



Roads, Rare Species, and Regulations

Christopher E. Smith, M.Sc., C.W.B.

Wildlife Ecologist – Office of Environmental Stewardship

May 3, 2017

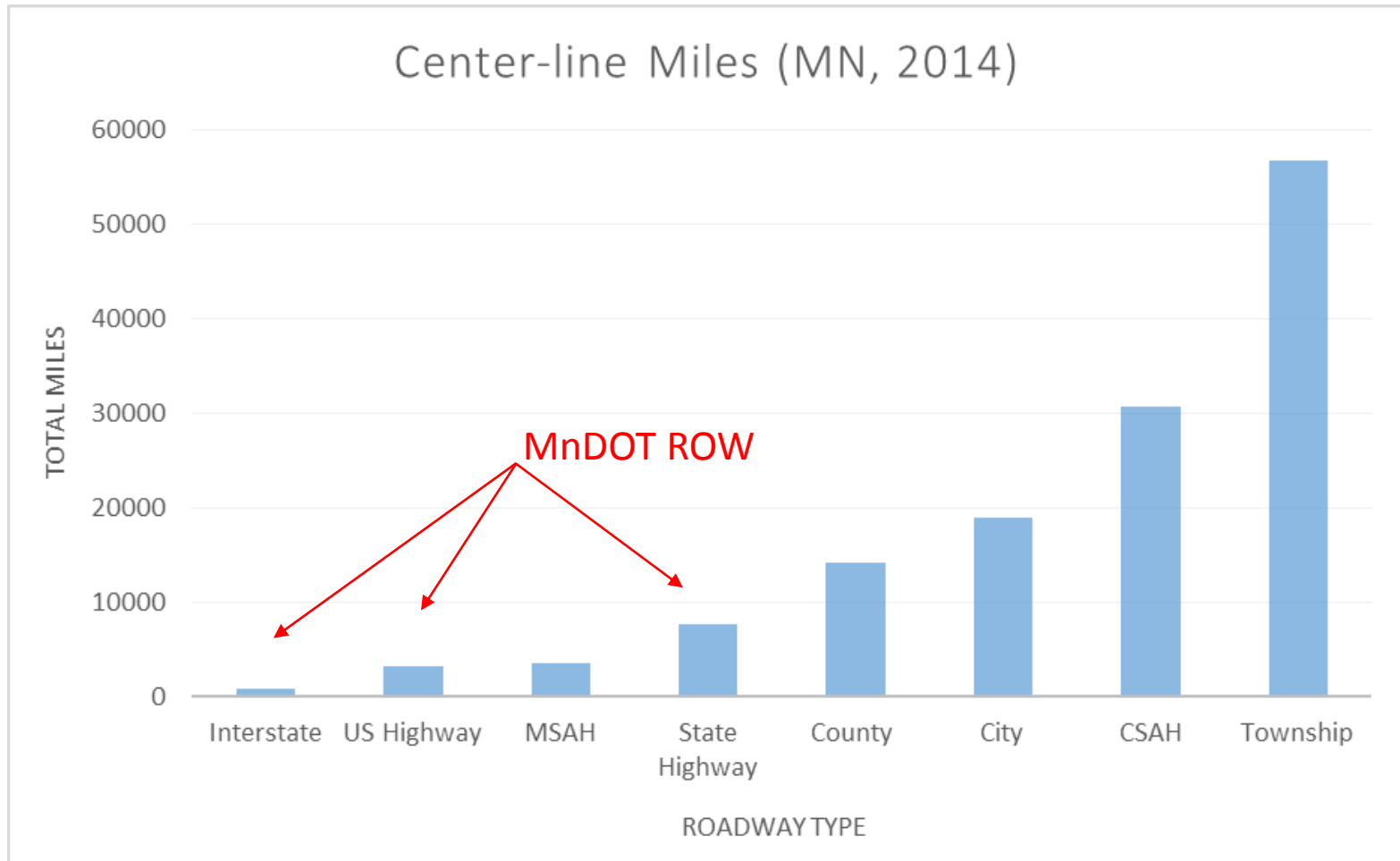
Overview

- Roads w/ State DOT Perspective
- Rare Species
- Regulations
- MN Best Practices
- MnDOT New Initiatives



