

ST. CROIX RIVER CROSSING PROJECT SUPPLEMENTAL FINAL EIS
CHAPTER 9
NATURAL RESOURCE IMPACTS

9.0 NATURAL RESOURCE IMPACTS

The 2004 *Supplemental Draft Environmental Impact Statement* (SDEIS) is incorporated by reference and is considered to be part of this Supplemental Final EIS (SFEIS).

This chapter describes the natural resources of the project area and potential direct impacts on those resources that could result from the Preferred Alternative. Measures to mitigate identified Preferred Alternative impacts are also discussed. In this chapter, descriptions of the affected environment, environmental consequences, and mitigation are divided into four geographic areas: the St. Croix River; the Minnesota shore and upland; the Wisconsin shore and bluff; and the Wisconsin upland. Topics addressed for each appropriate geographic area include: (1) freshwater mussels, (2) fish and the aquatic community, (3) vegetation, (4) wildlife, (5) protected species, and (6) terrain and climate. Construction impacts on natural resources are discussed in Chapter 12 of this SFEIS.

9.1 ST. CROIX RIVER

The Lower St. Croix National Scenic Riverway, which forms the border between Minnesota and Wisconsin, extends for 52 miles from Taylors Falls, MN/St. Croix Falls, WI, to the confluence with the Mississippi River at Point Douglas, MN/Prescott, WI. The Riverway includes the river itself and adjacent lands (see Figure 1-3 of this SFEIS) and is managed by the Lower St. Croix Management Commission, which consists of the NPS, the MnDNR, and the WisDNR.

9.1.1 Information from the SDEIS that Remains Unchanged

The information in Chapter 9.1 of the SDEIS regarding the habitat and biological resources of the St. Croix River (e.g., freshwater mussels, fish, protected species, etc.) and the surrounding landscape has not changed since the SDEIS. The Lower St. Croix National Scenic Riverway Draft Section 4(f) Evaluation presented in the SDEIS addressed impacts on the Riverway. The Final Section 4(f) Evaluation (Appendix E of this SFEIS) discusses direct impacts on the Riverway from the Preferred Alternative.

Section 9.1.1.1 of the SDEIS describes the existing mussel community and endangered mussel species in the project area. Of the freshwater mussel (unionid) species, two (Higgins eye pearly mussel (*Lampsilis higginsii*) and winged mapleleaf (*Quadrula fragosa*) are on the Federal List of Threatened and Endangered Species and several others are on the Minnesota and Wisconsin state lists of threatened and endangered species. Higgins eye mussels have been found in the project area; winged mapleleaf mussels have not been located in the area. Mussel habitat in the project area tends to be best in the shallow “wave wash” zone near the river banks.

Section 9.1.1.2 of the SDEIS describes the fish and aquatic community of the Lower St. Croix River. The St. Croix River supports diverse aquatic life, and several Minnesota species of special concern and Wisconsin rare species are known to be present in the river.

Section 9.1.1.3 of the SDEIS describes the general terrain and climate of the St. Croix River in the project area. The terrain of the Riverway ranges from steep bluffs to beaches that gradually transition to upland areas. The climate in the project area is characterized by cold winters and short, fairly warm summers.

9.1.2 Changes in the Setting or Technical Analysis Since the SDEIS

Since the publication of the SDEIS, a Biological Assessment of the project (*St. Croix River Crossing from Oak Park Heights, Minnesota to St. Joseph Township, Wisconsin - Biological Assessment of Possible Project Impacts on Unionid Mollusks and Threatened and Endangered Species*; Mn/DOT; March 2005) was completed by FHWA and Mn/DOT for the Preferred Alternative. The technical information regarding Preferred Alternative impacts presented in the Biological Assessment is included in this chapter. The Biological Assessment is available for review at Mn/DOT and WisDOT offices.

The Biological Assessment was provided to the U.S. Fish and Wildlife Service (USFWS) for completion of their Biological Opinion (U.S. Fish and Wildlife Service, *Biological Opinion on the effects of the proposed St. Croix River Crossing on Trunk Highway (TH) 36/State [Trunk Highway] (STH) 64 between Oak Park Heights, Washington County, Minnesota to the Town of St. Joseph, St. Croix County, Wisconsin*. September 2005). The following is a summary of the findings and conclusions from the Biological Opinion.

The Biological Opinion concurred with the Biological Assessment that the project may have adverse impacts to a nesting pair of bald eagles in Minnesota near the proposed TH 36/95 interchange; however, based on restrictions to construction and avoidance of tree cutting near the nesting site, USFWS concurs with the Biological Assessment that the project is not likely to adversely affect nesting bald eagles.

The only population of winged mapleleaf mussels in the St. Croix River is located north of Osceola, approximately 12.5 miles north of the City of Stillwater. The Biological Opinion concurred with the determination in the Biological Assessment that the project is also unlikely to adversely affect the winged mapleleaf mussel.

Impacts of the project to the federally-endangered Higgins eye mussel will be remediated by relocating all Higgins eye mussels and any other native mussels within the proposed barge docking area. Barges and workboats will not likely be carrying zebra mussels into the St. Croix River because of decontamination protocols, lowering the probability of zebra mussels colonizing the substrate of the St. Croix River near the City of Stillwater. It is the opinion of USFWS that the project is not likely to jeopardize the continued existence of the Higgins eye mussel.

