

APPENDIX 3

Natural Heritage Information System Results



Minnesota Department of Natural Resources

Division of Ecological Resources, Box 25

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December 22, 2008

Ms. Nicole Lehman
McGhie and Betts Environmental Services, Inc.
1648 Third Avenue SE
Rochester, MN 55904

Re: Request for Natural Heritage information in the vicinity of the proposed Pleasant Valley Wind Farm,
Dodge & Mower Counties
Correspondence # : ERDB 20090318

Dear Ms. Lehman,

As requested, the Minnesota Natural Heritage Information System has been queried to determine if any rare species or other significant natural features are known to occur within an approximate one-mile radius of the proposed project. Based on this query, several rare features have been documented within the search area (for details, see the enclosed database reports). Please note that the following **rare features may be impacted** by the proposed project:

- The Wild Indigo Prairie Scientific and Natural Area (SNA) is located along the abandoned Chicago-Milwaukee railroad right-of-way in Sections 14-17 of T103N R16W. This SNA contains several rare plants and one of the finest examples of mesic tallgrass prairie remaining in southeastern Minnesota. Scientific and Natural Areas are legally designated public nature preserves established to protect the state's rarest natural features and sensitive resources. These natural areas are given the highest level of protection and the utmost consideration in assessing potential impacts from nearby projects. It should be determined whether the project as proposed, including the installation or upgrading of transmission lines, has the potential to impact the SNA, the rare features the SNA supports, or public use of the SNA. If so, avoidance and protection measures must be proposed.
- The loggerhead shrike (*Lanius ludovicianus*), a state-listed threatened bird, has been documented in the vicinity of the project site. The preferred habitat of this species is dry upland prairie or other open grassland with scattered hedgerows, shrubs, and small trees. Shrikes are also found around shelterbelts, old orchards, pastures, cemeteries, grassy roadsides, and farmsteads. Shrikes use the scattered trees and shrubs in these areas as nesting sites and hunting perches. Prey, however, are caught in the surrounding open grassy areas. As such, forests or dense brushlands do not provide suitable habitat for this bird. Likewise, open grasslands without any trees or shrubs do not provide suitable habitat either. Shrikes frequently shift territories between years so it is not unusual for a particular nesting area to be vacant for several years before it is used again. If suitable habitat remains, then it is possible that loggerhead shrikes will breed in the area. Please refer to the enclosed fact sheet for information regarding habitat use, life history, and reasons for the species' decline, as well as recommendations for protecting and enhancing habitat for this rare bird.

- Blanding's turtles (*Emydoidea blandingii*), a state-listed threatened species, have been reported from the vicinity of the project area. Blanding's turtles use wetlands and may also use the creeks and streams within the project area as travel corridors between wetlands. In addition, Blanding's turtles will travel long distances over land and use upland areas over a mile distant from wetlands. Uplands are used for nesting, basking, periods of dormancy, and traveling between wetlands.

For your information, I have attached a Blanding's turtle fact sheet that describes the habitat use and life history of this species. The fact sheet also provides two lists of recommendations for avoiding and minimizing impacts to this rare turtle. **Please refer to the first list of recommendations for your project.** If greater protection for turtles is desired, the second list of additional recommendations can also be implemented. The attached flyer should be given to all contractors working in the area.

If Blanding's turtles are encountered on site, please remember that state law and rules prohibit the destruction of threatened or endangered species, except under certain prescribed conditions. If turtles are in imminent danger they should be moved by hand out of harms way, otherwise they should be left undisturbed.

- The streams and rivers in the area provide habitat for the Ozark minnow (*Notropis nubilus*), and the creek heelsplitter (*Lasmigona compressa*), both state-listed species of special concern. As such, sound erosion and sediment control practices should be implemented and maintained near these waterways.
- Several rare plants including wild quinine (*Parthenium integrifolium*), a state-listed endangered species, and valerian (*Valeriana edulis* ssp. *ciliata*), tuberous indian-plantain (*Arnoglossum plantagineum*), and Sullivant's milkweed (*Asclepias sullivantii*), all state-listed threatened species, and have been documented in native prairie remnants in the vicinity of the proposed project. Because these plants are associated with native prairie, the wind turbines and associated infrastructure will need to avoid any native prairie remnants that may remain within the area of interest. If this is not feasible, a botanical survey of any affected prairie remnants will be required. **Please contact me if construction activities are planned within any native prairie remnants.** We will need to discuss potential surveyors, survey protocol, and other requirements before any survey work is initiated.

Please note that the Minnesota County Biological Survey conducted additional botanical surveys in Dodge and Mower counties during the 2008 field season. The survey results, however, have not yet been entered into the Natural Heritage Information System. As such, **please contact me again in the early spring of 2009 for this data.**

Minnesota's endangered species law (MS 84.0895) and associated rules (MR 6212.1800 - 6212.2300 and 6134) prohibit the taking of threatened or endangered species without a permit. If it is determined that the project will impact any species listed as either endangered or threatened, you will need to contact Rich Baker, Minnesota Endangered Species Coordinator, at 651-259-5073 to discuss the endangered species permitting process.

- If applicable, please send me a copy of the native prairie protection and management plan (Section III.C.6. of the Site Permit). The plan should include measures to avoid impacts to native prairie and measures to mitigate for impacts if unavoidable.

- Please send me a copy of the Preconstruction Biological Preservation Survey (Section III.D.1. of the Site Permit) required by the PUC.
- Further guidance on wind farm siting can be found at http://www.fws.gov/midwest/Eco_Serv/wind/index.htm.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area.

The enclosed results include an Index Report and a Detailed Report of records in the Rare Features Database, the main database of the NHIS. To control the release of specific location information, which might result in the destruction of a rare feature, both reports are copyrighted.

The Index Report provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an environmental review document (e.g., EAW or EIS), municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the index report for any other purpose, please contact me to request written permission. **The Detailed Report is for your personal use only as it may include specific location information that is considered nonpublic data under *Minnesota Statutes*, section 84.0872, subd. 2. If you wish to reprint or publish the Detailed Report for any purpose, please contact me to request written permission.**

Please be aware that this letter focuses only on potential effects to *rare natural features*; there may be other natural resource concerns associated with the proposed project. This letter does not constitute review or approval by the Department of Natural Resources as a whole.

An invoice in the amount of \$245.18 will be mailed to you under separate cover within two weeks of the date of this letter. You are being billed for the database search and printouts, and staff scientist review. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,



Lisa Joyal
Endangered Species Environmental Review Coordinator

enc. Rare Features Database: Index Report
Rare Features Database: Detail Report
Rare Features Database Reports: An Explanation of Fields
Fact sheets: Loggerhead Shrike, Blanding's Turtle

cc: John Schladweiler
Matt Langan

Index Report of records within 1 mile radius of:

Pleasant Valley Wind Farm

Multile TRS

Dodge and Mower Counties

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Dodge County, MN						
<u>Acris crepitans</u> (Northern Cricket Frog) #17 Location Description: T105N R16W S10, T105N R16W S14, T105N R16W S13, T105N R16W S15, T [...]		END	S1	G5	1966-06-04	1399
<u>Arnoglossum plantagineum</u> (Tuberous Indian-plantain) #4 Location Description: T105N R17W S27		THR	S2	G4G5	1983-07-26	3866
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #14 Location Description: T105N R17W S27		THR	S2	G5	1983-07-26	3556
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #16 Location Description: T106N R17W S28, T106N R17W S21		THR	S2	G5	1983-08-10	3558
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #79 Location Description: T106N R18W S11, T106N R18W S12		THR	S2	G5	2002-08-20	30029
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #80 Location Description: T106N R18W S24		THR	S2	G5	2002-08-20	30026
<u>Carex annectens</u> (Yellow-fruited Sedge) #4 Location Description: T105N R17W S27		SPC	S3	G5	1986-07-08	10684
<u>Cypripedium candidum</u> (Small White Lady's-slipper) #26 Location Description: T105N R17W S27		SPC	S3	G4	2002-06-03	4308
<u>Emydoidea blandingii</u> (Blanding's Turtle) #843 Location Description: T105N R16W S10, T105N R16W S16, T105N R16W S15, T105N R16W S9		THR	S2	G4	1998-07-24	23787
<u>Eryngium yuccifolium</u> (Rattlesnake-master) #11 Location Description: T105N R17W S27		SPC	S3	G5	1983-07-26	4625
<u>Freshwater Mussel Concentration Area</u> (Mussel Sampling Site) #26 Location Description: T106N R18W S29		N/A	SNR	G3	1988-07-11	13421
<u>Lampetra appendix</u> (American Brook Lamprey) #26 Location Description: T105N R16W S11, T105N R16W S15, T105N R16W S10		NON	S4	G4	1986-10-09	16161
<u>Lanius ludovicianus</u> (Loggerhead Shrike) #191 Location Description: T105N R16W S19, T105N R16W S20	No Status	THR	S2B	G4	2003-08-01	31124
<u>Lasmigona compressa</u> (Creek Heelsplitter) #47 Location Description: T106N R18W S19, T106N R18W S17, T106N R18W S20, T106N R18W S18		SPC	S3	G5	1988-07-11	24965