Karner Blue. Image by C. E. Smith

Minnesota DOT Perspective



Minnesota DOT Perspective

Road Rights-of-Way

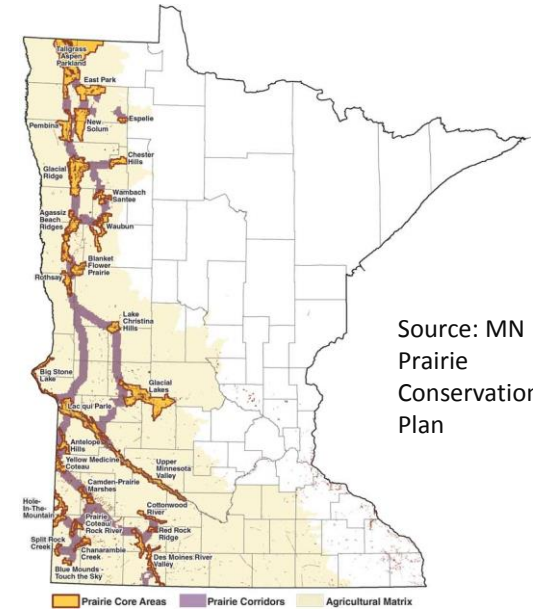
- Primary Functions:
 - Protect transportation infrastructure
 - Drainage
 - Safety
 - Short vegetation preferred
 - No trees / obstacles (clear zone)
 - Infrastructure maintenance
- Secondary Benefit:
 - Infiltration / filtration of stormwater
 - Aesthetics, health, traffic calming (stress, air quality)
 - Plant and wildlife habitat
 - Rare plant communities



Minnesota DOT Perspective

Rights-of-Way as Habitat

- Opportunities:
 - Reconstruct habitat
 - Create corridors for migratory and mobile species (including certain pollinators)
 - Protect and enhance existing rare features
- Challenges:
 - Concern about creating habitat and attracting rare species to road rights-of-way
 - Establishment of natives
 - Lack of investment for on-going management
 - Concern about vegetation height
 - Vehicle / management mortality



Source: MN
Prairie
Conservation
Plan



Minnesota – Federally Listed

• Plants (4)

- Dwarf Trout Lily (*Erythronium propullans*) – Endangered
- Leedy's Roseroot (*Rhodiola integrifolia leedyi*) – Threatened
- Prairie bushclover (*Lespedeza leptostachya*) – Threatened
- Western prairie-fringed orchid (*Platanthera praeclara*) – Threatened

• Animals (15)

- Canada lynx (*Lynx canadensis*) – threatened
- Gray wolf (*Canis lupus*) – Threatened
- Northern long-eared Bat (*Myotis septentrionalis*) – Threatened
- Piping Plover (*Charadrius melodus*) – Endangered (GLBP)
- Piping Plover (*Charadrius melodus*) – Threatened (NGPBP)
- Rufa Red Knot (*Calidris canutus rufa*) – Threatened
- Topeka Shiner (*Notropis topeka*) – Endangered
- Dakota Skipper (*Hesperia dacotae*) – Threatened
- Karner Blue (*Lycaeides Melissa samuelis*) – Endangered**
- Poweshiek Skipperling (*Oarisma poweshiek*) – Endangered**
- Rusty-patched Bumble Bee (*Bombus affinis*) – Endangered
- Higgins Eye (*Lampsilis higginsii*) – Endangered
- Sheepnose (*Plethobasus cyphus*) – Endangered
- Snuffbox (*Epioblasma triquetra*) – Endangered
- Spectaclecase (*Cumberlandia monodonta*) – Endangered
- Winged Mapleleaf (*Quadrula fragosa*) – Endangered



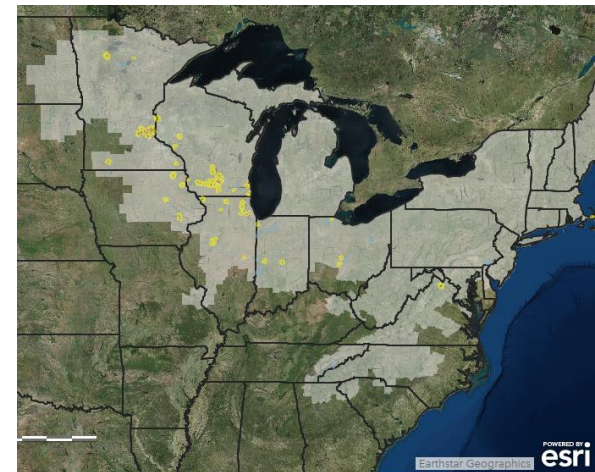
Image by P. Leete

Rusty-patched Bumble Bee (*Bombus affinis*)

- Listed as endangered on March 21, 2017
- Preference for areas with diverse floral resources
 - Natives best, but may also use non-native species
 - Early spring species important (including shrubs and trees)
 - Favorites (MN): Wild Bergamot; Culver's Root; Anise Hyssop; and Joe-pye Weed
- Uses areas with loose soils for nesting and overwintering
- Many observations come from urban areas and/or prairie reconstructions
 - Sampling bias?
 - Higher floral diversity?



Rusty-patched Bumble Bee. Image by C. E. Smith



More information

<https://www.fws.gov/midwest/Endangered/insects/rpbb/index.html>

Northern Long-eared Bat (*Myotis septentrionalis*)

- Listed as threatened on April 2, 2015
- Final 4(d) Rule published January 14, 2016
- Programmatic Agreement – Federal Transportation Agencies
- Forest bat, may roost on bridges and culverts
- Overwinters in caves, mines, and sewers (rarely)



C. Spak, MnDNR

More information

<https://www.fws.gov/Midwest/endangered/mammals/nleb/index.html>

Rare Species

National Listing Workplan 7-Year Workplan (September 2016 Version)

Key to Action Types: **12M:** 12-month finding on a petition to list a species. If listing is warranted, we generally intend to proceed with a concurrent proposed listing rule and proposed critical habitat designation, if critical habitat is prudent and determinable.