In addition to the biological opinion regarding the Higgins eye mussel, the Biological Opinion also provides a discussion of incidental takes¹ for the Higgins eye mussel, reasonable and prudent measures to minimize incidental takes, and terms and conditions establishing exemption from the prohibitions of Section 9 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 et seq.). The USFWS determined that the project's anticipated take is not likely to result in jeopardy to any protected species. Moreover, the USFWS does not anticipate any incidental takes, provided that all reasonable and prudent measures are implemented.

Conservation recommendations to avoid jeopardizing mussel populations in the St. Croix River are also provided in the Biological Opinion. These conservation measures are currently being implemented by the U.S. Army Corps of Engineers. Refer to Appendix C of this SFEIS for the complete Biological Opinion.

9.1.3 Impacts Associated with the Preferred Alternative

9.1.3.1 Freshwater Mussels

The Preferred Alternative includes construction of a new extradosed type, four-lane bridge over the St. Croix River. The bridge location at an existing ravine on the Wisconsin side minimizes impacts on the Wisconsin bluffs and the St. Croix River. The identified bridge type will include four to six bridge piers in the main channel of the river (anticipated to be located outside suitable mussel habitat), and additional piers on the Minnesota and Wisconsin shores. The exact pier locations on the shores are not known at this time but estimations place one pier on the Wisconsin bluff, and another approximately 200 – 350 feet westward from the Wisconsin shore. On the Minnesota shore, suitable mussel habitat does not exist at the bridge location.

The drainage design in Wisconsin has been refined to maximize stormwater runoff storage and infiltration, minimizing stormwater discharge to the St. Croix River. A buried stormwater pipe will discharge overflow runoff to an energy dissipation basin above the 100-year floodplain elevation (692.6 feet) at the bottom of the bluff. This design will provide adequate stormwater treatment while minimizing stormwater discharge impacts to mussel beds along the Wisconsin shoreline. Refer to Chapter 10 of this SFEIS for additional discussion of stormwater treatment in Wisconsin.

The bridge abutments and approach roads will be located at distances from the river sufficient to result in no direct physical river impacts.

Bridge construction may include temporary docking facilities on both sides of the river; preliminary construction staging concepts anticipate utilizing existing barge docking facilities at the Stillwater Municipal Barge Facility property and the Xcel Energy barge unloading facility (see Chapter 12 of this SFEIS). As noted in the Biological Assessment and Biological Opinion, these facilities are rectangular areas marked off by steel sheet piling, measuring approximately 75 feet wide and 400 feet long. Any changes to the docking facility dimensions

¹ "Take" is defined in Sections 4(d) and 9 of the Endangered Species Act as harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect, or attempt to engage in any such conduct.

would be coordinated with USFWS prior to construction. The exact placement location of these facilities is not known, and will be determined prior to construction. Docking facilities will require fill in the river, dredging for barge access, and sheet piling in the river. The fill and sheet piling will be removed when construction is completed. Each of these activities can impact the fishery, river habitats, mussel habitat and potentially individual mussels in the river. Although the mussel habitat in the assumed docking area on the Minnesota side of the river is poor, physical impacts will result on any mussels that do exist in the area.

The overall construction and construction staging activities could negatively impact individual mussels. Barges, towboats and other construction vehicles moving and being anchored on the river can increase bank erosion and sedimentation. Propeller wash from these vehicles can cause sedimentation. Sheet piling, cofferdam placement, dewatering and pier placement and removal can impact mussels and river habitat and individuals in the construction area. Changes in river habitat and flow (current) from the piers, docking facilities and boat activity could alter fish activity. Mussel reproduction depends upon fish to serve as hosts during their larval stage. This relationship with host fish allows mussels to distribute to wherever their host fish is located or travels to. Therefore, activities associated with the new river crossing that affect host fish activity could impact mussel distribution.

Negative water quality impacts would result from the above-mentioned construction activities. Positive impacts would result from restoration of the Wisconsin approach roads, closure of the Lift Bridge to motor vehicles (eliminating the potential for spills due to accidents), and addition of storm water treatment facilities to treat runoff from the new bridge and bridge approaches prior to discharge into the St. Croix River. Refer to Chapter 10 of this SFEIS for further discussion of water quality impacts.

Work boats and barges used as platforms from which to perform construction and used to bring materials to the construction area could introduce zebra mussels (*Dreissena sp.*) to the St. Croix River. This invasive species damages native habitats and species by out-competing existing mussels for food, and by attaching to existing substrates (including existing mussels) in great numbers, causing native species to fail.

9.1.3.2 Fish and the Aquatic Community

Potential impacts on fish and aquatic life could result from construction of the Preferred Alternative and related mitigation items that disturb habitat, water quality, or substrate.

Water quality impacts are expected to be temporary, and in general, effects on fish and aquatic life are expected to be minimal. Disturbed areas would be concentrated around the piers of the Preferred Alternative river crossing bridge and any temporary barge facilities. Fish would likely move away from these areas during construction, thus minimizing impacts. Some temporary or possibly permanent effects on bottom-dwelling (benthic) organisms could occur in construction areas. In addition, some temporary secondary effects on fish could occur due to disruption of benthic food sources.