Index Report of records within 1 mile radius of:

Pleasant Valley Wind Farm
Multile TRS
Dodge and Mower Counties

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Dodge County, MN						
<u>Mesic Prairie (Southern) Type</u> #401 Location Description: T105N R17W S28, T105N R17W S34, T105N R17W S27		N/A	S2	GNR	1983-07	18697
<u>Notropis nubilus</u> (Ozark Minnow) #28 Location Description: T105N R16W S11, T105N R16W S15, T105N R16W S10		SPC	S3	G5	1986-10-09	6294
<u>Notropis nubilus</u> (Ozark Minnow) #33 Location Description: T105N R16W S10, T105N R16W S16, T105N R16W S15, T105N R16W S9		SPC	S3	G5	1967-04-25	6292
<u>Oarisma powesheik</u> (Powersheik Skipper) #1 Location Description: T105N R17W S27		SPC	S3	G2G3	1982-07-10	2671
<u>Parthenium integrifolium</u> (Wild Quinine) #6 Location Description: T105N R17W S27		END	S1	G5	1983-07-26	5222
<u>Parthenium integrifolium</u> (Wild Quinine) #10 Location Description: T105N R17W S17, T105N R17W S16		END	S1	G5	2002-08-20	30034
<u>Platanthera praeclara</u> (Western Prairie Fringed Orchid) #18 Location Description: T105N R17W S27	LT	END	S1	G3	1982-07-29	5310
<u>Valeriana edulis ssp. ciliata</u> (Valerian) #6 Location Description: T105N R17W S33		THR	S2	G5T3	1981-05-20	5831
<u>Valeriana edulis ssp. ciliata</u> (Valerian) #35 Location Description: T105N R17W S27		THR	S2	G5T3	1985-05-22	5860
<u>Valeriana edulis ssp. ciliata</u> (Valerian) #60 Location Description: T105N R16W S16		THR	S2	G5T3	1993-06-26	19541
Dodge, Fillmore, Goodhue, Houston, [...] County, MN						
<u>Crotalus horridus</u> (Timber Rattlesnake) #188 Location Description: T102N R09W S5, T103N R13W S29, T106N R14W S24, T102N R10W S2, T [...]		THR	S2	G4		34865
Dodge, Mower County, MN						
<u>Eryngium yuccifolium</u> (Rattlesnake-master) #45 Location Description: T105N R17W S33, T105N R17W S34, T104N R17W S3		SPC	S3	G5	1980-07-17	4658
<u>Oxyopolis rigidior</u> (Cowbane) #14 Location Description: T105N R17W S33, T105N R17W S34, T104N R17W S3		NON	SNR	G5	1981-09-02	5159

Printed December 2008
Data valid for one year

Minnesota Natural Heritage Information System: Rare Features Database

Index Report of records within 1 mile radius of:

Pleasant Valley Wind Farm
Multile TRS
Dodge and Mower Counties

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Mower County, MN						
<u>Arnoglossum plantagineum</u> (Tuberous Indian-plantain) #2 Location Description: T103N R17W S12		THR	S2	G4G5	1981-06-24	3864
<u>Baptisia bracteata var. leucophaea</u> (Plains Wild Indigo) #18 Location Description: T103N R16W S16		SPC	S3	G4G5T4T5	1981-07-21	3729
<u>Baptisia bracteata var. leucophaea</u> (Plains Wild Indigo) #24 Location Description: T103N R17W S14, T103N R17W S10, T103N R17W S11		SPC	S3	G4G5T4T5	1979-08-08	3734
<u>Cypripedium candidum</u> (Small White Lady's-slipper) #61 Location Description: T103N R16W S16		SPC	S3	G4	1982-06-03	4343
<u>Eryngium yuccifolium</u> (Rattlesnake-master) #132 Location Description: T103N R16W S7, T103N R16W S18		SPC	S3	G5	1999-09-01	25329
<u>Oxypolis rigidior</u> (Cowbane) #12 Location Description: T103N R16W S16		NON	SNR	G5	1981-10-21	5146
<u>Parthenium integrifolium</u> (Wild Quinine) #9 Location Description: T103N R16W S16, T103N R16W S17, T103N R16W S18		END	S1	G5	1999-08-31	25328
<u>Valeriana edulis ssp. ciliata</u> (Valerian) #1 Location Description: T103N R16W S16, T103N R16W S17, T103N R16W S15, T103N R17W S11, T [...]		THR	S2	G5T3	1981-05-19	5826

Records Printed = 35

Endangered, Threatened, and Special Concern Species of Minnesota

Blanding's Turtle
(Emydoidea blandingii)

Minnesota Status: Threatened
Federal Status: none

State Rank¹: S2
Global Rank¹: G4

HABITAT USE

Blanding's turtles need both wetland and upland habitats to complete their life cycle. The types of wetlands used include ponds, marshes, shrub swamps, bogs, and ditches and streams with slow-moving water. In Minnesota, Blanding's turtles are primarily marsh and pond inhabitants. Calm, shallow water bodies (Type 1-3 wetlands) with mud bottoms and abundant aquatic vegetation (e.g., cattails, water lilies) are preferred, and extensive marshes bordering rivers provide excellent habitat. Small temporary wetlands (those that dry up in the late summer or fall) are frequently used in spring and summer -- these fishless pools are amphibian and invertebrate breeding habitat, which provides an important food source for Blanding's turtles. Also, the warmer water of these shallower areas probably aids in the development of eggs within the female turtle. Nesting occurs in open (grassy or brushy) sandy uplands, often some distance from water bodies. Frequently, nesting occurs in traditional nesting grounds on undeveloped land. Blanding's turtles have also been known to nest successfully on residential property (especially in low density housing situations), and to utilize disturbed areas such as farm fields, gardens, under power lines, and road shoulders (especially of dirt roads). Although Blanding's turtles may travel through woodlots during their seasonal movements, shady areas (including forests and lawns with shade trees) are not used for nesting. Wetlands with deeper water are needed in times of drought, and during the winter. Blanding's turtles overwinter in the muddy bottoms of deeper marshes and ponds, or other water bodies where they are protected from freezing.

LIFE HISTORY

Individuals emerge from overwintering and begin basking in late March or early April on warm, sunny days. The increase in body temperature which occurs during basking is necessary for egg development within the female turtle. Nesting in Minnesota typically occurs during June, and females are most active in late afternoon and at dusk. Nesting can occur as much as a mile from wetlands. The nest is dug by the female in an open sandy area and 6-15 eggs are laid. The female turtle returns to the marsh within 24 hours of laying eggs. After a development period of approximately two months, hatchlings leave the nest from mid-August through early-October. Nesting females and hatchlings are often at risk of being killed while crossing roads between wetlands and nesting areas. In addition to movements associated with nesting, all ages and both sexes move between wetlands from April through November. These movements peak in June and July and again in September and October as turtles move to and from overwintering sites. In late autumn (typically November), Blanding's turtles bury themselves in the substrate (the mud at the bottom) of deeper wetlands to overwinter.

IMPACTS / THREATS / CAUSES OF DECLINE

- loss of wetland habitat through drainage or flooding (converting wetlands into ponds or lakes)
- loss of upland habitat through development or conversion to agriculture
- human disturbance, including collection for the pet trade* and road kills during seasonal movements
- increase in predator populations (skunks, raccoons, etc.) which prey on nests and young

*It is illegal to possess this threatened species.

RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS

These recommendations apply to typical construction projects and general land use within Blanding's turtle habitat, and are provided to help local governments, developers, contractors, and homeowners minimize or avoid detrimental impacts to Blanding's turtle populations. **List 1** describes minimum measures which we recommend to prevent harm to Blanding's turtles during construction or other work within Blanding's turtle habitat. **List 2** contains recommendations which offer even greater protection for Blanding's turtles populations; this list should be used *in addition to the first list* in areas which are known to be of state-wide importance to Blanding's turtles (contact the DNR's Natural Heritage and Nongame Research Program if you wish to determine if your project or home is in one of these areas), or in any other area where greater protection for Blanding's turtles is desired.