Discretionary Status Review: Status review undertaken by discretion of the Service. Results of the review may be to propose listing, make a species a candidate for listing, provide notice of a not warranted candidate assessment, or other action as appropriate.

Proposed Listing Determination: For species that are already candidates for listing, a proposed listing determination would either propose the species for listing or provide notice of a not warranted finding. We generally intend to propose critical habitat designations concurrent with proposed listing rules, to the extent prudent and determinable.

Final Listing Determination: For species that have already been proposed for listing, the final listing determination would either finalize or withdraw the proposed listing rule. We generally intend to finalize critical habitat designations concurrent with final listing rules, to the extent prudent and determinable.

PCH: Proposed critical habitat rulemaking when not concurrent with a proposed listing rule.

FCH: Final critical habitat rulemaking for previously proposed critical habitat.

rPCH: Revised proposed critical habitat for previously proposed, but not finalized, critical habitat needing revision.

| Package Name | Species Name | Action Type | Lead RO | Priority Bin Ranking (1-5) or LPN | Proposed FY Timeframe | Current Candidate? | Range |
|----------------------------------|--------------------------------|--------------------------------|---------|-----------------------------------|-----------------------|--------------------|--------------------------------|
| | Island marble butterfly | Proposed Listing Determination | R1 | LPN 3 | FY17 | Y | WA |
| | northern spotted owl | 12M/Uplisting | R1 | 2 | FY17 | | CA, OR, WA |
| | Tinian monarch | 12M | R1 | 1 | FY17 | | MP |
| | lesser prairie-chicken | Discretionary Status Review | R2 | N/A | FY17 | | CO, KS, NM, OK, TX |
| | San Felipe gambusia | 12M | R2 | 2 | FY17 | | TX |
| | Wright's marsh thistle | Proposed Listing Determination | R2 | LPN 8 | FY17 | Y | NM |
| | Kirtland's snake | 12M | R3 | N/A | FY17 | | IL, IN, KY, MI, MO, OH, PA, TN |
| Yellow Lance and Atlantic Pigtoe | Atlantic pigtoe | 12M | R4 | N/A | FY17 | | GA, NC, SC, VA |
| | Barbour's map turtle | 12M | R4 | N/A | FY17 | | AL, FL, GA |
| | Beaver Pond marstonia | 12M | R4 | N/A | FY17 | | GA |
| | Big Blue Springs cave crayfish | 12M | R4 | N/A | FY17 | | FL |
| | blackfin sucker | 12M | R4 | 2 | FY17 | | KY, TN |
| 3 Southeast Darters | bridled darter | 12M | R4 | N/A | FY17 | | GA, TN |



Rare Species

National Listing Workplan FY 2017-2023

Range includes Minnesota

| Common Name | Species name | Action Type | Priority Bin | Range | Lead RO | Proposed FY Timeframe | Lead FO |
|--------------------------|--------------------------------------|-----------------------------|--------------|--|---------|-----------------------|--------------|
| Yellow-banded bumble bee | <i>Bombus terricola</i> | 12M | 2 | CT, IL, IN, KY, MA, MD, ME, MI, MN, MT, NC, ND, NH, NJ, NY, OH, PA, RI, SD, TN, VA, VT, WV, WI; Canada (Alberta, British Columbia, Manitoba, Newfoundland, Nova Scotia, Ontario, Quebec, and Saskatchewan) | R5 | FY18 | |
| Monarch butterfly | <i>Danaus plexippus plexippus</i> | 12M | N/A | AL, AR, AZ, CA, CO, CT, DC, DE, FL, GA, IA, ID, IL, IN, KS, KY, LA, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, TX, UT, VA, VT, WA, WI, WV, WY | R3 | FY19 | R3 RO |
| Northwestern Moose | <i>Alces alces andersoni</i> | 12M | 3 | MI, MN, ND, WI | R3 | FY20 | Twin Cities |
| Plains spotted skunk | <i>Spilogale putorius interrupta</i> | 12M | 3 | AR, CO, MN, MO, NE, OK, SD, TX, WY | R3 | FY22 | Missouri |
| Regal fritillary | <i>Speyeria idalia</i> | 12M | 4 | AR, CO, CT, DE, IA, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, NC, ND, NE, NH, NJ, NY, OH, OK, PA, RI, SD, A, VT, WI, WV, WY | R6 | FY22 | |
| Blanding's turtle | <i>Emydoidea blandingii</i> | 12M | 3 | IA, IL, IN, MA, ME, MI, MN, MO, NE, NH, NY, OH, PA, SD, WI | R3 | FY23 | Rock Island |
| Golden-winged warbler | <i>Vermivora chrysoptera</i> | 12M | 3 | AL, AR, CO, CT, DC, DE, FL, GA, IA, IL, IN, KS, KY, LA, MA, MD, MI, MN, MO, MS, NC, ND, NE, NH, NJ, NY, OH, OK, PA, SC, SD, TN, TX, VA, VT, WI, WV | R3 | FY23 | Twin Cities |
| Little brown bat | <i>Myotis lucifugus</i> | Discretionary Status Review | 4 | AK, AL, AR, CA, CO, CT, DC, DE, FL, GA, IA, ID, IL, IN, KS, KY, MA, MD, ME, MI, MN, MO, MS, MT, NC, ND, NE, NH, NJ, NM, NV, NY, OH, OK, OR, PA, RI, SC, SD, TN, UT, VA, VT, WA, WI, WV, WY | R3 | FY23 | R3 RO |
| Salamander mussel | <i>Simpsonaias ambigua</i> | 12M | 3 | AR, IL, IN, KY, MI, MN, MO, NY, OH, PA, TN, WI, WV | R3 | FY23 | East Lansing |
| Wood turtle | <i>Glyptemys insculpta</i> | 12M | 4 | CT, DC, IA, MA, MD, ME, MI, MN, NH, NJ, NY, OH, PA, RI, VA, VT, WI, WV; Canada (New Brunswick, Nova Scotia, Ontario, Quebec) | R5 | FY23 | |

