



Minnesota Department of Natural Resources

Division of Ecological Services
261 Highway 15 South
New Ulm, MN 56073

RECEIVED

JUL 28 2004

HDR Engineering, Inc.

7/26/04

Suzanne Lamb Steinhauer, Environmental Planner
HDR Engineering, Inc.
6190 Golden Hills Drive
Minneapolis, MN 55416

Dear Ms. Steinhauer:

The Minnesota Department of Natural Resources (DNR) has reviewed the options for the 115 kV transmission line between Buffalo Ridge and White. The following comments are in response to the materials dated 21 May 2004 regarding the proposed Township Road Alternative (TRA) between the Hole-in-the-Mountain Wildlife Management Area and the Hole-in-the-Mountain Prairie area owned by The Nature Conservancy (TNC) and the Distribution Route Alternative (DRA). In addition, these comments also apply to the slightly modified DRA map that was received a few days ago.

The Hole-in-the-Mountain WMA and TNC lands are part of a larger habitat corridor. These conservation areas represent the southern limits of a much larger system of tall grass prairie that stretches for more than 250 miles into South Dakota. Therefore, the DNR and other agency staff have carefully considered the two transmission line options noted above and wanted to provide the following comments at this time. I have had several conversations with Pam Rasmussen from Xcel Energy regarding this project.

Some members of the DNR staff were initially supportive of the TRA, as Xcel had indicated that if allowed to use this alignment they would remove nearly 4 miles of existing 115 kV lines between County Road 9 and Township Road 118 (line running from the southwest to the northeast – much of which is on DNR and TNC lands). Upon further consideration and review, several DNR staff expressed considerable reservations about new disturbances in the existing prairie that could likely result from the placement of the transmission line along the TRA. I will not enter into a specific discussion of our prairie community concerns, as the DNR letter from Sarah Hoffmann (dated June 1, 2004) already explains these issues. Aesthetics and contiguous unwired corridor size were also considered.

Considering what we have learned from site visits and discussions with DNR staff, TNC representatives, and Pam Rasmussen, the DNR would prefer that the DRA become the preferred alignment. It is our understanding that a slightly modified DRA (based on the alignment map you recently sent to me) will be the primary route submitted to the Minnesota Environmental Quality Board in your Route Permit Application. As part of



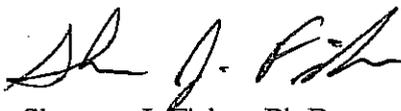
the DRA plan, it is our understanding that the section of the existing 115 kV line that runs from TH 75 to the southwest through part of the TNC land and then through the DNR property will be removed and the utility easement vacated.

The DNR appreciates Xcel's willingness to remove these lines, as this will be beneficial to the habitat corridor; however, removal needs to be done in a manner that minimizes prairie disturbance and compaction. Therefore, the DNR prefers that the removal of the existing line and support structures be completed when the ground is firmly frozen. This should be feasible, as we prefer the poles to be sheared off at ground level, rather than pulled. DNR believes that pulling the poles from the ground and having heavy vehicle traffic compact and disturb unfrozen soils could be detrimental to the existing prairie and sensitive species that live there, such as Dakota Skippers.

As you move through this process, it should be brought to your attention that Lincoln County is proposing several changes to County Road 9 along the DRA. I am not sure of the potential impact these changes could have on future access and pole placement in this area. The County has proposed to turn over County Road 9 to the local Township. This change would likely catalyze the closure of the road near the railroad crossings and a decline in frequency and intensity of road maintenance and repair. You may want to check with the county staff to determine if these changes will have any impact on your ability to utilize the DRA.

DNR will review upcoming EQB permit applications and other documents associated with this project and provide comments as needed. Regardless of future comments, I wanted to express our appreciation of the early coordination that you and Xcel have helped organize and been willing to participate in. These efforts now should make the remainder of the process much smoother.