List 1. Recommendations for all areas inhabited by Blanding's turtles.	List 2. Additional recommendations for areas known to be of state-wide importance to Blanding's turtles.
GENERAL	
A flyer with an illustration of a Blanding's turtle should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.	Turtle crossing signs can be installed adjacent to road-crossing areas used by Blanding's turtles to increase public awareness and reduce road kills.
Turtles which are in imminent danger should be moved, by hand, out of harms way. Turtles which are not in imminent danger should be left undisturbed.	Workers in the area should be aware that Blanding's turtles nest in June, generally after 4pm, and should be advised to minimize disturbance if turtles are seen.
If a Blanding's turtle nests in your yard, do not disturb the nest.	If you would like to provide more protection for a Blanding's turtle nest on your property, see "Protecting Blanding's Turtle Nests" on page 3 of this fact sheet.
Silt fencing should be set up to keep turtles out of construction areas. It is <u>critical</u> that silt fencing be removed after the area has been revegetated.	Construction in potential nesting areas should be limited to the period between September 15 and June 1 (this is the time when activity of adults and hatchlings in upland areas is at a minimum).
WETLANDS	
Small, vegetated temporary wetlands (Types 2 & 3) should not be dredged, deepened, filled, or converted to storm water retention basins (these wetlands provide important habitat during spring and summer).	Shallow portions of wetlands should not be disturbed during prime basking time (mid morning to mid- afternoon in May and June). A wide buffer should be left along the shore to minimize human activity near wetlands (basking Blanding's turtles are more easily disturbed than other turtle species).
Wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.	Wetlands should be protected from road, lawn, and other chemical run-off by a vegetated buffer strip at least 50' wide. This area should be left unmowed and in a natural condition.
ROADS	
Roads should be kept to minimum standards on widths and lanes (this reduces road kills by slowing traffic and reducing the distance turtles need to cross).	Tunnels should be considered in areas with concentrations of turtle crossings (more than 10 turtles per year per 100 meters of road), and in areas of lower density if the level of road use would make a safe crossing impossible for turtles. Contact your DNR Regional Nongame Specialist for further information on wildlife tunnels.
Roads should be ditched, not curbed or below grade. If curbs must be used, 4 inch high curbs at a 3:1 slope are preferred (Blanding's turtles have great difficulty climbing traditional curbs; curbs and below grade roads trap turtles on the road and can cause road kills).	Roads should be ditched, not curbed or below grade.

ROADS cont.	
Culverts between wetland areas, or between wetland areas and nesting areas, should be 36 inches or greater in diameter, and elliptical or flat-bottomed.	Road placement should avoid separating wetlands from adjacent upland nesting sites, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details).
Wetland crossings should be bridged, or include raised roadways with culverts which are 36 in or greater in diameter and flat-bottomed or elliptical (raised roadways discourage turtles from leaving the wetland to bask on roads).	Road placement should avoid bisecting wetlands, or these roads should be fenced to prevent turtles from attempting to cross them (contact your DNR Nongame Specialist for details). This is especially important for roads with more than 2 lanes.
Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.	Roads crossing streams should be bridged.
UTILITIES	
Utility access and maintenance roads should be kept to a minimum (this reduces road-kill potential).	
Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.	
LANDSCAPING AND VEGETATION MANAGEMENT	
Terrain should be left with as much natural contour as possible.	As much natural landscape as possible should be preserved (installation of sod or wood chips, paving, and planting of trees within nesting habitat can make that habitat unusable to nesting Blanding's turtles).
Graded areas should be revegetated with native grasses and forbs (some non-natives form dense patches through which it is difficult for turtles to travel).	Open space should include some areas at higher elevations for nesting. These areas should be retained in native vegetation, and should be connected to wetlands by a wide corridor of native vegetation.
Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1 st and before June 1 st).	Ditches and utility access roads should not be mowed or managed through use of chemicals. If vegetation management is required, it should be done mechanically, as infrequently as possible, and fall through spring (mowing can kill turtles present during mowing, and makes it easier for predators to locate turtles crossing roads).

Protecting Blanding's Turtle Nests: Most predation on turtle nests occurs within 48 hours after the eggs are laid. After this time, the scent is gone from the nest and it is more difficult for predators to locate the nest. Nests more than a week old probably do not need additional protection, unless they are in a particularly vulnerable spot, such as a yard where pets may disturb the nest. Turtle nests can be protected from predators and other disturbance by covering them with a piece of wire fencing (such as chicken wire), secured to the ground with stakes or rocks. The piece of fencing should measure at least 2 ft. x 2 ft., and should be of medium sized mesh (openings should be about 2 in. x 2 in.). It is *very important* that the fencing be **removed before August 1st** so the young turtles can escape from the nest when they hatch!

REFERENCES

- ¹Association for Biodiversity Information. "Heritage Status: Global, National, and Subnational Conservation Status Ranks." NatureServe. Version 1.3 (9 April 2001). <http://www.natureserve.org/ranking.htm> (15 April 2001).
- Coffin, B., and L. Pfannmuller. 1988. Minnesota's Endangered Flora and Fauna. University of Minnesota Press, Minneapolis, 473 pp.

REFERENCES (cont.)

- Moriarty, J. J., and M. Linck. 1994. Suggested guidelines for projects occurring in Blanding's turtle habitat. Unpublished report to the Minnesota DNR. 8 pp.
- Oldfield, B., and J. J. Moriarty. 1994. Amphibians and Reptiles Native to Minnesota. University of Minnesota Press, Minneapolis, 237 pp.
- Sajwaj, T. D., and J. W. Lang. 2000. Thermal ecology of Blanding's turtle in central Minnesota. *Chelonian Conservation and Biology* 3(4):626-636.

CAUTION



BLANDING'S TURTLES MAY BE ENCOUNTERED IN THIS AREA

The unique and rare Blanding's turtle has been found in this area. Blanding's turtles are state-listed as Threatened and are protected under Minnesota Statute 84.095, Protection of Threatened and Endangered Species. Please be careful of turtles on roads and in construction sites. For additional information on turtles, or to report a Blanding's turtle sighting, contact the DNR Nongame Specialist nearest you: Bemidji (218-308-2641); Grand Rapids (218-327-4518); New Ulm (507-359-6033); Rochester (507-280-5070); or St. Paul (651-259-5764).

DESCRIPTION: The Blanding's turtle is a medium to large turtle (5 to 10 inches) with a black or dark blue, dome-shaped shell with muted yellow spots and bars. The bottom of the shell is hinged across the front third, enabling the turtle to pull the front edge of the lower shell firmly against the top shell to provide additional protection when threatened. The head, legs, and tail are dark brown or blue-gray with small dots of light brown or yellow. A distinctive field mark is the bright yellow chin and neck.

**BLANDING'S TURTLES DO NOT MAKE GOOD PETS
IT IS ILLEGAL TO KEEP THIS THREATENED SPECIES IN CAPTIVITY**

SUMMARY OF RECOMMENDATIONS FOR AVOIDING AND MINIMIZING IMPACTS TO BLANDING'S TURTLE POPULATIONS

(see Blanding's Turtle Fact Sheet for full recommendations)

- This flyer should be given to all contractors working in the area. Homeowners should also be informed of the presence of Blanding's turtles in the area.
- Turtles that are in imminent danger should be moved, by hand, out of harms way. Turtles that are not in imminent danger should be left undisturbed to continue their travel among wetlands and/or nest sites.
- If a Blanding's turtle nests in your yard, do not disturb the nest and do not allow pets near the nest.
- Silt fencing should be set up to keep turtles out of construction areas. It is critical that silt fencing be removed after the area has been revegetated.
- Small, vegetated temporary wetlands should not be dredged, deepened, or filled.
- All wetlands should be protected from pollution; use of fertilizers and pesticides should be avoided, and run-off from lawns and streets should be controlled. Erosion should be prevented to keep sediment from reaching wetlands and lakes.
- Roads should be kept to minimum standards on widths and lanes.
- Roads should be ditched, not curbed or below grade. If curbs must be used, 4" high curbs at a 3:1 slope are preferred.
- Culverts under roads crossing wetland areas, between wetland areas, or between wetland and nesting areas should be at least 36 in. diameter and flat-bottomed or elliptical.
- Culverts under roads crossing streams should be oversized (at least twice as wide as the normal width of open water) and flat-bottomed or elliptical.
- Utility access and maintenance roads should be kept to a minimum.
- Because trenches can trap turtles, trenches should be checked for turtles prior to being backfilled and the sites should be returned to original grade.
- Terrain should be left with as much natural contour as possible.
- Graded areas should be revegetated with native grasses and forbs.
- Vegetation management in infrequently mowed areas -- such as in ditches, along utility access roads, and under power lines -- should be done mechanically (chemicals should not be used). Work should occur fall through spring (after October 1st and before June 1st).