Key to Action Types:

12M: 12-month finding on a petition to list a species. If listing is warranted, we generally intend to proceed with a concurrent proposed listing rule and proposed critical habitat.

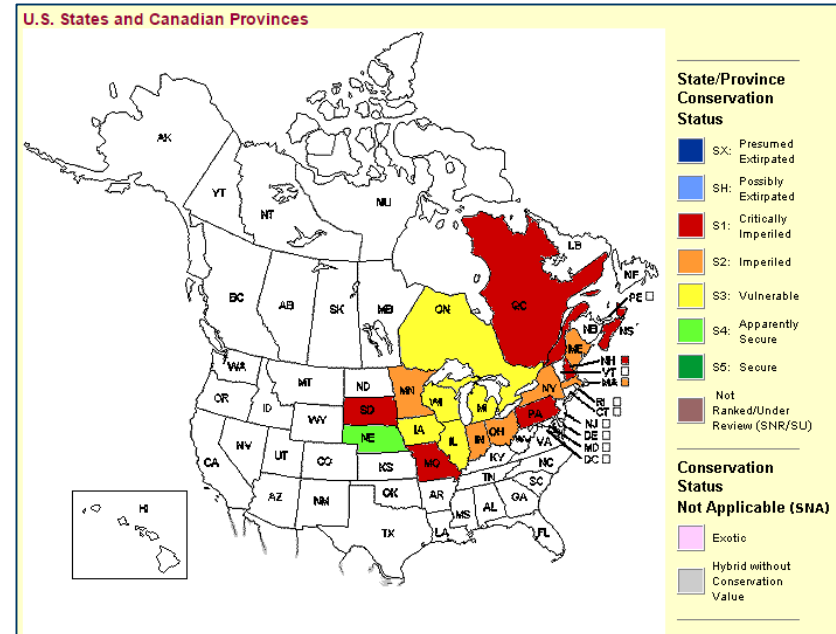
Discretionary Status Review: Status review undertaken by discretion of the Service. Results of the review may be to propose listing, make a species a candidate for listing, provide notice of a not warranted candidate assessment, or other action as appropriate.

Rare Species



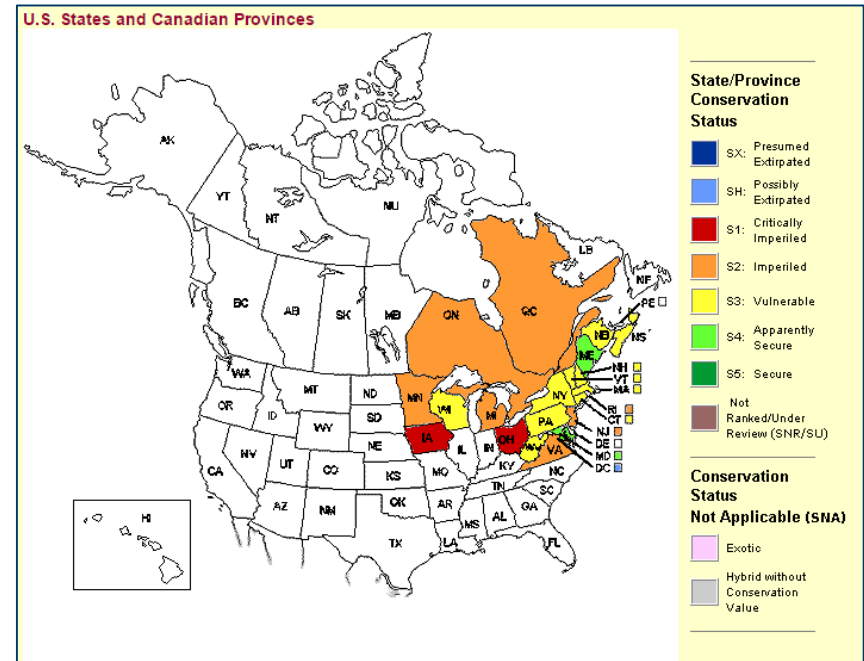
Blanding's Turtle (*Emydoidea blandingii*)

- Under review for federal listing FY 23.
- Threats include: roads; rail roads; habitat loss; dewatering; and poaching.
- Occur in small wetlands, wet ditches, ponds, lakes, rivers and streams, and adjacent sandy uplands.