Regards,



Shannon J. Fisher, Ph.D.
Regional Environmental Assessment Biologist
(507) 359-6073
Shannon.fisher@dnr.state.mn.us

Cc: Steve Colvin, DNR Eco Services
Sarah Hoffmann, DNR Eco Services
John Schladweiler, DNR Wildlife
Bob Meyer, DNR Wildlife
Ron Nargang, TNC
Pete Bauman, TNC



Minnesota Department of Natural Resources

Natural Heritage and Nongame Research Program, Box 25
500 Lafayette Road
St. Paul, Minnesota 55155-40__

Phone: (651) 296-7863 Fax: (651) 296-1811 E-mail: sarah.hoffmann@dnr.state.mn.us

RECEIVED

JUN 3 2004

HDR Engineering, Inc.

June 1, 2004

Suzanne Steinhauer
HDR Engineering, Inc.
6190 Golden Hills Drive
Minneapolis, MN 55416

Re: Request for Natural Heritage information for vicinity of proposed Buffalo Ridge to White 115 kV Transmission Line, T109N R45W Sections 19-22, & 27-31; T109N R46W Sections 4-6, 8-17, 23-26, & 36; T110N R46W Sections 19, 29, & 30-32; and T110N R47W Sections 24 & 25, Lincoln County
NHNR Contact #: ERDB 20040893

Dear Ms. Steinhauer,

The Minnesota Natural Heritage database has been reviewed to determine if any rare plant or animal species or other significant natural features are known to occur within an approximate one-mile radius of the area indicated on the map enclosed with your information request. Based on this review, there are 52 known occurrences of rare species or natural communities in the area searched (for details, see enclosed database printout and explanation of selected fields). Following are specific comments for **only those elements that may be impacted** by the proposed project. Rare feature occurrences not listed below are not anticipated to be affected by the proposed project.

- As you are aware, the Hole-in-the-Mountain WMA and Prairie are located in the eastern portion of the project area. These managed areas contain significant prairie communities which support several special concern plant species and several protected butterfly species including, the Uncas Skipper, an endangered species, the Dakota Skipper, a state listed threatened and federal candidate species, and the Ottoo skipper, a state threatened species. Because more than 99% of the prairie that was present in the state before settlement has been destroyed, and more than one-third of Minnesota's endangered, threatened, and special concern species are now dependent on the remaining small fragments of Minnesota's prairie ecosystem, we feel that all prairie remnants merit protection. All of the route segments under consideration have the potential to disturb some prairie habitat and the associated rare species, however the segments with the greatest potential for negative impacts are route segments S1b, S1e, S1f, and S1g. We recommend complete avoidance of these routes. If this is not feasible and these routes are considered further, additional consultation with our office will be necessary to discuss the endangered species permitting process. Please see the enclosed permitting information for details.
- Please note that several prairie remnants have also been identified in the rights-of-way of the DM&E Railroad (see the enclosed map for details). The 1997 Minnesota State Legislature directed the DNR to conduct a field review of active railroad rights-of-way (ROW) to identify native prairie. Railway ROW extend from 20 to 200 feet on either side of the track and are safety zones required for safe railroad operations. The DNR surveyed 3240 miles of railroad ROW, of which 487 discontinuous miles of native prairie were identified. The prairie fragments were

DNR Information: 651-296-6157 • 1-888-646-6367 • TTY: 651-296-5484 • 1-800-657-3929



ranked *very good*, *good*, or *fair* based on the coverage of native prairie plant species, abundance of woody shrubs, and level of disturbance (such as herbicide use or equipment storage). The railroad prairie remnants in the project area were considered to be in good condition. Route segments S1e and S1g could impact these railroad prairies and, as noted above, we recommend that they be avoided.