Landowners Guide for Maintaining and Encouraging Loggerhead Shrikes

Loggerhead shrikes are in trouble – but you may be able to help. Throughout the United States, and particularly in the Midwest, loggerhead shrikes are disappearing at an alarming rate. So serious is the decline that the loggerhead shrike is one of six bird species considered threatened in Minnesota.



What is a loggerhead shrike?

Loggerhead shrikes are special birds – an interesting cross between songbird and hawk. They feed on large insects such as grasshoppers and beetles, mice, small birds, frogs and toads. Shrikes spend much of their time perched on powerlines, fences or the top-most branches of trees and shrubs, scouting for prey and then swooping down to catch it. Then the bird either eats its prey, impales it on a nearby thorn or barbed wire fence or wedges it into the fork of a branch. Because shrikes lack the strong, sharp claws and feet of hawks, impaling food holds it in place as the bird tears at it with its bill. Your first clue that loggerhead shrikes are on your property may be finding an animal impaled on a fence barb or a thorn. This habit has earned the loggerhead shrike the nickname “butcher bird.”

What do loggerhead shrikes look like?

The robin-sized loggerhead shrike has a slate-gray back with a light breast. The most distinguishing markings of this bird are the black mask, which extends across the eye, and the black and white wing and tail patches which flash when the bird flies. Males and females are similar in size and color.

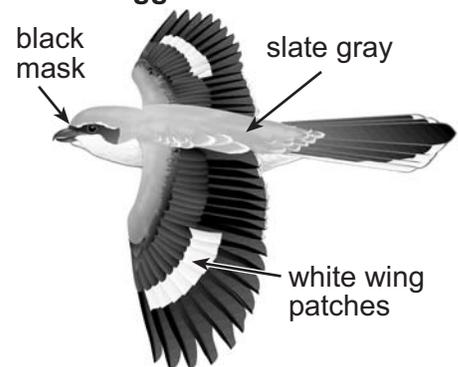
In Minnesota, loggerhead shrikes are most easily confused with eastern kingbirds and northern shrikes. However, eastern kingbirds have no mask, their heads are entirely dark, and they do not have white patches on their wings. The northern shrike looks very similar to the loggerhead shrike, but occurs in Minnesota from October through April, whereas the loggerhead shrike is here from March to October. During the early spring and fall, when both shrikes are in the state, they can be told apart by the loggerhead shrike’s completely black bill and its mask which extends across the top of the bill.

Where do they live?

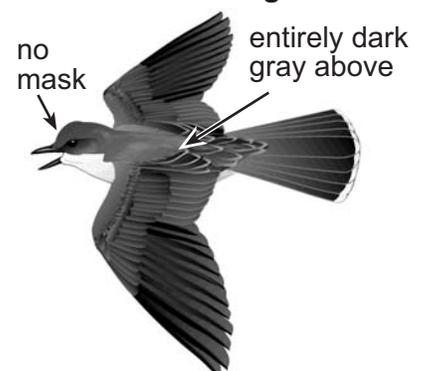
Loggerhead shrikes were once found throughout much of the unforested region of the state. Today, their numbers are very low. Recent surveys have located fewer than 30 nests in the state (Fig. 1). It is very important that we try to maintain habitat for the few shrikes that still breed in Minnesota.

Shrikes use grassy, open areas with scattered trees and shrubs such as pastures, prairie patches and grassy roadsides. A few trees and shrubs, along with fences and powerlines provide nesting sites and perches from

Loggerhead Shrike



Eastern Kingbird



continued on back

which to hunt. Red cedar, hawthorn and plum trees are often used for nesting. A pair may range over 2.5 - 30 acres.

Loggerhead shrikes are early nesters, arriving in Minnesota from their wintering areas in the southern U.S. and Mexico in early spring. Shrikes lay 4-6 eggs that hatch after about 16 days. The young birds remain with their parents for about 4 weeks after leaving the nest. It is at this time that the birds are most conspicuous. Shrikes tend to nest in the same general areas from year to year, although they may be absent for a year or two and then return again, as long as the habitat remains.

Why is the loggerhead shrike population declining?

The decline of the loggerhead shrike is likely the result a combination of factors, including loss of habitat resulting from the conversion of pasture and grasslands to houses or cropland and the encroachment of forest and brush on pastures and grasslands. In addition, changes in farming

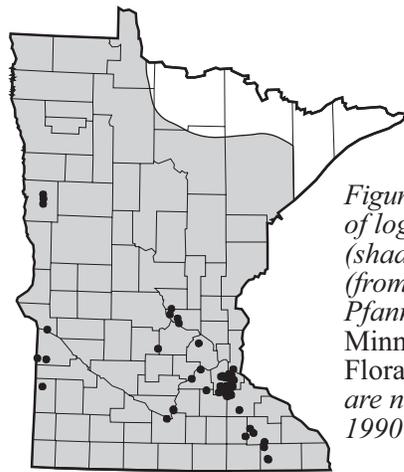


Figure 1. Historical range of loggerhead shrikes (shaded) in Minnesota. (from Coffin and Pfannmuller. 1988. Minnesota's Endangered Flora and Fauna). Dots are nests found between 1990 and 1996.

practices have resulted in larger fields and fewer trees, shrubs and fences scattered about. The increasing use of pesticides may also play a role in the decline of shrikes because these chemicals affect many animals that shrikes eat.

WHAT CAN YOU DO TO HELP LOGGERHEAD SHRIKES?

If there are shrikes nesting on your property, congratulations! You are one of a very few Minnesotans fortunate to share your property with such a unique bird. We hope you will want to help this bird continue its presence in your neighborhood. Obviously your land management practices and land use are already compatible if the birds have selected your land for nesting. While biologists continue to investigate the decline of the shrike there are things you can do on your property to encourage shrikes.

1. Leave fences standing for shrikes to use for perching and impaling food. If a fence must be removed, or if there are no fences near your grassland or pasture, you can create perch and impaling posts. To do this, wrap barbed wire near the top of a post. Place these posts along the edges of pastures and fields for shrikes to use. Your local nongame wildlife biologist can help you select the best locations for the posts.

2. Keep brush from encroaching upon grasslands by removal or burning, but only to the extent that the shrubs and trees don't dominate the grassland. A few scattered shrubs and trees are necessary to maintain the best shrike habitat.

3. Pastures and grassland are more attractive to shrikes than are row crops. Therefore, it is important to maintain existing pasture and grasslands. Investigate the Conservation Reserve Program (CRP) which pays farmers to retire highly erodible farmlands from production and to establish permanent grassland. Contact your local Natural Resources Conservation Service office (formerly the Soil Conservation Service) for more information about this program.

4. Take advantage of financial incentives for maintaining compatible land uses. In many counties, the Agricultural Preserve Program and/or the Green Acres Program provide tax adjustments and/or deferments to farmers to help them maintain their land for agricultural use. Contact your county assessor's office for more information about these programs.

5. Minimize use of pesticides. Pesticides can reduce the supply of large insects and other non-target animals that shrikes need. Also, because shrikes feed on animals at which pesticides are directed, these chemicals can build up in the birds and impair their ability to reproduce and reduce the survival of their young.

For more information about shrikes or to report loggerheads shrikes on your property please contact:

Nongame Wildlife Program
500 Lafayette Rd.,
St. Paul, MN 55155
(651) 297-3764
1-800 766-6000

or locally contact:



Minnesota Department of Natural Resources

Division of Ecological Resources, Box 25

500 Lafayette Road

St. Paul, Minnesota 55155-4025

Phone: (651) 259-5109 Fax: (651) 296-1811 E-mail: lisa.joyal@dnr.state.mn.us

September 4, 2009

Ms. Nicole Lehman
McGhie and Betts Environmental Services, Inc.
1648 Third Avenue SE
Rochester, MN 55904

Re: Request for Natural Heritage information in the vicinity of the proposed Pleasant Valley Wind Farm,
Dodge & Mower Counties
Correspondence # : ERDB 20090318-0001b

Dear Ms. Lehman,

As requested, the Minnesota Natural Heritage Information System has been queried for an update of rare species or other significant natural features known to occur within an approximate one-mile radius of the proposed project. Based on this query, several new records of rare plants have been documented within the proposed project boundary. Please see the enclosed database reports for details; these reports replace the reports dated December 2008. The following comment **supplements** the previous Natural Heritage letter dated 22 December 2008:

- Several rare plants including wild quinine (*Parthenium integrifolium*), a state-listed endangered species, and valerian (*Valeriana edulis* ssp. *ciliata*), tuberous indian-plantain (*Arnoglossum plantagineum*), and Sullivant's milkweed (*Asclepias sullivantii*), all state-listed threatened species, have been documented in native prairie remnants and road right-of-ways within or in close proximity to the project boundary. The enclosed maps identify the areas where rare plants have been documented. Disturbance to these areas should be completely avoided. **Please contact me if avoidance of the areas identified on the enclosed map is not feasible.** We will need to discuss the possibility of applying for a takings permit. As mentioned previously, the wind turbines and associated infrastructure will also need to avoid any other native prairie remnants that may remain within the area of interest. If this is not feasible, a botanical survey of any affected prairie remnants will be required. **Please contact me if construction activities are planned within any native prairie remnants.** We will need to discuss potential surveyors, survey protocol, and other requirements before any survey work is initiated.