Source: NatureServe.org

Rare Species



Source: NatureServe.org


Wood Turtle (*Glyptemys insculpta*)

- Under review for listing FY 23.
- Threats include: roads; rail roads; habitat loss & degradation; and poaching.
- Occur in rivers and river backwaters, including trout streams.

State Endangered Species Act

- MN ESA administered by MnDNR
- Includes:
 - Endangered & Threatened Species – Legal protection
 - Special Concern – No legal protection
- Take of E&T species requires permit
 - Several exemptions
- Hundreds of species of plant and animal





**MINNESOTA'S LIST OF
ENDANGERED, THREATENED, AND SPECIAL CONCERN
SPECIES**

PURPOSE, SCOPE, AND RELATIONSHIP TO FEDERAL LAWS

Minnesota's Endangered Species Statute (Minnesota Statutes, Section 84.095) requires the Minnesota Department of Natural Resources (DNR) to adopt rules designating species receiving the statutory definitions of endangered, threatened, or species of special concern. The resulting List of Endangered, Threatened, and Special Concern Species is included in Minnesota Rules, Chapter 6134. The Endangered Species Statute also authorizes the DNR to adopt rules that regulate treatment of species designated as endangered and threatened. These regulations are codified as Minnesota Rules, Parts 6121.1800 to 6121.2500.

Minnesota's Endangered Species Statute and the associated Rules impose a variety of restrictions, a permit program, and several exemptions pertaining to species designated as endangered or threatened. A person may not take, export, transport, or sell any portion of an endangered or threatened species. However, those acts may be allowed by permit issued by the DNR, plants on certain agricultural lands and plants destroyed in consequence of certain agricultural practices are exempt, and the accidental, unknowing destruction of designated plants is exempt. Species of special concern are not protected by Minnesota's Endangered Species Statute or the associated Rules. Permits for adverse take are not issued for the State and Rules are not issued to understand if regulations pertain to species that are designated as endangered, threatened, or species of special concern.

Note that the federal Endangered Species Act (ESA), as amended (16 USC 1531 - 1544) requires the U.S. Department of the Interior to identify species as endangered or threatened according to a separate set of definitions, and imposes a separate set of restrictions pertaining to those species. In the following list, the federal status of selected identifiable species that occur in Minnesota is noted to the right of those species' common names (E = endangered, T = threatened, P = proposed, C = candidate).

DEFINITIONS

A species is considered **endangered** if the species is threatened with extinction throughout all or a significant portion of its range within Minnesota.

A species is considered **threatened** if the species is likely to become endangered within the foreseeable future throughout all or a significant portion of its range within Minnesota.

A species is considered a **species of special concern** if, although the species is not endangered or threatened, it is extremely uncommon in Minnesota, or has unique or highly specific habitat requirements and deserves careful monitoring of its status. Species on the periphery of their range that are not listed as threatened may be included in this category along with those species that were once threatened or endangered but now have increasing or persistent populations.

CONTENTS

| | | | |
|---|---------|---|---------|
| Mammals | Page 2 | Codfishes | Page 5 |
| Birds | Page 3 | Fish Breams | Page 6 |
| Amphibians and Reptiles | Page 3 | Vascular Plants (endangered) | Page 6 |
| DNCR | Page 3 | Vascular Plants (threatened) | Page 7 |
| Mollusks | Page 4 | Vascular Plants (special concern) | Page 8 |
| Invertebrate Animals | Page 4 | Fungi | Page 9 |
| Leishmaniasis | Page 4 | Lichens | Page 10 |
| Invertebrate Animals | Page 5 | Mosses | Page 10 |
| Alphabetical Index by Scientific Name | Page 11 | | |

FOR MORE INFORMATION, CONTACT:
 Minnesota Endangered Species Coordinator
 Division of Ecological and Water Resources
 500 Lafayette Rd., Box 25
 St. Paul, MN 55112
 1-888-646-6367 (or 612-296-6137 in the metro area)
<http://www.dnr.state.mn.us/ets/index.html>

E Effective August 19, 2013

Federal ESA Section 7(a)(2)

- Interagency Coordination: Federal agencies have duty to consult with USFWS when an action *may affect* a listed species or designated critical habitat.