- Topeka shiners (*Notropis topeka*), a federally listed endangered species and state species of special concern species, have been documented within several of the streams that will be crossed by the proposed transmission line. Topeka shiners are adversely impacted by actions which alter stream hydrology or decrease water quality, including sedimentation, dredging and filling, stream dewatering, impoundment, eutrophication, channelization, and pollution/contamination. We are assuming that the project will not involve any in stream work, in which case direct impacts to this rare fish species are not anticipated. However, it is imperative that all standard precautions available to prevent sediment moving into streams be taken to prevent degradation of their aquatic habitat. I have enclosed the Best Management Practices developed for Topeka Shiner habitat protection for your reference.
- The eastern half of the project area is within a “known concentration” area of Blanding’s Turtles (*Emydoidea blandingii*), a state threatened species. There are 15 such areas in the state. These areas have been determined by the DNR to be locations of highest priority for research and management activities, and are relied upon to maintain the species’ security in the state. For your information, I have attached a fact sheet and a flyer about the Blanding’s Turtle. The fact sheet is intended to provide you with background information regarding habitat use, life history, and reasons for the species’ decline, as well as recommendations for avoiding and minimizing impacts to this rare turtle. As you will note, there are two lists of recommendations. The first list contains recommendations to prevent harm to turtles during construction work, and is relative to all areas inhabited by Blanding’s Turtles. The second column expands on the first column, and contains greater protective measures to be considered for areas known to be of state-wide importance to Blanding’s Turtles. Because your project is within one of these areas, please refer to both list of recommendations. The flyer, which should be given to all contractors working in the area, contains an illustration and description of the Blanding’s Turtle, as well as a summary of the recommendations provided in the fact sheet.

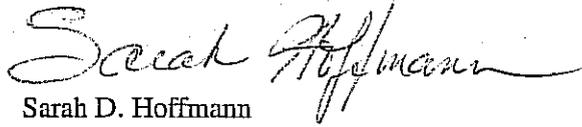
The Natural Heritage database is maintained by the Natural Heritage and Nongame Research Program, a unit within the Division of Ecological Services, Department of Natural Resources. It is continually updated as new information becomes available, and is the most complete source of data on Minnesota’s rare or otherwise significant species, natural communities, and other natural features. Its purpose is to foster better understanding and protection of these features.

Because our information is not based on a comprehensive inventory, there may be rare or otherwise significant natural features in the state that are not represented in the database. A county-by-county survey of rare natural features is now underway, but has not been completed for Lincoln County. Therefore ecologically significant features for which we have no records may exist on the project area.

Please be aware that review by the Natural Heritage and Nongame Research Program focuses only on *rare natural features*. It does not constitute review or approval by the Department of Natural Resources as a whole. If you require further information on the environmental review process for other wildlife-related issues, you may contact your Regional Environmental Assessment Ecologist, Shannon Fisher, at (507) 359-6073.

An invoice for the work completed is enclosed. You are being billed for map and database search and staff scientist review. Please forward this invoice to your Accounts Payable Department. Thank you for consulting us on this matter, and for your interest in preserving Minnesota’s rare natural resources.

Sincerely,



Sarah D. Hoffmann
Endangered Species Environmental Review Coordinator

encl: Database search results
Rare Feature Database Print-Outs: An Explanation of Fields
Fact sheets: Topeka Shiner BMPs, Blanding's Turtle, Endangered Species Permitting Invoice

cc: Shannon Fisher
Robert Meyer

State of Minnesota Endangered Species Permits

Minnesota's endangered species law (MS 84.0895) and associated rules (Chapter 6212.1800 - 6212.2300 and 6134) impose a variety of restrictions, a permit program, and several exemptions pertaining to species designated as endangered or threatened. The current list of species designated under MS 84.0895 can be found at http://www.dnr.state.mn.us/ecological_services/nhnrp/endlist.pdf. The law and rules prohibit taking, purchasing, importing, possessing, transporting, or selling endangered or threatened plant or animal, including their parts or seeds, without a permit. For animals, taking includes pursuing, capturing, or killing. For plants, taking includes picking, digging, or destroying. The law and rules specify conditions under which the Commissioner of the Department of Natural Resources may issue permits to allow taking and possession of endangered or threatened species. In order to understand all regulations pertaining to species that are designated as endangered, threatened or species of special concern, persons are advised to read the full text of the law and rules, which can be accessed at <http://www.leg.state.mn.us/leg/statutes.htm>.

PERMITS

Permits may be issued for taking only under certain conditions:

- for scientific study,
- for educational programs,
- to enhance propagation or survival of the species,
- to prevent injury to people or property, or
- when the social and economic benefit of the taking outweigh the harm caused by it.