Construction of the Preferred Alternative and associated mitigation items could have indirect, positive, long-term impacts on fish and the aquatic community as a result of positive impacts on water quality in the river. These include positive impacts on water quality from construction of facilities to treat stormwater from the new river crossing and approach roadways before it enters the St. Croix River and measures to protect the river from roadway spills.

No adverse direct or indirect impacts are anticipated on the Minnesota or Wisconsin protected fish species, provided construction best management practices (BMPs) are used to minimize bottom disturbance, construction site erosion, and turbidity.

9.1.3.3 Terrain and Climate

Impacts on the terrain of the river (i.e., the river bottom) would result from the addition of piers for the Preferred Alternative bridge. Potential impacts on the river environment resulting from construction actions are discussed in Section 12.3.

9.1.4 Preferred Alternative Mitigation Measures

The Preferred Alternative includes mitigation measures to offset impacts on the river, river habitat and mussels.

9.1.4.1 Freshwater Mussels

Mussel Relocation

The USFWS considers it imperative to avoid actions that would harm both the Higgins eye and the winged mapleleaf mussels. Relocating freshwater mussels from construction areas near the Wisconsin shoreline to other suitable habitat is proposed as mitigation for impacts on mussels in the project area. Mussels will be relocated from the work and barge docking area that will be adversely impacted by bridge construction activities. The mussel relocation protocol is documented in the *Proposed mussel relocation protocol for a crossing of the St. Croix River between Oak Park Heights, Minnesota and the Town of St. Joseph, Wisconsin* (Minnesota Department of Transportation, 1996) and as updated by USFWS.

The Biological Assessment completed by Mn/DOT prescribes in detail the relocation methodology to be used. Specific consideration for seasonal timing of the removal, handling procedures and preparation of the new habitat area will be implemented to ensure the safe relocation of *L. higginsii* and any other state- or federally-listed endangered mussels in areas identified for removal and relocation. Common species would be relocated as well. Mussel relocation sites will be identified and delineated before beginning the relocation effort. It is likely that a suitable relocation site will be found near the Wisconsin shore upstream of the Preferred Alternative bridge location. Refer to the USFWS Biological Opinion in Appendix C of this SFEIS for additional discussion regarding mussel relocation.

Bridge Piers

Through the visual quality planning process and final bridge design, every effort will be made to place bridge piers outside the mussel habitat area. The location of approach bridge piers and extradosed bridge piers will be determined through the visual quality planning process (described in Section 7.4.3 of this SFEIS) and final bridge design. Pier placement 200 to 350 feet away from the Wisconsin shoreline will minimize impacts on mussels, as the most suitable habitat lies closer to the shoreline.

Decontamination of Equipment

The zebra mussel decontamination protocol set forth by the USFWS, MnDNR, and WisDNR will be implemented. The protocol stipulates that all construction barges, work boats, and equipment will be decontaminated by elimination of zebra mussels and must remain decontaminated prior to being allowed into the St. Croix River. Boats from the Mississippi River will be decontaminated by being completely removed from the water for a period of time and following other measures, depending upon the season and other circumstances. The protocol also allows for boats to be brought overland to the St. Croix River, provided they are decontaminated prior to launching in the river. The details of the decontamination protocol agreement are provided in a letter from the USFWS to the FHWA (dated December 20, 1999) and included in Appendix H of the SDEIS. As noted in the Biological Opinion, USFWS has concluded that decontamination will result in a lower probability that zebra mussels will colonize the St. Croix River near the City of Stillwater.

9.1.4.2 Fish and the Aquatic Community

Bridge Piers

Every effort will be made to place bridge piers outside the mussel habitat area and to decrease impacts on fish and other aquatic life. In addition, reducing the number of bridge piers that will be located (anticipated to be 4 to 6 piers) will reduce potential effects on aquatic life.

Construction-related debris will be kept out of the river to the greatest extent possible, and all appropriate erosion control measures will be followed during construction to protect water quality (see Section 12.4 of this SFEIS for erosion and sedimentation mitigation measures).

The Preferred Alternative will not result in impacts to protected species in the river other than the mussels discussed in Section 9.1.4.1; therefore no additional mitigation is needed.

9.1.4.3 Terrain and Climate

River bottom substrate excavated for construction of the Preferred Alternative river crossing bridge piers will be used to the fullest extent possible for the construction of other features of the project or will be disposed of in accordance with Mn/DOT Standard Specification for Construction, 2104.3C and Minnesota Rule 7035.2825. No excess material will be disposed of in wetlands, the 100-year floodplain, or the St. Croix River. Because no impacts on climate will occur from the Preferred Alternative, no mitigation is required.

Some additional Preferred Alternative mitigation measures will impact the river due to necessary construction or other activities. These mitigation measures and their potential impacts to the river are summarized below.

Removal of Xcel Energy Barge Unloading Facility

The Xcel Energy barge unloading facility and mooring cells will be removed to mitigate for visual impacts in the Riverway. The mooring cell contents (rubble) will be left in place following removal of the mooring cells. Activities in the river to remove these cells will cause increased sedimentation and erosion. Minimization of those potential impacts through construction techniques is discussed in Section 15.4.1.2 of this SFEIS.