Minnesota's endangered species law (MS 84.0895) and associated rules (MR 6212.1800 - 6212.2300 and 6134) prohibit the taking of threatened or endangered species without a permit. If it is determined that the project will impact any species listed as either endangered or threatened, you will need to contact Rich Baker, Minnesota Endangered Species Coordinator, at 651-259-5073 to discuss the endangered species permitting process.

The Natural Heritage Information System (NHIS), a collection of databases that contains information about Minnesota's rare natural features, is maintained by the Division of Ecological Resources, Department of Natural Resources. The NHIS is continually updated as new information becomes available, and is the most complete source of data on Minnesota's rare or otherwise significant species, native plant communities, and other natural features. However, the NHIS is not an exhaustive inventory and thus does not represent all of

the occurrences of rare features within the state. Therefore, ecologically significant features for which we have no records may exist within the project area.

The enclosed results include an Index Report and a Detailed Report of records in the Rare Features Database, the main database of the NHIS. To control the release of specific location information, which might result in the destruction of a rare feature, both reports are copyrighted.

The Index Report provides rare feature locations only to the nearest section, and may be reprinted, unaltered, in an environmental review document (e.g., EAW or EIS), municipal natural resource plan, or report compiled by your company for the project listed above. If you wish to reproduce the index report for any other purpose, please contact me to request written permission. **The Detailed Report is for your personal use only as it may include specific location information that is considered nonpublic data under *Minnesota Statutes*, section 84.0872, subd. 2. If you wish to reprint or publish the Detailed Report for any purpose, please contact me to request written permission.**

This letter does not constitute review or approval by the Department of Natural Resources as a whole. Instead, it identifies issues regarding known occurrences of rare features and potential effects to these rare features. Additional rare features for which we have no data may be present in the project area, or there may be other natural resource concerns associated with the proposed project. Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources.

Sincerely,



Lisa Joyal
Endangered Species Environmental Review Coordinator

enc. Rare Features Database: Index Report
Rare Features Database: Detail Report
Rare Features Database Reports: An Explanation of Fields
Maps (3)

cc: Randall Doneen
Kevin Mixon

Minnesota Natural Heritage Information System
Index Report of records within 1 mile radius of:
ERDB #20090318 - Pleasant Valley Wind Farm
Multiple TRS
Dodge and Mower Counties

Rare Features Database:

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Vertebrate Animal						
<u>Acris crepitans</u> (Northern Cricket Frog) #17 T105N R16W S10, T105N R16W S14, T105N R16W S13, T105N R16W S15, T [...]; Dodge County		END	S1	G5	1966-06-04	1399
<u>Crotalus horridus</u> (Timber Rattlesnake) #188 T102N R09W S5, T103N R13W S29, T106N R14W S24, T102N R10W S2, T [...]; Dodge, Fillmore, Goodhue, Houston, [...] County		THR	S2	G4	1958-05-16	34865
<u>Emydoidea blandingii</u> (Blanding's Turtle) #843 T105N R16W S10, T105N R16W S16, T105N R16W S15, T105N R16W S9; Dodge County		THR	S2	G4	1998-07-24	23787
<u>Lampetra appendix</u> (American Brook Lamprey) #26 T105N R16W S11, T105N R16W S15, T105N R16W S10; Dodge County		NON	S4	G4	1986-10-09	16161
<u>Lanius ludovicianus</u> (Loggerhead Shrike) #191 T105N R16W S19, T105N R16W S20; Dodge County	No Status	THR	S2B	G4	2003-08-01	31124
<u>Notropis nubilus</u> (Ozark Minnow) #28 T105N R16W S11, T105N R16W S15, T105N R16W S10; Dodge County		SPC	S3	G5	1986-10-09	6294
<u>Notropis nubilus</u> (Ozark Minnow) #33 T105N R16W S10, T105N R16W S16, T105N R16W S15, T105N R16W S9; Dodge County		SPC	S3	G5	1967-04-25	6292
Invertebrate Animal						
<u>Euphyes bimacula</u> (Two-spotted Skipper) #2 T105N R17W S34, T105N R17W S27; Dodge County		NON	S3	G4		35141
<u>Lasmigona compressa</u> (Creek Heelsplitter) #47 T106N R18W S19, T106N R18W S17, T106N R18W S20, T106N R18W S18; Dodge County		SPC	S3	G5	1988-07-11	24965
<u>Oarisma powesheik</u> (Powesheik Skipper) #1 T105N R17W S27; Dodge County		SPC	S3	G2G3	1982-07-10	2671
Animal Assemblage						
<u>Freshwater Mussel Concentration Area</u> (Mussel Sampling Site) #26 T106N R18W S29; Dodge County		N/A	SNR	G3	1988-07-11	13421
Vascular Plant						
<u>Arnoglossum plantagineum</u> (Tuberous Indian-plantain) #2 T103N R17W S12; Mower County		THR	S2	G4G5	1981-06-24	3864

Minnesota Natural Heritage Information System
Index Report of records within 1 mile radius of:
ERDB #20090318 - Pleasant Valley Wind Farm
Multiple TRS
Dodge and Mower Counties

Rare Features Database:

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Vascular Plant						
<u>Arnoglossum plantagineum</u> (Tuberous Indian-plantain) #4 T105N R17W S27 ; Dodge County		THR	S2	G4G5	1983-07-26	3866
<u>Arnoglossum plantagineum</u> (Tuberous Indian-plantain) #49 T103N R16W S2 ; Mower County		THR	S2	G4G5	2008-08-05	35102
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #14 T105N R17W S27 ; Dodge County		THR	S2	G5	1983-07-26	3556
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #16 T106N R17W S28, T106N R17W S21 ; Dodge County		THR	S2	G5	1983-08-10	3558
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #79 T106N R18W S11, T106N R18W S12 ; Dodge County		THR	S2	G5	2002-08-20	30029
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #80 T106N R18W S24 ; Dodge County		THR	S2	G5	2002-08-20	30026
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #89 T103N R16W S4 ; Mower County		THR	S2	G5	2008-08-04	35089
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #90 T103N R16W S16 ; Mower County		THR	S2	G5	2008-08-05	35090
<u>Asclepias sullivantii</u> (Sullivant's Milkweed) #91 T103N R16W S21, T103N R16W S20 ; Mower County		THR	S2	G5	2008-08-16	35091
<u>Baptisia bracteata var. leucophaea</u> (Plains Wild Indigo) #18 T103N R16W S16 ; Mower County		SPC	S3	G4G5T4T5	1981-07-21	3729
<u>Baptisia bracteata var. leucophaea</u> (Plains Wild Indigo) #24 T103N R17W S14, T103N R17W S10, T103N R17W S11 ; Mower County		SPC	S3	G4G5T4T5	1979-08-08	3734
<u>Carex annectens</u> (Yellow-fruited Sedge) #4 T105N R17W S27 ; Dodge County		SPC	S3	G5	1986-07-08	10684
<u>Cypripedium candidum</u> (Small White Lady's-slipper) #26 T105N R17W S27 ; Dodge County		SPC	S3	G4	2002-06-03	4308

Minnesota Natural Heritage Information System
Index Report of records within 1 mile radius of:
ERDB #20090318 - Pleasant Valley Wind Farm
Multiple TRS
Dodge and Mower Counties

Rare Features Database:

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Vascular Plant						
<u>Cypripedium candidum</u> (Small White Lady's-slipper) #61 T103N R16W S16 ; Mower County		SPC	S3	G4	1982-06-03	4343
<u>Eryngium yuccifolium</u> (Rattlesnake-master) #11 T105N R17W S27 ; Dodge County		SPC	S3	G5	1983-07-26	4625
<u>Eryngium yuccifolium</u> (Rattlesnake-master) #45 T105N R17W S33, T104N R17W S3 ; Dodge, Mower County		SPC	S3	G5	2008-09-10	4658
<u>Eryngium yuccifolium</u> (Rattlesnake-master) #132 T103N R16W S7, T103N R16W S18 ; Mower County		SPC	S3	G5	1999-09-01	25329
<u>Eryngium yuccifolium</u> (Rattlesnake-master) #159 T103N R16W S2 ; Mower County		SPC	S3	G5	2008-08-04	35075
<u>Eryngium yuccifolium</u> (Rattlesnake-master) #160 T103N R16W S16 ; Mower County		SPC	S3	G5	2008-08-05	35076
<u>Eryngium yuccifolium</u> (Rattlesnake-master) #161 T103N R16W S5 ; Mower County		SPC	S3	G5	2008-08-18	35077
<u>Oxyopolis rigidior</u> (Cowbane) #12 T103N R16W S16 ; Mower County		NON	SNR	G5	2008-08-05	5146
<u>Oxyopolis rigidior</u> (Cowbane) #14 T105N R17W S33, T104N R17W S3 ; Dodge, Mower County		NON	SNR	G5	2008-09-10	5159
<u>Oxyopolis rigidior</u> (Cowbane) #66 T103N R16W S2 ; Mower County		NON	SNR	G5	2008-08-04	35084
<u>Oxyopolis rigidior</u> (Cowbane) #67 T103N R16W S5 ; Mower County		NON	SNR	G5	2008-08-05	35087
<u>Parthenium integrifolium</u> (Wild Quinine) #6 T105N R17W S27 ; Dodge County		END	S1	G5	1983-07-26	5222
<u>Parthenium integrifolium</u> (Wild Quinine) #9 T103N R16W S16, T103N R16W S17, T103N R16W S18 ; Mower County		END	S1	G5	2008-08-05	25328

Minnesota Natural Heritage Information System
Index Report of records within 1 mile radius of:
ERDB #20090318 - Pleasant Valley Wind Farm
Multiple TRS
Dodge and Mower Counties

Rare Features Database:

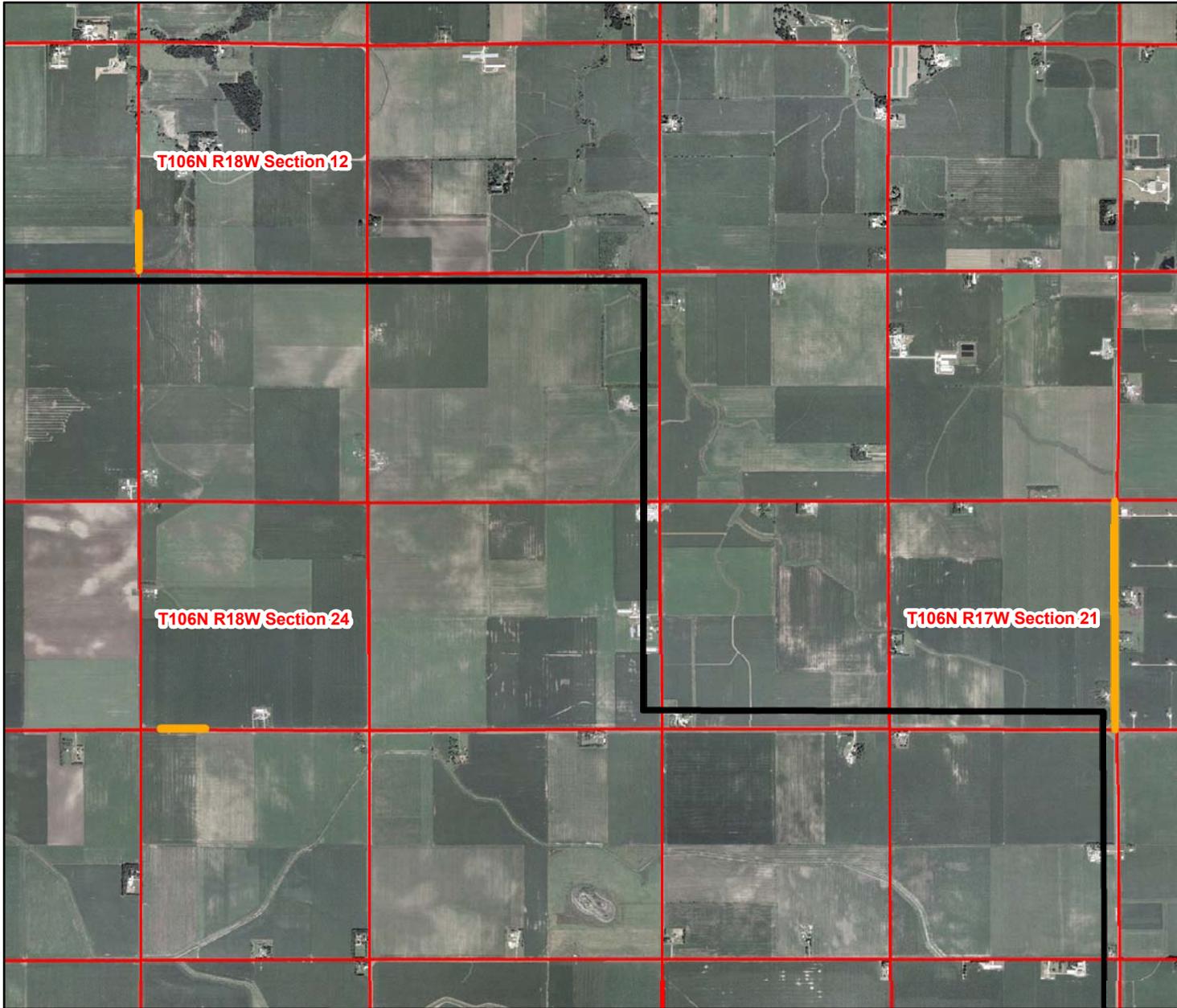
Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Vascular Plant						
<u>Parthenium integrifolium</u> (Wild Quinine) #10 T105N R17W S17, T105N R17W S16 ; Dodge County		END	S1	G5	2002-08-20	30034
<u>Parthenium integrifolium</u> (Wild Quinine) #22 T103N R17W S2 ; Mower County		END	S1	G5	2008-08-04	35098
<u>Parthenium integrifolium</u> (Wild Quinine) #23 T103N R16W S5 ; Mower County		END	S1	G5	2008-08-05	35099
<u>Platanthera praeclara</u> (Western Prairie Fringed Orchid) #18 T105N R17W S27 ; Dodge County	LT	END	S1	G3	1982-07-29	5310
<u>Valeriana edulis ssp. ciliata</u> (Valerian) #1 T103N R16W S16, T103N R16W S17, T103N R16W S15, T103N R17W S11, T [...] ; Mower County		THR	S2	G5T3	2008-08-05	5826
<u>Valeriana edulis ssp. ciliata</u> (Valerian) #6 T105N R17W S33 ; Dodge County		THR	S2	G5T3	1981-05-20	5831
<u>Valeriana edulis ssp. ciliata</u> (Valerian) #35 T105N R17W S27 ; Dodge County		THR	S2	G5T3	1985-05-22	5860
<u>Valeriana edulis ssp. ciliata</u> (Valerian) #60 T105N R16W S16 ; Dodge County		THR	S2	G5T3	1993-06-26	19541
<u>Valeriana edulis ssp. ciliata</u> (Valerian) #131 T103N R16W S2 ; Mower County		THR	S2	G5T3	2008-08-04	35117
Terrestrial Community - Other Classification						
<u>Mesic Prairie (Southern) Type</u> #401 T105N R17W S28, T105N R17W S34, T105N R17W S27 ; Dodge County		N/A	S2	GNR	1983-07	18697

Records Printed = 48

Minnesota's endangered species law (Minnesota Statutes, section 84.0895) and associated rules (Minnesota Rules, part 6212.1800 to 6212.2300 and 6134) prohibit the taking of threatened or endangered species without a permit. For plants, taking includes digging or destroying. For animals, taking includes pursuing, capturing, or killing.