Permitting decisions must be consistent with the intent of the law, which is to retain or restore healthy populations of native plants and animals. The responsibility for making permitting decisions has been delegated by the Commissioner to the Division of Ecological Services. **Permit issuance is discretionary and based on DNR's assessment of all relevant information.**

Some species listed under Minnesota law are also listed under the Federal Endangered Species Act. If species that are federally listed as endangered or threatened are to be taken, the USFWS should be contacted at 612/725-3276, ext. 250 or see <http://endangered.fws.gov/esasum.html#Incidental Take>.

APPLYING FOR PERMITS

Permit requests must be submitted in writing to:

Minnesota Department of Natural Resources
Attn. Endangered Species Permits
500 Lafayette Rd., Box 25
St. Paul, MN 55155.

For species to be taken from the wild in Minnesota, the applicant must document the **justification for the taking, location, species, number of individuals** to be taken or possessed, that there are **no feasible alternatives to the taking**, and provide assurance that **the taking will not negatively affect the species' status in Minnesota.**

When taking is proposed in connection with a scientific study, the request must be accompanied by a research proposal that outlines the **justification, methodology** (including the **species and number of individuals** to be taken), the **location** of the project, and the **qualifications** of the researcher. If the research is judged to provide important information about the species that will foster its conservation, the researcher is qualified to do the work, and the proposed taking will not have a significant negative effect on the species population in the state, a permit may be issued. Permits will specify that final disposition of specimens acquired for the purposes of scientific study is to the University of Minnesota Bell Museum of Natural History. Alternative repositories may be considered if compelling justification is provided.

For permits to possess living or dead specimens for scientific or educational purposes, the request must indicate that the permittee is **currently conducting scientific or educational programs** in the field of biology or natural history, and that they or their institution **have appropriate and adequate facilities for the care, exhibition, or storage of the particular species** that are sought to be taken, acquired or possessed. The request must also indicate the **proposed source of the specimens**, and for specimens to be acquired from a secondary source, **documentation that they were legally acquired**. For **possession of living specimens**, the request must indicate the **qualifications and experience of the person(s) who will be caring for the species**, and demonstrate an **understanding of the specific needs of the species**, and how they will be met.

When taking is proposed in connection with a development project, the request can be in the form of a letter that outlines the **nature of the project**, the **location** and the **species and number of individuals** that would be taken. Before a permit can be issued, the **project proposer is asked to explore project alternatives**, including other locations or designs, which would avoid or minimize taking.