Public Boat Access

A new public boat access will be established to offset Riverway recreation impacts. The MnDNR proposes to construct a boat ramp to service the St. Croix River. MnDNR will be responsible for environmental documentation and permitting associated with public access construction. Although the location of this public boat access is unknown, the desired facility will include a parking area sufficient for launching 38 boats. The construction of a new public boat access is consistent with the *Lower St. Croix National and Scenic Riverway Cooperative Management Plan (2002)*.

9.2 MINNESOTA SHORE AND UPLAND

For the purposes of this discussion, the Minnesota shore and upland includes the areas from the western project terminus to the western shore of the St. Croix River, including TH 36 from Oakgreen Avenue/Greeley Street east to the TH 36/TH 95 interchange area in Oak Park Heights.

9.2.1 Information from the SDEIS that Remains Unchanged

Section 9.2 of the SDEIS describes the Minnesota shore and upland area as generally urbanized with areas already used for transportation purposes or other development. Little to none of the original vegetation (oak openings and prairie) remains in this area. Wildlife within and near the project area in Minnesota consists of species that are considered common in urban and suburban areas of the state.

The protected species listed in the SDEIS (Section 9.2.1.3) are not known to have changed in protection status or location. Protected species known to occur on the Minnesota shore and upland include swallow, peregrine falcon (*Falco peregrinus*), osprey (*Pandion haliaetus*), and bald eagle (*Haliaeetus leucocephalus*). Figure 9-1 illustrates the locations of protected species in relation to the Preferred Alternative.

Section 9.2.1.4 of the SDEIS describes the terrain and climate of the Minnesota shore and upland. The terrain of the Minnesota shore rises gently from the river surface elevation and then rises more steeply as the distance from the river increases. In the upland area, the terrain is gently rolling to flat. The climate in the project area is summarized in Section 9.1.1.3 of the SDEIS.

9.2.2 Changes in the Setting or Technical Analysis Since the SDEIS

There are no known changes in the data presented in the SDEIS regarding the Minnesota shore and upland, with the exception of the information presented in the March 2005 Biological Assessment (see Section 9.1.2 of this SFEIS) and the September 2005 Biological Opinion (see Appendix C of this SFEIS).

9.2.3 Impacts Associated with the Preferred Alternative

The Preferred Alternative would include impacts on vegetation, wildlife, and protected species from the river's edge westward to the west terminus of the project. Trees, shrubs, undergrowth and other vegetation would be removed, with greatest impacts occurring in the area of the TH 36/TH 95 interchange. Wildlife habitat would be removed where vegetation is impacted.

9.2.3.1 Wildlife

Given that the Preferred Alternative is located primarily on an existing roadway corridor and in a generally urbanized area, the Preferred Alternative will not introduce new barriers to wildlife movement in Minnesota, except in short lengths between TH 95 and the St. Croix River. Although construction of the Preferred Alternative could remove and/or displace some kinds of habitat and could displace wildlife in certain areas, habitat loss and the resulting impacts on wildlife are not expected to be substantial. Displaced wildlife might relocate to adjoining habitat, possibly increasing competition for food and shelter for some species. Potential general effects of highway development may include an increase in wildlife-vehicle accidents as a result of increased traffic volumes.

9.2.3.2 Protected Species

Swallow

The Lift Bridge provides habitat for nesting swallows, a species of bird protected by the federal Migratory Bird Treaty Act. The \$5 Million Lift Bridge Repair project (discussed in Section 1.2.4.8 of this SFEIS) began in summer 2005 and was completed in spring 2006. Impacts on swallows were identified and addressed in Mn/DOT Project Memorandum, *Lift Bridge Repair, Bridge #4654*, March 2004. No further impacts are anticipated with construction of the Preferred Alternative.

Osprey

An active osprey nest is located on the barge off-loading facility at the Xcel King Power Plant. The approximate location of the active osprey nest relative to the Preferred Alternative is illustrated in Figure 9-1. The osprey is classified as a Minnesota species of special concern, is listed as a threatened species in Wisconsin, and is protected under the federal Migratory Bird Treaty Act. The osprey is not listed as a federal threatened or endangered species. The nest will incidentally need to be removed as part of the proposed removal of the barge off-loading facility that has been identified as a Preferred Alternative mitigation item.

Peregrine Falcon

An active peregrine falcon nest is located on the exhaust stack of the Xcel King Power Plant. The approximate location of the peregrine falcon nest relative to the Preferred Alternative is illustrated in Figure 9-3. Although formerly a federally-listed endangered species, the peregrine falcon was removed from the USFWS list in August 1999. It will remain classified as a threatened species in Minnesota and as an endangered species in Wisconsin, and will continue to be protected under the federal Migratory Bird Treaty Act. The Preferred Alternative will not adversely affect the identified peregrine falcon nesting area. Construction activity is not expected to adversely disturb the species in general.

Bald Eagle

The bald eagle is currently federally-listed as a threatened species. Although delisting or re-classification of this species has been considered, it will continue to remain classified as a species of special concern in Minnesota and will continue to be protected under the federal Migratory Bird Treaty Act and the Bald Eagle Protection Act. The Bald Eagle Protection Act further protects these birds by prohibiting taking of their nests and eggs.