Rare Plants in the vicinity of the Pleasant Valley Wind Farm

Map 1 of 3



Legend

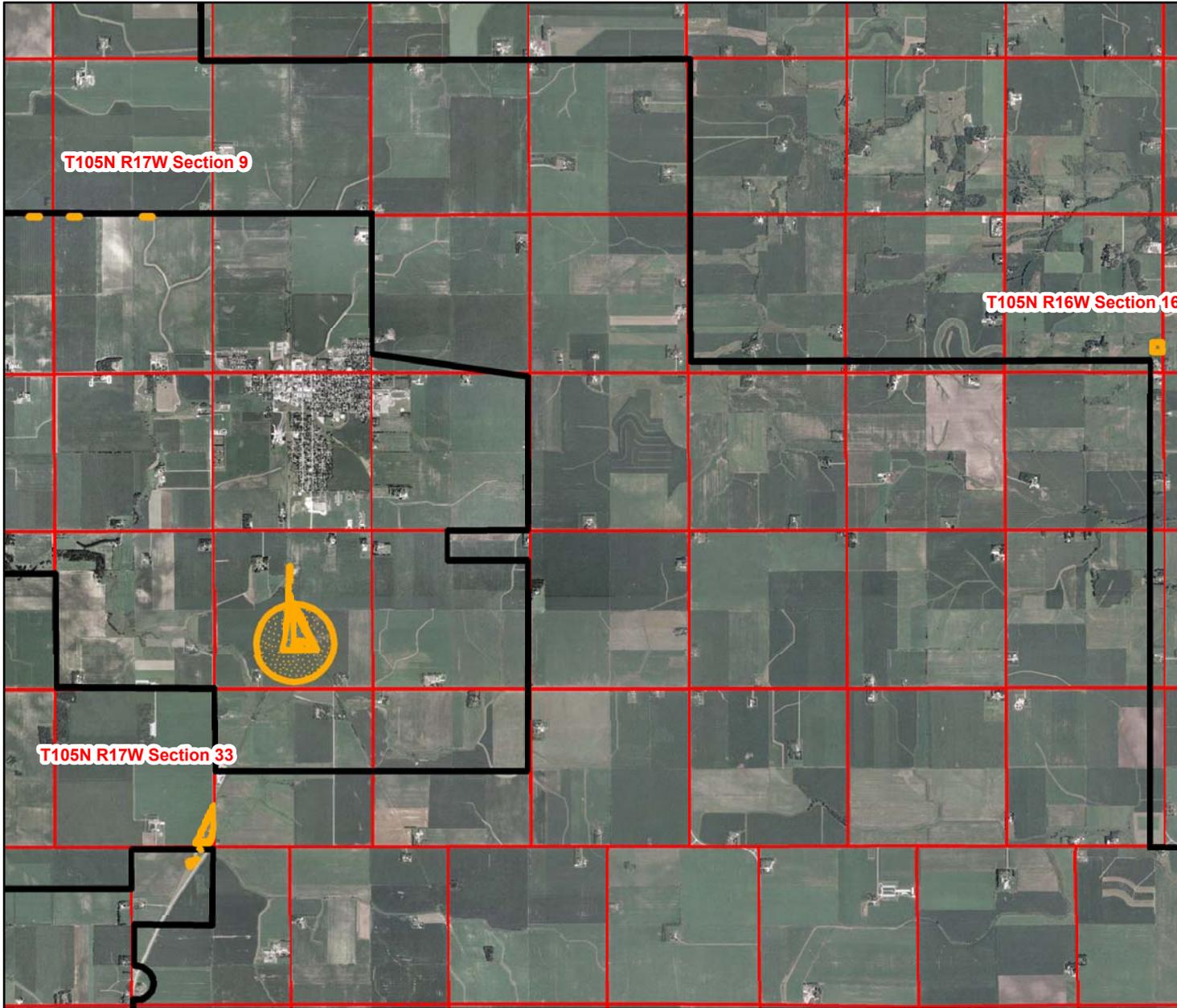
- Rare Plants
- PV_Boundary
- PLS Sections



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Rare Feature, Prairie Railroad Survey, Native Plant Community, and Sites of Biodiversity Significance data are from the Natural Heritage Information System. The absence of rare features for a particular location should not be construed to mean that the DNR is confident rare features are absent from that location.

Rare Plants in the vicinity of the Pleasant Valley Wind Farm

Map 2 of 3



Legend

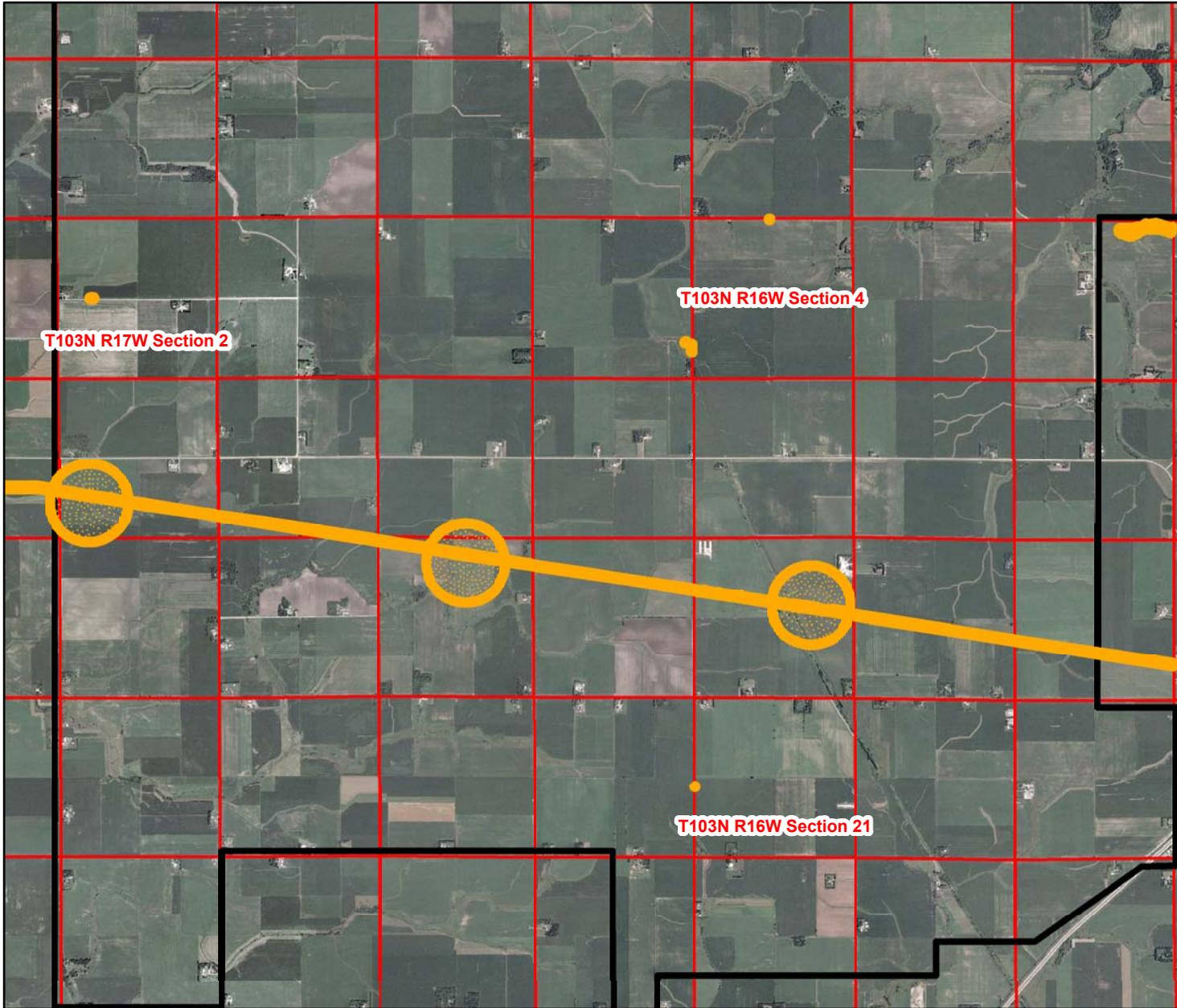
- Rare Plants
- PV_Boundary
- PLS Sections



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Rare Feature, Prairie Railroad Survey, Native Plant Community, and Sites of Biodiversity Significance data are from the Natural Heritage Information System. The absence of rare features for a particular location should not be construed to mean that the DNR is confident rare features are absent from that location.

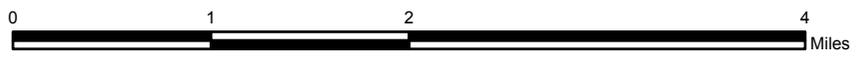
Rare Plants in the vicinity of the Pleasant Valley Wind Farm

Map 3 of 3



Legend

- Rare Plants 
- PV_Boundary 
- PLS Sections 



Copyright 2009, State of Minnesota, DNR
Rare Feature, Prairie Railroad Survey, Native Plant Community, and Sites of Biodiversity Significance data are from the Natural Heritage Information System. The absence of rare features for a particular location should not be construed to mean that the DNR is confident rare features are absent from that location.