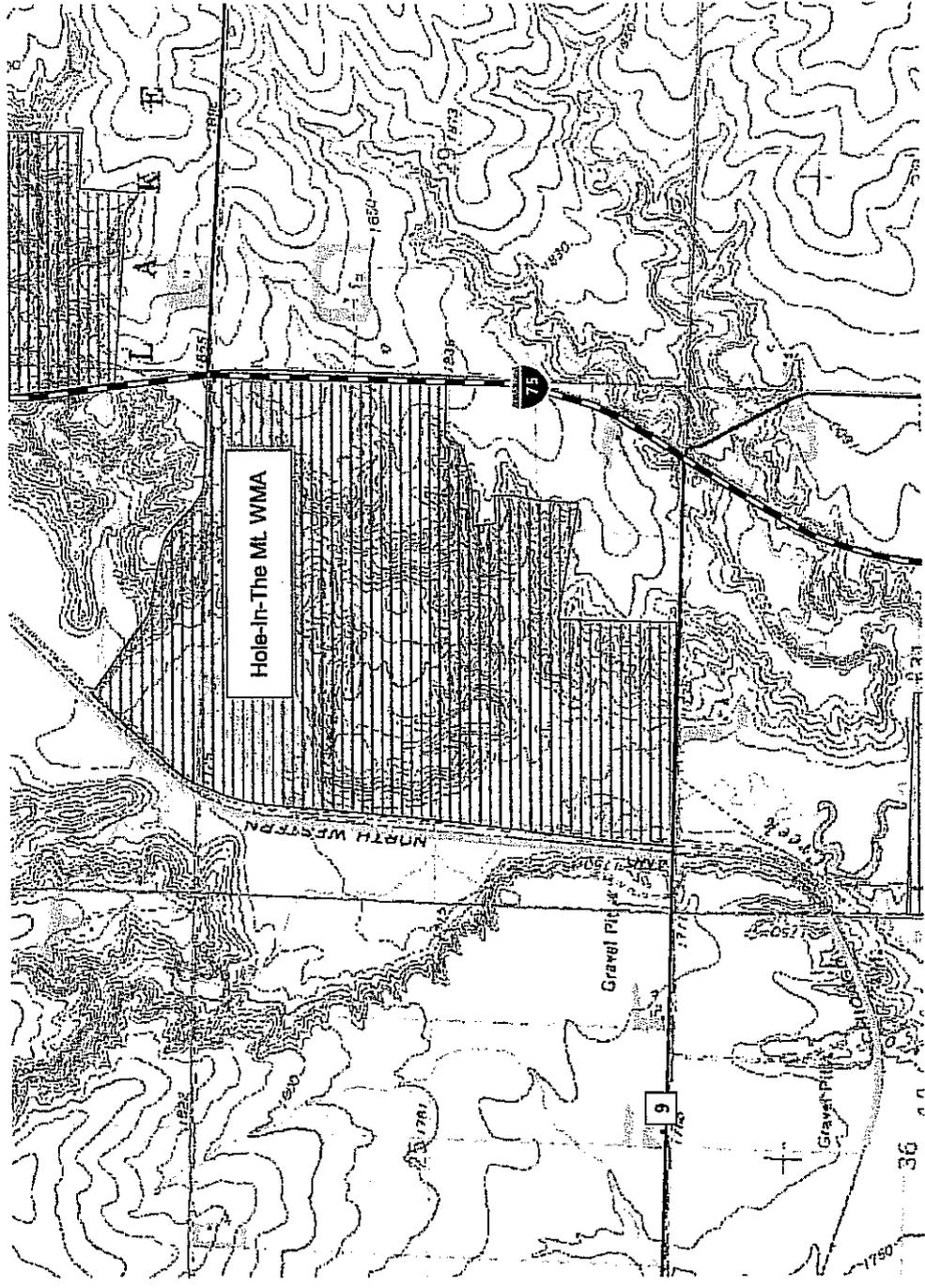
MITIGATION

If it is determined that there are no feasible alternatives to taking in connection with a development project, the applicant must propose compensatory mitigation to reduce the impact of the taking to an acceptable level. The magnitude of the compensation required is related to the degree of impact on the species, (for example, will the whole population at a site be destroyed, or just a few individuals?), and also to the statewide significance of the population on the site. Examples of types of compensatory mitigation that have been done for taking endangered or threatened species in Minnesota include:

- funding state acquisition of another site where the species occurs that is currently unprotected and vulnerable to destruction,
- funding additional survey work to locate other sites, and/or
- funding research to improve our understanding of the habitat requirements or protection needs of the species.

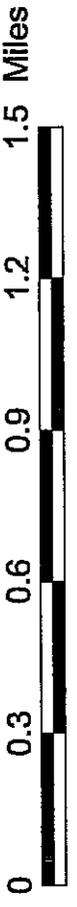
Transplantation generally has not been considered by MNDNR to be acceptable mitigation for taking of endangered or threatened species for several reasons. First, conservation of species in their native habitats is our first priority. Transplantation into an artificial habitat is not a sustainable strategy for native plant and animal conservation. Second, it is necessary to understand the life history, habitat requirements, and genetic structure of natural populations in order to determine the feasibility and advisability of transplantation. This information is unknown for most rare