A bald eagle nest tree is located near the TH 36/TH 95 interchange. The approximate location of the bald eagle nest tree relative to the Preferred Alternative is illustrated in Figure 9-1. In previous years, a pair of bald eagles had nested in a tree next to the St. Croix River. Sometime after 1995, that tree blew down, and the nesting pair relocated to a tree adjacent to TH 36. This tree is approximately 50 feet from the edge of the existing TH 36 pavement, and the eagle pair has successfully raised young at this location. According to the USFWS, road and bridge construction may have impacts on nesting bald eagles. Specifically, impacts could occur from construction activities that disturb nesting eagles during the spring and summer months (March 1 to July 31). This could result in nest abandonment and subsequent loss of unfledged eaglets in the nest.

9.2.3.3 Terrain and Climate

Localized impacts on terrain from the Preferred Alternative will occur primarily east of Osgood Avenue and at the new TH 36/TH 95 interchange. Extensive grading alterations will be required to accommodate the new roadways and the TH 36/95 interchange. The Preferred Alternative will have no impacts on climate.

9.2.4 Preferred Alternative Mitigation Measures

The Preferred Alternative includes mitigation measures to offset impacts on the bald eagle nest on the Minnesota upland.

Bald Eagle Nest Protection

In accordance with state and federal requirements, the bald eagle nest tree will not be disturbed. An area around the tree will be fenced and signed to warn humans from approaching/disturbing the tree and nest during the nesting season from March 1 to July 31. Current construction schedules call for bridge construction activities during the nesting seasons of 2009 – 2015,

depending upon project funding. While it is possible the eagles will adjust to the activity associated with the project, it is also possible that they would abandon the nest or not successfully raise young. This tree will remain standing, and mitigation measures to offset disturbances to nesting eagles will be implemented, including avoiding all tree cutting within 100 feet of the eagle nest; limiting construction during the nesting season depending upon the line of sight to the active eagle nest; and monitoring and reporting to the Twin Cities Field Office of the USFWS the nesting activities of the eagle pair during project construction. With the exception of the removal of existing pavement, no construction activities will occur within 100 feet of the nest tree.

Osprey

The removal of the barge off-loading facility as a mitigation item for the Riverway also results in removal of an osprey nesting site. Xcel Energy, through a Memorandum of Understanding with Mn/DOT for removal of the barge off-loading facility, will move the osprey nesting platform to a new location in the general area during the non-nesting season (see Appendix H of this SFEIS for the Memorandum of Understanding between Mn/DOT and Xcel Energy). A permit (see Table 16-2 in Section 16.4 of this SFEIS) for the relocation of osprey nest will be obtained from MnDNR prior to relocating the nest. It is anticipated that the osprey will follow and re-establish a nest at the new location.

Swallow

The Lift Bridge provides habitat for nesting swallows, a species of bird protected by the federal Migratory Bird Treaty Act. No impacts to this nesting habitat are anticipated with conversion of the Lift Bridge to a pedestrian/bicycle facility.

Vegetation and Wildlife

Landscaping and revegetation will be implemented as mitigation for vegetative loss in appropriate areas. The use of native plant materials will be implemented where appropriate. Detailed plans for revegetation will be developed as part of the final design of the project. Possible impacts on wildlife will be addressed through revegetation.

9.3 WISCONSIN SHORE AND BLUFF

The Wisconsin shore and bluff is defined as the general area that would be affected by the eastern touchdown point of the Preferred Alternative river crossing bridge, extending from the shoreline to approximately STH 35. The bluffline is defined as the “top of a slope preservation zone,” while slope preservation zone is defined as “an area with a slope greater than 12 percent with the horizontal interval of measurement not exceeding 50 feet” (as per Appendix A of the *Cooperative Management Plan – Lower St. Croix National Scenic Riverway*, January 2002). Figure 9-3 of the SDEIS illustrates the Wisconsin bluff boundary.

9.3.1 Information from the SDEIS that Remains Unchanged

Section 9.3 of the SDEIS discusses the Wisconsin shore and bluff in the area of the Preferred Alternative as a sandy beach giving way to a steep, heavily vegetated and relatively undisturbed area. Further east of the bluff and STH 35, the wooded areas give way to grassed and agricultural uplands. The relatively undisturbed vegetation provides desirable wildlife habitat. Dotted blazing star (*Liatris punctata* var. *nebraskiana*) is likely to occur in the area where the Preferred Alternative would touch down in Wisconsin.

Section 9.3.1.1 of the SDEIS describes the existing vegetation along the Wisconsin bluff and the plant communities along the existing STH 64 bluff cut and approach roadway to the Lift Bridge. This section identifies trees in both the St. Croix River shore area, as well as in the forested areas of the upper bluff and ravine. Common shrub and vine species and herbaceous species are also described.

Section 9.3.1.2 of the SDEIS describes the wildlife species encountered along the Wisconsin bluff. These species include a number of common species including small mammals (mice, voles, squirrels, cottontail rabbits, etc.), larger mammals (whitetail deer, coyote, fox, raccoon, striped skunk, etc.) songbirds (American robin, black capped chickadee, tufted titmouse, ovenbird, chipping sparrow, crested flycatcher, northern cardinal, etc.), and game birds such as ruffed grouse.