The Division of Ecological Resources recently adopted a new database system called Biotics. As a result of this change, the layout and contents of the database reports have been revised. Many of the fields included in the new reports are the same or similar to the previous report fields, however there are several new fields and some of the field definitions have been slightly modified. We recommend that you familiarize yourself with the latest field explanations.

Rare Features Database Reports: An Explanation of Fields

The Rare Features Database (Biotics) is part of the Natural Heritage Information System, and is maintained by the Division of Ecological Resources, Minnesota Department of Natural Resources (DNR).

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Field Name: [Full (non-abbreviated) field name, if different]. Further explanation of field.

-E-

Element Name and Occ #: [Element Name and Occurrence Number]. The Element is the name of the rare feature. For plant and animal species records, this field holds the scientific name followed by the common name in parentheses; for all other elements (such as native plant communities, which have no scientific name) it is solely the element name. Native plant community names correspond to Minnesota's Native Plant Community Classification (Version 2.0). The Occurrence Number, in combination with the Element Name, uniquely identifies each record.

EO Data: [Element Occurrence Data]. For species elements, this field contains data collected on the biology of the Element Occurrence* (EO), including the number of individuals, vigor, habitat, soils, associated species, peculiar characteristics, etc. For native plant community elements, this field is a summary text description of the vegetation of the EO, including structure (strata) and composition (dominant/characteristic species), heterogeneity, successional stage/dynamics, any unique aspects of the community or additional noteworthy species (including animals). Note that this is a new field and it has not been filled out for many of the records that were collected prior to conversion to the new database system. Some of the information meeting the field definition may be found in the General Description field.

EO ID#: [Element Occurrence Identification Number]. Unique identifier for each Element Occurrence record.

EO Rank: [Element Occurrence Rank]. An evaluation of the quality and condition of an Element Occurrence (EO) from A (highest) to D (lowest). Represents a comparative evaluation of: 1) quality as determined by representativeness of the occurrence especially as compared to EO specifications and including maturity, size, numbers, etc. 2) condition (how much has the site and the EO itself been damaged or altered from its optimal condition and character). 3) viability (the long-term prospects for continued existence of this occurrence - used in ranking species only). EO Ranks are assigned based on recent fieldwork by knowledgeable individuals.

Extent Known?: A value that indicates whether the full extent of the Element is known (i.e., it has been determined through field survey) at that location. If null, the value has not been determined.

-F-

Federal Status: Status of species under the U.S. Endangered Species Act: LE = endangered; LT = threatened; LE,LT = listed endangered in part of its range, listed threatened in another part of its range; LT,PDL = listed threatened, proposed for delisting; C = candidate for listing. If null or "No Status" the species has no federal status.

First Observed Date: Date that the Element Occurrence was first reported at the site in format YYYY-MM-DD. A year followed by "Pre" indicates that the observed date was sometime prior to the date listed, but the exact date is unknown.

-G-

General Description: General description or word picture of the area where the Element Occurrence (EO) is located (i.e., the physical setting/context surrounding the EO), including a list of adjacent communities. When available, information on surrounding land use may be included. Note that the information tracked in this field is now more narrowly defined than it was in the old database system, and some of the information still in this field more accurately meets the definition of the new EO Data field. We are working to clean up the records so that the information in the two fields corresponds to the current field explanations described herein. Also note that the use of uppercase in sentences in this field is not significant but rather an artifact of transferring data from the old database system to the new system.

Global Rank: The global (i.e., range-wide) assessment of the relative rarity or imperilment of the species or community. Ranges from G1 (critically imperiled due to extreme rarity on a world-wide basis) to G5 (demonstrably secure, though perhaps rare in parts of its range). Global ranks are determined by NatureServe, an international network of natural heritage programs and conservation data centers.

-L-

Last Observed Date: Date that the Element Occurrence was last observed to be extant at the site in format YYYY-MM-DD.

Last Survey Date: Date of the most recent field survey for the Element Occurrence, regardless of whether it was found during the visit. If the field is blank, assume the date is the same as the Last Observed Date.

Location Description: County or Counties in which the Element Occurrence was documented followed by Township, Range, and Section information (not listed in any particular order). Each unique Township, Range, and Section combination is separated by a comma. In some cases, there are too many Township, Range, and Section combinations to list in the field, in which case, the information will be replaced with, "Legal description is too lengthy to fit in allotted space".

-M-

Managed Area(s): Name of the federally, state, locally, or privately managed park, forest, refuge, preserve, etc., containing the occurrence, if any. If this field is blank, the element probably occurs on private land. If "(Statutory Boundary)" occurs after the name of a managed area, the location may be a private inholding within the statutory boundary of a state forest or park.

MN Status: [Minnesota Status]. Legal status of plant and animal species under the Minnesota Endangered Species Law: END = endangered; THR = threatened; SPC = special concern; NON = tracked, but no legal status. Native plant communities, geological features, and colonial waterbird nesting sites do not have any legal status under the Endangered Species Law and are represented by a N/A.

-N-

NPC Classification (v1.5): Native plant community name in Minnesota's Native Vegetation: A Key to Natural Communities (Version 1.5). This earlier classification has been replaced by Minnesota's Native Plant Community Classification (Version 2.0).

-O-

Observed Area: The total area of the Element Occurrence, in acres, which is measured or estimated during fieldwork. If null, the value has not been determined.

Ownership Type: Indicates whether the land on which the Element Occurrence was located was publicly or privately owned; for publicly owned land, the agency with management responsibility is listed, if known.

-S-

Site Name: The name of the site(s) where the Element Occurrence is located. Sites are natural areas of land with boundaries determined and mapped according to biological and ecological considerations.

Survey Site #/Name: The name of the survey site, if applicable, where the Element Occurrence is located. Survey sites are sites that provide a geographic framework for recording and storing data, but their boundaries are not based on biological and ecological considerations. Minnesota County Biological Survey site numbers, if applicable, are also listed in this field.

Survey Type: Information on the type of survey used to collect information on the Element Occurrence.

Surveyor(s): Name(s) of the person(s) that collected survey information on the Element Occurrence.

State Rank: Rank that best characterizes the relative rarity or endangerment of the taxon or plant community in Minnesota. The ranks do not represent a legal status. They are used by the Minnesota Department of Natural Resources to set priorities for research, inventory and conservation planning. The state ranks are updated as inventory information becomes available. S1 = Critically imperiled in Minnesota because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state. S2 = Imperiled in Minnesota because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state. S3 = Vulnerable in Minnesota either because rare or uncommon, or found in a restricted range, or because of other factors making it vulnerable to extirpation. S4 = Apparently secure in Minnesota, usually widespread. S5 = Demonstrably secure in Minnesota, essentially ineradicable under present conditions. SH = Of historical occurrence in the state, perhaps having not been verified in the past 20 years, but suspected to be still extant. An element would become SH without the 20-year delay if the only known occurrences in the state were destroyed or if it had been extensively and unsuccessfully looked for. SNR = Rank not yet assessed. SU = Unable to rank. SX = Presumed extinct in Minnesota. SNA = Rank not applicable. S#S# = Range Rank: a numeric range rank (e.g., S2S3) is used to indicate the range of uncertainty about the exact status of the element. S#B, S#N = Used only for migratory animals, whereby B refers to the breeding population of the element in Minnesota and N refers to the non-breeding population of the element in Minnesota.

-V-

Vegetation Plot: Code(s) for any vegetation plot data that have been collected within this Element Occurrence (i.e., either Releve Number or the word "RELEVE" indicates that a releve has been collected).

* Element Occurrence – an area of land and/or water in which an Element (i.e., a rare species or community) is, or was, present, and which has practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location. Specifications for each species determine whether multiple observations should be considered 1 Element Occurrence or 2, based on minimum separation distance and barriers to movement.

Data Security

Locations of some rare features must be treated as sensitive information because widespread knowledge of these locations could result in harm to the rare features. For example, wildflowers such as orchids and economically valuable plants such as ginseng are vulnerable to exploitation by collectors; other species, such as bald eagles, are sensitive to disturbance by observers. For this reason, we prefer that publications not identify the precise locations of vulnerable species. We suggest describing the location only to the nearest section. If this is not acceptable for your purposes, please call and discuss this issue with the Endangered Species Environmental Review Coordinator at (651) 259-5109.