* Many states are delegated partial authority to conduct Section 7 reviews on behalf of FHWA

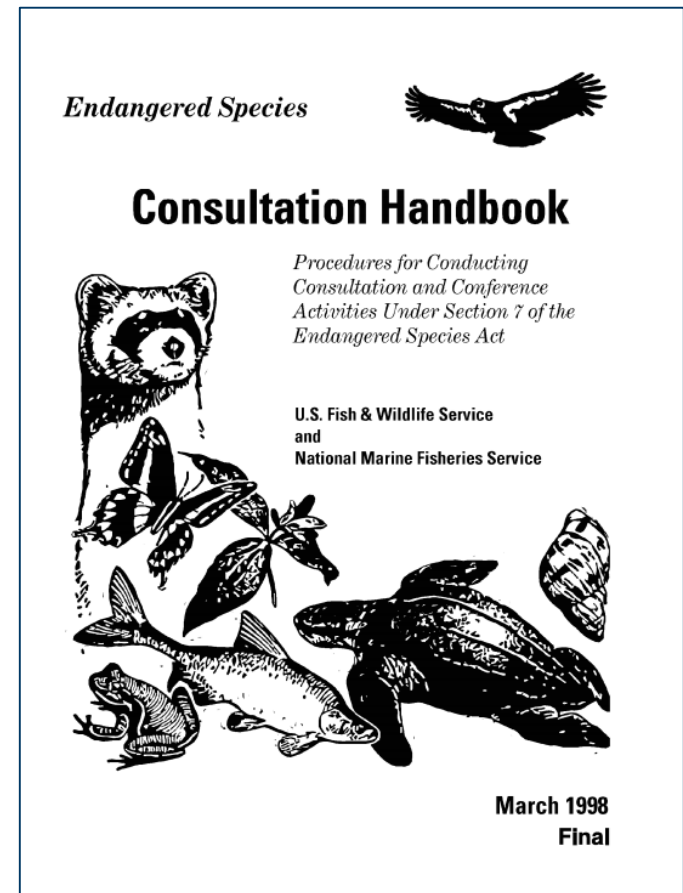
- Duty to avoid jeopardizing the continued existence of a species.
- Duty to avoid destruction or adverse modification of critical habitat.



Regulations

Federal ESA Section 7(a)(2)

- Options:
 - No Effect
 - Species, designated critical habitat, and/or suitable habitat not present and/or action will not impact (directly or indirectly).
 - Not likely to adversely affect (NLAA)
 - Effects completely beneficial, insignificant, or discountable.
 - Likely to adversely affect (LAA)
 - Action may result in incidental take and/or adverse modification of suitable habitat.
 - May require > 6 months to complete formal consultation.



Best Practices

MnDNR Best Practices Manual

- Highlights
 - Native seed mixes
 - Wildlife-friendly erosion control (i.e., natural netting, hydromulch)
 - Wildlife passage benches
 - Wildlife-friendly curb & gutter
 - Vegetated Riprap
- Update in progress

Best Practices Manual

Best Practices for Meeting DNR General Public Waters Work Permit GP 2004-0001

This document has been developed for meeting conditions of the Department of Natural Resources (DNR) General Public Waters Work Permit (GP) 2004-0001 issued to MnDOT for the repair or reconstruction of culverts, bridges, or stormwater outfalls impacting Public Waters. The DNR anticipates that transportation projects will use practices in this document as a guide to address DNR Public Waters regulations associated with the protection of our water resources for fisheries, wildlife, rare features, invasive species, ecological connectivity, and recreational opportunity as identified in GP2004-0001. The document is organized into three chapters. It is to be utilized as a comprehensive communication tool and implementation guide for project scoping, design, construction, and maintenance.



- [Introduction: Table of Contents | About This Manual | Contact Info](#) (PDF)
- [Chapter 1: Species Protection](#) (PDF)
- [Chapter 2: Hydraulic and Hydrologic Recommendations](#) (PDF)
- [Chapter 3: Methods of In-Water Construction](#) (PDF)
- [Appendix: Reports, publications, plans](#) (PDF)
- [Full document](#) (large file - 38 MB) (PDF)
- [General Permit 2004-0001 Issued by DNR to MnDOT](#)

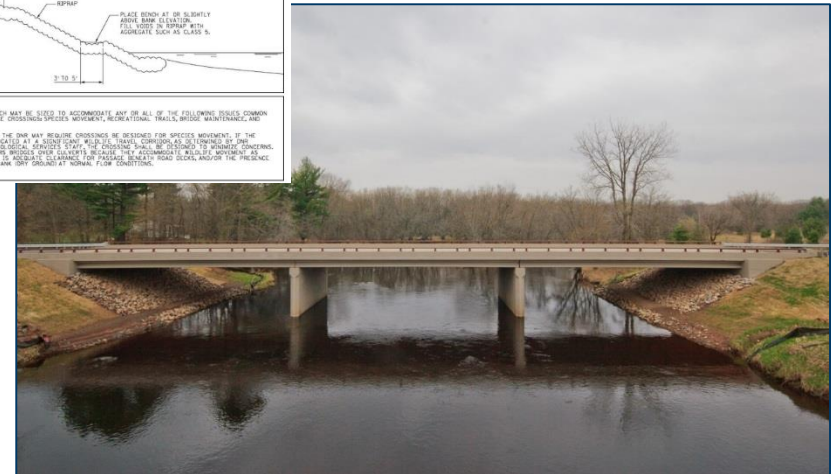
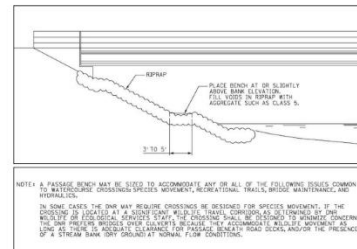