Section 9.3.1.3 of the SDEIS discusses known occurrences of protected species along the Wisconsin bluff. There are no records of state-endangered, threatened, or special concern species in the Wisconsin shore and bluff area, with the exception of a small population of dotted blazing star (*Liatris punctata* var. *nebraskiana*), a Wisconsin state-endangered plant, between the St. Croix River and STH 35, near the Preferred Alternative river crossing. No plants of this species were identified along the Wisconsin shore and bluff in a July 1999 WisDNR field survey.

Section 9.3.1.4 of the SDEIS describes the terrain and climate of the Wisconsin bluff. The Wisconsin shore and bluff area consists of a narrow strip of beach and floodplain along the river with a sharp rise to the bluff line in most areas (a 200-foot increase in elevation from shoreline to bluffline). Climate of the project area is summarized in Section 9.1.1.3 of the SDEIS.

9.3.2 Changes in the Setting or Technical Analysis Since the SDEIS

There are no known changes in the data presented in the SDEIS regarding the Wisconsin shore and upland, with the exception of the information presented in Mn/DOT's March 2005 Biological Assessment (see Section 9.1.2 of this SFEIS) regarding mussel habitat along the Wisconsin shoreline.

Since the SDEIS, the drainage design in Wisconsin has been refined to minimize impacts to the Wisconsin bluff. This is discussed below in Section 9.3.3 of this SFEIS.

9.3.3 Impacts Associated with the Preferred Alternative

The Preferred Alternative will directly impact approximately 2.21 acres of bluff area in Wisconsin. (Refer to Section 9.3.2.4 of the SDEIS for further discussion). All vegetation will be removed from this area. Additional impacts will result from piers or supports for the bridge that may be placed on the Wisconsin shore and bluff.

Drainage design east of STH 35 adjacent to the bridge abutment has been refined with the Preferred Alternative to minimize impacts to the Wisconsin bluff. The drainage design described in the SDEIS utilized wet detention basins that would eventually discharge to the St. Croix River, with a stilling basin along the shoreline to provide energy dissipation. Under the Preferred Alternative, ponds and infiltration areas east of STH 35 have been maximized to minimize drainage structure construction along the bluff. An outlet will be provided so that discharge from storms larger than the 50-year, 24-hour storm event would be routed down the bluff alongside the bridge abutment to a small energy dissipation basin located near the 100-year base flood river elevation. Overflow discharges are anticipated to be low, and energy dissipation structures at the pipe outlet will minimize any potential bluff erosion and limit sediment and pollutant laden water from impacting the nearby mussel beds.

9.3.3.1 Vegetation

An area of trees and associated understory vegetation and beach area vegetation on the Wisconsin bluff and shore will be removed to allow for construction of the bridge and stormwater pipe for the Preferred Alternative. Vegetative change (e.g., loss of trees) could occur to varying degrees in the area of the bridge abutments, stormwater pipe, and any areas shadowed by the new structure. Field survey results concluded that remaining trees in this area are expected to respond relatively well to construction activities if appropriate measures are taken to protect them during construction. Vegetative impacts will be managed through implementation of landscaping and revegetation guidelines developed as part of final project design.

The Preferred Alternative mitigation package includes removal of the existing STH 64 approach roadway to the Lift Bridge and CTH E between STH 64 and State Street along the Wisconsin bluff. A pedestrian and bicycle trail, as part of the loop trail system, will be constructed within the existing STH 64 right-of-way. Following removal of the existing roadways and completion of the loop trail system, the former roadway corridors will be revegetated.

9.3.3.2 Wildlife

Impacts on the local wildlife community in the Wisconsin shore and bluff area of the Preferred Alternative are anticipated to be small. The Preferred Alternative will introduce a new barrier to wildlife movement at the bridge abutment and at the on-land pier location in Wisconsin, and will result in some overall habitat loss. However, resulting impacts on wildlife are not expected to be substantial, especially given the relative size of the affected area in relation to the large areas of nearby habitat. The Preferred Alternative final bridge design is anticipated to span the Wisconsin bluff face, to the extent possible, allowing wildlife to travel underneath the bridge structure along the bluff face. Impediments to wildlife movement will be reduced at the existing

STH 64 roadway with removal of vehicular traffic from the bluff at this location and completion of the loop trail. Displaced wildlife might also relocate to adjoining habitat, possibly increasing competition for food and shelter for some species.

Possible general effects of highway development on wildlife include habitat loss through conversion into a paved highway surface/ponding/trail, decreased attractiveness of habitat adjacent to the highway resulting from noise and activity, and an increase in wildlife-vehicle accidents as a result of increased traffic volumes.

9.3.3.3 Protected Species

No threatened or endangered species have been identified in the Wisconsin shore and bluff area with the exception of the dotted blazing star (*Liatris punctata var. nebraskiana*). It was assumed for this SFEIS that the Preferred Alternative would potentially impact this species.