Prairie Remnants within the DM&E Railroad Rights-of-Way Lincoln County, MN



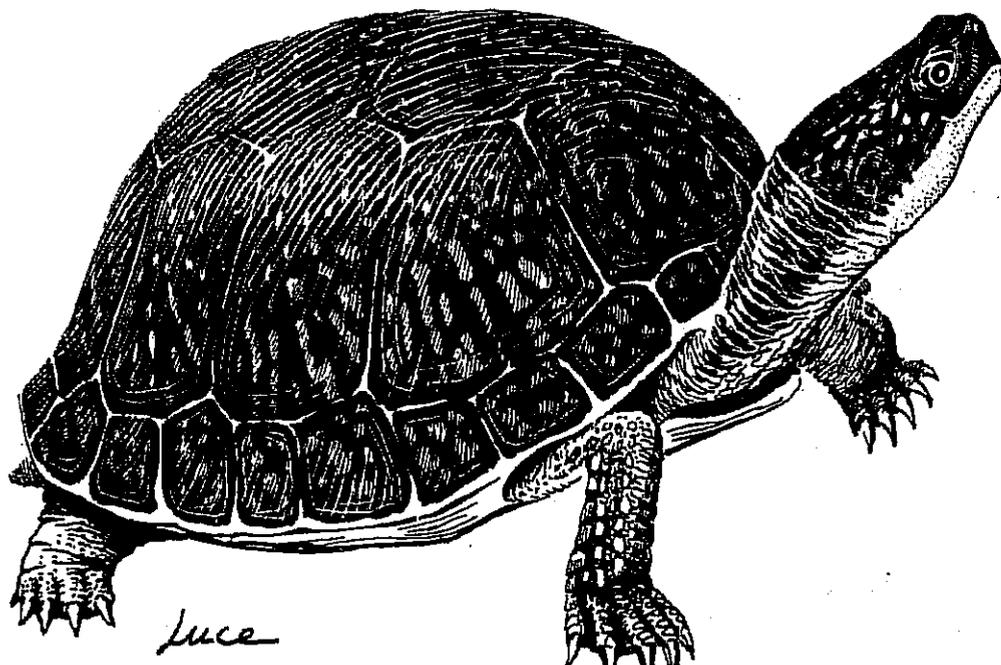
Hole-in-The-Mountain WMA

- MNDOT Interstate and Trunk Highways**
- Interstate
 - Federal Trunk
 - State Trunk
 - MNDOT County Roads
 - Wildlife Management Areas
 - Prairie Railroad Survey
 - Very Good
 - Good
 - Fair



Copyright 2004, State of Minnesota, DNR
Prairie Railroad Survey data are from the Natural Heritage and Nongame
Research Program's (NHGRP) Natural Heritage Information System.
The absence of rare features for a particular location should not be
construed to mean that the NHGRP is confident rare features are
absent from that location.

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 a State Threatened species 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 (218-755-2976); Brainerd (218-828-2228); New Ulm (507-359-6033); Rochester (507-280-5070); or St. Paul (651-297-2277).

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.

Illustration by Don Luce, from *Turtles in Minnesota*, Natural History Leaflet No. 9, June 1989, James Ford Bell Museum of Natural History

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

(see Environmental Review Fact Sheet Series for full recommendations)

- A flyer with an illustration of an adult 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.
- 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 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.
- Blanding's turtles do not make good pets. It is illegal to keep this threatened species in captivity.
- 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.
- Below-ground utility construction 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).

BMPs for Topeka Shiner Habitat Protection

Minnesota Department of Natural Resources Division of Ecological Services

The following Best Management Practices are generally applicable to protection of Topeka shiner habitat wherever it may be impacted by human activity. They are typical of provisions that are currently attached to public waters work permits issued by the Division of Waters for activities such as ditch clean-outs and utility crossings, and are featured in comment letters on road and bridge construction.