Plains Gartersnake trapped and killed by welded-plastic square erosion-control mesh placed along a newly installed cement culvert in southern Minnesota. ©MN DNR, Carol Hall

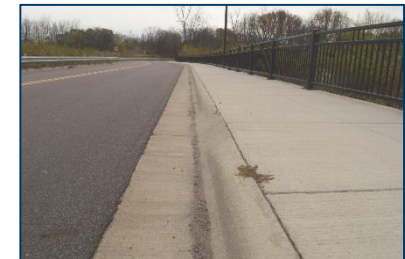
MnDNR Best Practices Manual

- Highlights
 - Native seed mixes
 - Wildlife-friendly erosion control (i.e., natural netting, hydromulch)
 - Wildlife passage benches
 - Wildlife-friendly curb & gutter
 - Vegetated Riprap
- Update in progress

Passage Bench Design



Curb Design and Small Animals



Best Practices

MnDNR Best Practices Manual

- Highlights
 - Native seed mixes
 - Wildlife-friendly erosion control (i.e., natural netting, hydromulch)
 - Wildlife passage benches
 - Wildlife-friendly curb & gutter
 - Vegetated Riprap
- Update in progress



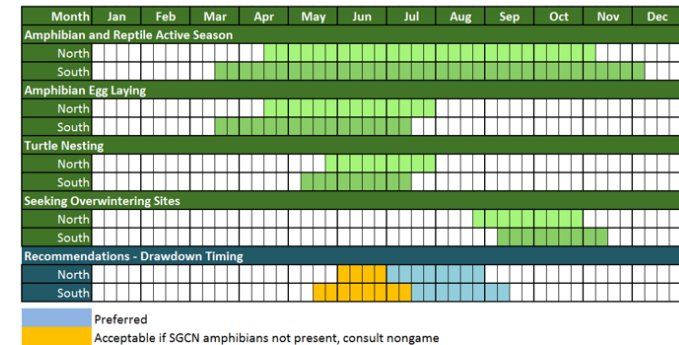
The TH 23 Mississippi River Crossing project was installed during in the fall of 2009.

Best Practices

Additional best practices...

- Dewatering
- Oversized culverts

Approximate active season, breeding and overwintering timing for amphibians and reptiles.



Source: DNR Wetland Management Minute #18

| SPECIFICATIONS FOR TURTLES | | | | |
|--|--------------------|---------------------|-------------------------|----------|
| Structure type and minimum size based on tunnel length | | | | |
| Tunnel Length | Box Tunnel (w x h) | Arch Tunnel (w x h) | Round Tunnel (diameter) | Overpass |
| 15 m | 1.5 x 1.0 m | 1.8 x 0.9 m | 1.5 m | NA |
| 15-25 m | 1.8 x 1.0 m | 2.0 x 1.0 m | 1.8 m | NA |
| > 25 m | NA | NA | NA | Yes |

Source: Gunson et al. 2016



New Initiatives

- Bat-bridge Surveys
 - Collaboration with Bridge Office and MN Bridge Inspectors
 - Guidance for bats on construction projects
- Tree Clearing Tech Memo
- Bumble bee roadside surveys
 - Collaboration with University of Minnesota
- Small animal exclusion fencing
 - OES / DNR have developed special provision and plan sheet
 - Received implementation dollars to evaluate design
- Grant to increase Rx fire program capacity
- Sustainability Plan
 - Increase use of native seed mixes



m DEPARTMENT OF TRANSPORTATION
Minnesota Department of Transportation
Engineering Services Division
Technical Memorandum No. 17-04-ENV-02
April 4, 2017

Technical Memorandum

To: Electronic Distribution Recipients

From: Nancy T. Daubenberger, P.E. *Nancy Daubenberger*
Division Director, Engineering Services

Subject: Tree Clearing Timing Requirement

Expiration

This is a new Technical Memorandum and will remain in effect until April 4, 2022, unless superseded prior to this date.

Implementation

The guidance contained in this memorandum shall be effective for projects letting in fiscal year 2018 and maintenance activities effective June 1, 2017 unless previously authorized by MnDOT Office of Environmental Stewardship (OES) or by special exemption due to extraordinary circumstances.

Introduction

MnDOT construction projects and maintenance activities frequently include tree clearing and trimming along existing right-of-ways and new alignments. Limiting clearing and trimming to specific time periods is a way to avoid and minimize impacts to state and federally protected bats and birds, and simplify protected species compliance to ensure on-time project delivery.