9.3.3.4 Terrain and Climate

Bluff Impacts

The terrain of the Wisconsin shore and bluff will be altered by the construction of the Preferred Alternative. A quantitative estimate of the bluff impact is presented on Table 9-1. Figure 9-3 of the SDEIS shows the existing bluff area as defined by the *Lower St. Croix National Scenic Riverway Cooperative Management Plan* and Figure 9-2 of this SFEIS shows impacts on the bluff from the Preferred Alternative. The area of overall bluff impacts in acres² (including both cut and fill activities, and including areas for realignment of an existing trail along the bluff) is 2.21 acres for the Preferred Alternative. The volume of cut (permanent removal) impact is 20,499 cubic yards, with the volume of fill (permanent placement) impact being 6,035 cubic yards for the Preferred Alternative.³

The Preferred Alternative uses an existing ravine, so the majority of bluff cut and fill impacts will occur farther back in the ravine, resulting in lessened impacts on the face of the bluff. It is anticipated that haul roads and work areas will not be constructed along the bluff face. The bridge abutment is anticipated to be constructed from the top of the bluff and the first bridge pier along the Wisconsin bluff is anticipated to be constructed from the river using barges. Construction of drainage structures from the stormwater basins on top of the bluff to the small energy dissipation basin near the 100-year floodplain will result in some disturbance to the bluff face. An existing private trail that traverses the bluff face from STH 35 to the shoreline will be

² The bluff area includes the area from the shoreline to the bluffline as defined in Section 9.3.1 of the SDEIS. The exact area of impact underneath the bridge (from shoreline to bridge abutment) for the Preferred Alternative is not known at this time pending final bridge design. Preliminary bridge design concepts anticipate that one bridge pier will be located on the bluff, east of the shoreline.

³ Impacted bluff volumes for the Preferred Alternative were measured from the bridge abutment to the bluffline out to preliminary construction limits. Cut and fill activities for bridge construction between the shoreline and bridge abutment for the Preferred Alternative will depend upon bridge pier location. Bridge pier location will be identified with final bridge design.

severed by the river crossing bridge abutment. A controlled access will be constructed adjacent from STH 35 along the south side of the bridge abutment to perpetuate access to this trail (see Figure 9-2 of this SFEIS for the location of the controlled access).

This impact and the measures proposed to minimize construction-related bluff impacts are discussed in Chapter 12 of this SFEIS. The visual impacts of this activity are discussed in Chapter 7 of this SFEIS.

**TABLE 9-1
WISCONSIN BLUFF IMPACTS^{(1),(2)}**

	Impacted Bluff Area (acres)	Impacted Bluff Volumes - Cut (cubic yards)	Impacted Bluff Volumes - Fill (cubic yards)
Preferred Alternative	2.21	20,499	6,035

⁽¹⁾Includes impacts resulting from the construction of the bridge, roadways, stormwater ponds, and trails.

⁽²⁾Data subject to change – does not include impacts from an entrance/welcome monument to Wisconsin.

Maintenance of the River Crossing Bridge at the Wisconsin Bluff

Future bridge maintenance activities will minimize bluff disturbance to the extent feasible. The controlled access maintaining the trail connection noted above will also serve to provide access to the river crossing bridge abutment for WisDOT bridge maintenance and inspection crews. The existing trail will also be used by WisDOT bridge inspection personnel for access to the bridge pier along the Wisconsin bluff. Bridge inspection personnel would follow the trail to the river, then approach the bridge pier from the south along the shoreline. Any major maintenance activities for the bridge pier on the Wisconsin bluff would be conducted from barges in the river.

Climate

The Preferred Alternative will have no impact on climate.

9.3.4 Preferred Alternative Mitigation Measures

The Preferred Alternative includes mitigation measures to offset impacts on the Wisconsin shore and bluff. These mitigation items are summarized below and described in detail in Section 15.4.1.2 of this SFEIS.

Protected Species

Mitigation measures for impacts on the dotted blazing star (*Liatris punctata* var. *nebraskiana*) will be pursued. Field surveys for the species will be performed prior to construction, and mitigation measures may include relocating populations of the plants to designated protected areas or seeding new plants.

Mitigation for Damages to Blufflands

As part of the Project, Mn/DOT will provide funding in the amount of \$2.0 million to WisDNR and in the amount of \$2.5 million to St. Croix County for the protection of replacement lands to offset the impacts of a new crossing on the Wisconsin bluff. Protection could include the purchase of fee title, the purchase or transfer of development rights or the purchase of conservation easements from willing sellers of land located in St. Croix County, Wisconsin. Protected lands would be perpetually maintained for land and water conservation purposes, scenic protection and other compatible uses, including low-impact public recreation. Refer to Section 15.4.1.2 of this SFEIS for a complete description of this mitigation item.

Bluffland Restoration

The intent of the bluffland restoration mitigation item is to further offset the impacts of the Preferred Alternative on the Wisconsin bluff. Mitigation items include:

1. Removal of the Buckhorn sign. The Buckhorn sign is located approximately 1,800 feet north of the Preferred Alternative river crossing location along the Wisconsin bluff. Under this mitigation item, WisDOT will remove the sign and the bluff will be allowed to return to a natural state. The Memorandum of Understanding developed between WisDOT and the property owner, Edward T. Johnston, includes provisions for its removal (see the Riverway Memorandum of Understanding in Appendix H of this SFEIS).
2. Partial restoration of the Wisconsin approach to the Lift Bridge. Under this mitigation item, WisDOT will remove and restore the existing STH 64 roadway between the Lift Bridge and STH 35. WisDOT will redevelop a portion of STH 64 as a Loop Trail as described in the Visual Quality Manual for this project. WisDOT will remove the existing CTH E roadway between the CTH E/STH 64 intersection and State Street. WisDOT will revegetate the road rights-of-way with native species following removal of the pavements.

