Lower Cannon River IBA:

<http://iba.audubon.org/iba/viewSiteProfile.do?siteId=2922&navSite=state>

Detailed Plant Species List:**Plant Species List for Floodplain Forest in the Vermillion Bottoms – Lower Cannon River Important Bird Area**

(compiled in January 2010 from releve plots, randomly placed vegetation survey plots, and Natural Heritage Information System)

Common Name	Scientific Name	Non-native species
Trees		
American elm	<i>Ulmus americana</i>	
Basswood	<i>Tilia americana</i>	
Bitternut hickory	<i>Carya cordiformis</i>	
Black ash	<i>Fraxinus nigra</i>	
Black walnut	<i>Juglans nigra</i>	
Black willow	<i>Salix nigra</i>	
Box elder	<i>Acer negundo</i>	
Bur oak	<i>Quercus macrocarpa</i>	
Cottonwood	<i>Populus deltoides</i>	
Green ash	<i>Fraxinus pennsylvanica</i>	
Hackberry	<i>Celtis occidentalis</i>	
Peach-leaved willow	<i>Salix amygdaloides</i>	
Red elm	<i>Ulmus rubra</i>	
Riverbar willow	<i>Salix exigua</i>	
Silver maple	<i>Acer saccharinum</i>	
White mulberry	<i>Morus alba</i>	
Whitecrack willow	<i>Salix x rubens</i>	*
Shrubs		
Chokecherry	<i>Prunus virginiana</i>	
Gooseberry species	<i>Ribes sp.</i>	
Nannyberry	<i>Viburnum lentago</i>	
Prickly ash	<i>Zanthoxylum americanum</i>	
Red-berried elder	<i>Sambucus pubens</i>	
Wahoo	<i>Euonymus atropurpurea</i>	
Vines		
Canada Moonseed	<i>Menispermum canadense</i>	
Dodder	<i>Cuscuta spp.</i>	
Greenbriar	<i>Smilax tamnoides</i>	
Virginia creeper	<i>Parthenocissus quinquefolia</i>	
Wild grape	<i>Vitis riparia</i>	
Graminoids		
Gray's sedge	<i>Carex grayi</i>	
Reed canary grass	<i>Phalaris arundinacea</i>	
Rice cut grass	<i>Leersia oryzoides</i>	
River bulrush	<i>Scirpus fluviatilis</i>	
Virginia wild rye	<i>Elymus virginicus</i>	
Walter's barnyard grass	<i>Echinochloa walteri</i>	

Forbs		
Angelica	<i>Angelica atropurpurea</i>	
Aniseroot	<i>Osmorhiza longistylis</i>	
Bergamot	<i>Monarda fistulosa</i>	
Bittersweet	<i>Celastrus scandens</i>	
Black nightshade	<i>Solanum nigrum</i>	
Broad-leaved arrowhead	<i>Sagittaria latifolia</i>	
Bur cucumber	<i>Sicyos angulatus</i>	
Clammy ground cherry	<i>Physalis heterophylla</i>	
Clayton's sweet cicely	<i>Osmorhiza claytonii</i>	
Cleavers	<i>Galium aparine</i>	
Cocklebur	<i>Xanthium strumarium</i>	
Common burdock	<i>Arctium minus</i>	*
Common milkweed	<i>Asclepias syriaca</i>	
Common mint	<i>Mentha arvensis</i>	
Common poison ivy	<i>Toxicodendron radicans</i>	
Common water plantain	<i>Alisma triviale</i>	
Cow parsnip	<i>Heracleum lanatum</i>	
Creeping charlie	<i>Glechoma hederacea</i>	*
Cut-leaved bugleweed	<i>Lycopus americanus</i>	
Duckweed	<i>Lemna minor</i>	
Dwarf clearweed	<i>Pilea pumila</i>	
Ellisia	<i>Ellisia nyctelea</i>	
False buckwheat	<i>Polygonum scandens</i>	
False nettle	<i>Boehmeria cylindrica</i>	
Garlic mustard	<i>Alliaria petiolata</i>	*
Germander	<i>Teucrium canadense</i>	
Giant chickweed	<i>Stellaria aquatica</i>	*
Great water dock	<i>Rumex orbiculatus</i>	
Green dragon	<i>Arisaema dracontium</i>	
Heal-all	<i>Prunella vulgaris</i>	*
Hog peanut	<i>Amphicarpea bracteata</i>	
Honewort	<i>Cryptotaenia canadensis</i>	
Horse gentian	<i>Triosteum perfoliatum</i>	
Horsetail	<i>Equisetum sp.</i>	
Ironweed	<i>Vernonia fasciculata</i>	
Kidney-leaved buttercup	<i>Ranunculus abortivus</i>	
Leafy beggarticks	<i>Bidens frondosa</i>	
Mad dog skullcap	<i>Scutellaria lateriflora</i>	
Marsh skullcap	<i>Scutellaria galericulata</i>	
Maryland black snakeroot	<i>Sanicula marilandica</i>	
Mild waterpepper	<i>Polygonum hydropiperoides</i>	
Moneywort	<i>Lysimachia nummularia</i>	*
Moschatel	<i>Adoxa moschatellina</i>	
Narrow-leaved dock	<i>Rumex stenophyllus</i>	*
Narrow-leaved hedge-nettle	<i>Stachys tenuifolia</i>	

Northern blue flag	<i>Iris versicolor</i>	
Obedient plant	<i>Physotegia virginiana</i>	
Ontario aster	<i>Aster ontarionis</i>	
Purple rocket	<i>Iodanthus pinnatifidus</i>	
Rough bedstraw	<i>Galium asprellum</i>	
Rue anemone	<i>Thalictrum thalictroides</i>	
Rugel's plantain	<i>Plantago rugellii</i>	
Sessile-fruited arrowhead	<i>Sagittaria rigida</i>	
Sneezeweed	<i>Helenium autumnale</i>	
Spotted touch-me-not	<i>Impatiens capensis</i>	
Stinging nettle	<i>Urtica dioica</i>	
Tall bellflower	<i>Campanula americana</i>	
Tall coneflower	<i>Rudbeckia laciniata</i>	
Three-seeded mercury	<i>Acalypha rhomboidea</i>	
Tufted beggarticks	<i>Bidens comosa</i>	
Violet	<i>Viola sp.</i>	
Virginia ground cherry	<i>Physalis virginiana</i>	
Virginia knotweed	<i>Polygonum virginianum</i>	
Virginia water horehound	<i>Lycopus virginicus</i>	
Virginia waterleaf	<i>Hydrophyllum virginianum</i>	
Water hemlock	<i>Cicuta maculata</i>	
Western poison ivy	<i>Toxicodendron rydbergii</i>	
White avens	<i>Geum canadense</i>	
White vervain	<i>Verbena urticifolia</i>	
Wild cucumber	<i>Echinocystis lobata</i>	
Wild parsnip	<i>Pastinaca sativa</i>	*
Wild yam	<i>Dioscorea villosa</i>	
Wood nettle	<i>Laportea canadensis</i>	