The majority of Minnesota's birds are protected by the federal Migratory Bird Treaty Act of 1918 (MBTA), which prohibits the take of birds, their nests, and/or their eggs, whether intentional or unintentional. Tree clearing conducted May 1 to August 31, inclusive, may result in prohibited take under the MBTA.

Additionally, the U.S. Fish and Wildlife Service recently listed the northern long-eared bat (*Myotis septentrionalis*), a bat native to Minnesota, under the federal Endangered Species Act of 1973 (ESA), and the listing of additional bat species is anticipated in the future. Tree clearing conducted April 1 to October 31, inclusive, may affect protected bats by resulting in incidental take¹.

Limiting tree clearing and trimming to specific time periods better conserves Minnesota's bat and bird diversity and will help avoid prohibited take of bats under the ESA and birds under the MBTA, as well as help reduce the spread of invasive weeds and tree pests.

¹ Definitions included below.

New Initiatives

- Bat-bridge Surveys
 - Collaboration with Bridge Office and MN Bridge Inspectors
 - Guidance for bats on construction projects
- Tree Clearing Tech Memo
- Bumble bee roadside surveys
 - Collaboration with University of Minnesota
- Small animal exclusion fencing
 - OES / DNR have developed special provision and plan sheet
 - Received implementation dollars to evaluate design
- Grant to increase Rx fire program capacity
- Sustainability Plan
 - Increase use of native seed mixes

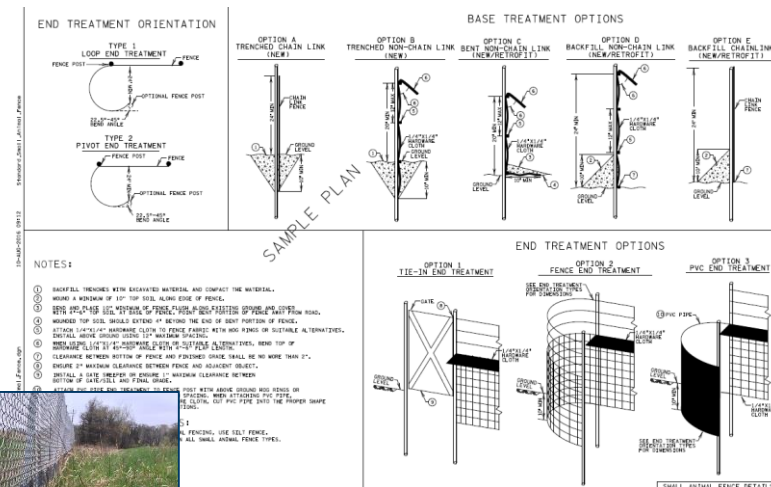
U of M researchers to tackle big transportation questions with new MnDOT, LRRB funding

Posted on January 19, 2017 — Leave a comment

U of M researchers have received funding from MnDOT's [Transportation Research Innovation Group](#) and the [Minnesota Local Road Research Board \(LRRB\)](#) for 15 new projects beginning this summer.

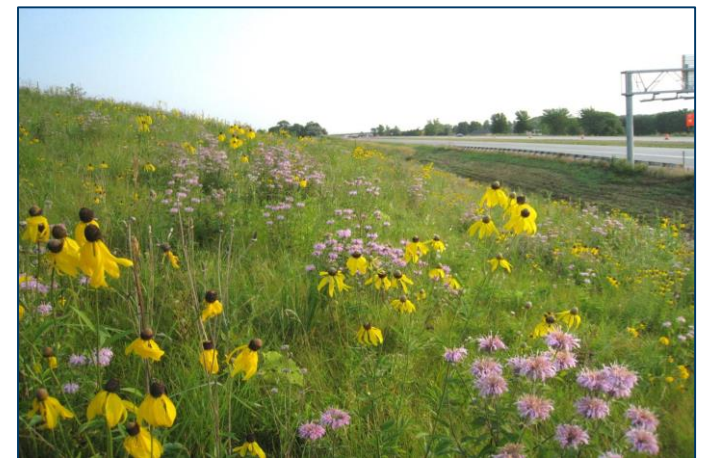
Researchers will tackle a number of big transportation questions, including:

- How should our transportation agencies prepare for connected vehicle technology?
- Are unseen factors affecting safety at rural intersections?
- Can Twin Cities roadsides be used to grow habitat for endangered bumble bees?



New Initiatives

- Bat-bridge Surveys
 - Collaboration with Bridge Office and MN Bridge Inspectors
 - Guidance for bats on construction projects
- Tree Clearing Tech Memo
- Bumble bee roadside surveys
 - Collaboration with University of Minnesota
- Small animal exclusion fencing
 - OES / DNR have developed special provision and plan sheet
 - Received implementation dollars to evaluate design
- Grant to increase Rx fire program capacity
- Sustainability Plan
 - Increase use of native seed mixes



Questions?

Christopher E. Smith

Christopher.E.Smith@state.mn.us

651-366-3605