Vegetation and Wildlife

Landscaping and revegetation will be implemented as mitigation for vegetative loss in appropriate areas affected by construction of the Preferred Alternative. The use of native plant materials will be implemented where appropriate. Detailed plans for revegetation will be developed as part of the final design of the project. Possible impacts on wildlife would be addressed through revegetation.

9.4 WISCONSIN UPLAND

The Wisconsin upland area includes the Preferred Alternative project area from approximately STH 35 to the eastern project terminus at 150th Avenue in the Town of St. Joseph.

9.4.1 Information from the SDEIS that Remains Unchanged

Section 9.4.1.1 of the SDEIS describes the vegetation of the Wisconsin uplands in the project area. The Preferred Alternative will be constructed in a new roadway corridor for about two-thirds of its length. The new Preferred Alternative corridor traverses mostly undeveloped land

that is primarily agricultural (refer to Chapter 6 of this SFEIS for a discussion of farmland impacts). The Preferred Alternative also includes the realignment of a segment of CTH E and a new STH 35 roadway between existing STH 35 and the STH 64/35/CTH E interchange. These roadways will traverse primarily agricultural land uses.

Section 9.4.1.2 of the SDEIS describes wildlife found in the Wisconsin upland. Affected habitat associated with the Preferred Alternative is generally agricultural or grassed ditches associated with existing roadway rights-of-way. Wildlife species typical of an agricultural landscape are anticipated to be found in the area of the Preferred Alternative.

Section 9.4.1.3 of the SDEIS describes known occurrences of protected species in the Wisconsin upland area of the project. In 1998, a segment of STH 35 was surveyed for the presence of dotted blazing star (*Liatris punctata* var. *nebraskiana*), a Wisconsin state endangered plant. A number of individuals of the species were identified adjacent to STH 35 on both sides of the highway north of the Preferred Alternative alignment. Correspondence from the WisDNR did not indicate the presence of other threatened or endangered plant or animal species in the project area in Wisconsin.

Section 9.4.1.4 of the SDEIS describes the terrain and climate of the Wisconsin upland area. The terrain of the Wisconsin upland area is level to gently rolling and increases in elevation by approximately 100 feet from the Preferred Alternative river crossing to the eastern project terminus. The climate of this area is summarized in Section 9.1.1.3 of the SDEIS.

9.4.2 Changes in the Setting or Technical Analysis Since the SDEIS

There are no known changes in the data presented in the SDEIS regarding the Wisconsin upland.

9.4.3 Impacts Associated with the Preferred Alternative

9.4.3.1 Vegetation

The Preferred Alternative will traverse either developed roadway corridors or agricultural land where vegetation consists of landscaped terrain or planted crops, respectively. As a result, impacts on native vegetation will be minimal. Construction will require removal of trees and associated understory vegetation within the future roadway right-of-way as necessary.

9.4.3.2 Wildlife

Impacts on the composition of the local wildlife community in the Wisconsin upland area are anticipated to be minimal. Most of the indigenous wildlife in the area consists of species that have adapted to a disturbed physical environment and would be tolerant of possible disturbances from the project. Construction of the Preferred Alternative might permanently remove some kinds of habitat and displace wildlife in certain areas and will create new barriers to wildlife movement for parts of the roadway lengths. However, habitat loss and resulting impacts on wildlife would not be expected to be substantial as wooded habitat in the project area is already highly fragmented. Further fragmentation caused by the roadway would not be considered significant.

Potential general effects of roadway development on wildlife include habitat loss through conversion into a paved roadway surface, decreased attractiveness of habitat adjacent to the roadway resulting from noise and activity, loss of capacity to sustain the existing wildlife populations resulting from habitat alteration, and increase of wildlife-vehicle accidents as a result of increased traffic volumes.

9.4.3.3 Protected Species

Possible impacts on dotted blazing star (see Section 9.3.3.3 of this SFEIS) could result from construction of the Preferred Alternative. This species could occur in any of the disturbed areas of the Wisconsin upland.

9.4.3.4 Terrain and Climate

Grading of existing terrain will be required for construction. Fill activities will be required for the construction of the STH 64/35/CTH E interchange. The gently rolling character of the agricultural lands will be maintained to the extent allowed by safety and design standards. The Preferred Alternative will have no impact on climate.

9.4.4 Preferred Alternative Mitigation Measures

Vegetation and Wildlife

Landscaping and revegetation will be implemented as mitigation for vegetation loss in appropriate areas. The use of native plant materials will be implemented where appropriate. Detailed plans for revegetation will be developed as part of the final design of the project.

Protected Species

Mitigation measures for impacts on the dotted blazing star (*Liatris punctata* var. *nebraskiana*) will be pursued. Field surveys for the species will be performed prior to construction, and mitigation measures may include relocating populations of the plants to designated protected areas or seeding of new plants as necessary.

Terrain and Climate

Because impacts on terrain in the Wisconsin upland area would be minimal, no mitigation will be required. Because no impacts on climate will occur from the Preferred Alternative, no mitigation will be needed.

Figure 9-1 – Protected Species Nesting Locations (8.5 x 11, color)

Figure 9-2 –Wisconsin Bluff Impacts—Preferred Alternative (11 x 17, b/w)