1. No in stream work should be conducted between ice-out and August 15, to ensure free passage of Topeka shiner adults and to protect spawning habitat. Site work above the ordinary high water line is not affected. No tracked or wheeled vehicles should be allowed in the streambed. All mechanized work should be conducted from the banks.
2. Only accumulated sediment should be removed from the channel. No changes in stream geometry, width or depth should occur. It is preferred that the streambed be dry before sediment removal begins. The local SWCD and/or NRCS office should be consulted regarding implementation of BMPs to minimize soil erosion in the watershed.
3. Erosion control measures will receive the utmost attention. Silt fences should be installed adjacent to the stream, and *additional* devices such as silt fences or check bales should be installed upslope. Devices should be inspected frequently, particularly following precipitation, to ensure that they are effective and in good repair. Repairs or replacements should be made promptly. Erosion control measures should remain in place until vegetation begins to recover.
4. Existing features such as bridge abutments, retaining walls and riprap should remain in place, to the extent practicable.
5. Construction should not begin if rain is forecast during the next three days. Construction should not begin until the entire project can be completed without delay.
6. Removal of riparian vegetation should be kept to a minimum, and should occur sequentially as needed over the length of the project. Areas of disturbed soils should be mulched and/or reseeded promptly, preferably with native grasses and forbs. The site should be inspected following spring green up, to ensure that vegetation is recovering as expected.
7. Construction, demolition and/or removal operations conducted over, or in the vicinity of, the stream, will be so controlled as to prevent materials from falling into the water. Any materials that do fall into the water or into areas below the OHWL should be retrieved promptly, by hand or by equipment working from the banks, and disposed of in a manner consistent with state and local ordinances.
8. Any fill materials that must be placed below the OHWL must be clean and free of fine materials, and should be locally sourced, if possible. Final grade ratios should not exceed 3:1. If installation of riprap is permitted as part of the proposed action, Class III riprap should be installed over geotextile material, such that stream banks are protected from scour. Riprap or other materials that already exist onsite should be minimally disturbed.
9. The applicant will meet with any hired contractors before the commencement of the project, to ensure that all permit provisions are clearly understood. If the project is modified, or if field conditions change, the proposer should contact the Area Hydrologist before proceeding.

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 (cattails, water lilies, etc.) 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, racoons, 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 critical 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).	
Below-ground utility construction sites should be returned to original grade (trenches can trap turtles).	
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. Pfanmueller. 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.

Rare Features Database Print-outs: An Explanation of Fields

The Rare Features database is part of the Natural Heritage Information System, and is maintained by the Natural Heritage and Nongame Research Program, a unit within the Division of Ecological Services, Minnesota Department of Natural Resources (DNR).

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

-C-

CBS Site: [County Biological Survey site number]. In each county, the numbering system begins with 1.

CLASS: A code which classifies features by broad taxonomic group: NC = natural community; SA = special animal; SP = special plant; GP = geologic process; GT = geologic time; OT = other (e.g. colonial-waterbird colonies, bat hibernacula).

Cty: [County]. Minnesota counties (ordered alphabetically) are numbered from 1 (Aitkin) to 87 (Yellow Medicine).

CURRENT STATUS: Present protection status, from 0 (owner is not aware of record) to 9 (dedicated as a Scientific and Natural Area).

-D-

DNR Region: 1=NW, 2=NE, 3=E Central, 4=SW, 5=SE, 6= Minneapolis/St. Paul Metro.

DNR Quad: [DNR Quadrangle code]. DNR-assigned code of the U.S. Geologic Survey topographic map on which the rare feature occurs.

-E-

ELEMENT or Element: See "Element Name (Common Name)"

Element Name (Common Name): 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 plant communities, which have no scientific name) it is solely the element name.

EO RANK: [Element Occurrence Rank]. An evaluation of the quality and condition of natural communities from A (highest) to D (lowest).

EO Size: [Element Occurrence Size]. The size in acres (often estimated) of natural communities.

-F-

FED STATUS: [Federal Status]. Status of species under the Federal Endangered Species Law: LE=endangered,

LT=threatened, C=species which have been proposed for federal listing.

Federal Status: See "FED STATUS"

Forestry District: The Minnesota DNR's Division of Forestry district number.

-G-

GLOBAL RANK: The abundance of an element globally, 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 the Conservation Science Division of The Nature Conservancy.

-I-

INTENDED STATUS: Desired protection status. See also "CURRENT STATUS." If a complete list of protection status codes is needed, please contact the Natural Heritage Program.

-L-

LAST OBSERVED or Last Observed Date or Last Observation: Date of the most recent record of the element at the location.

Latitude: The location at which the occurrence is mapped on Natural Heritage Program maps. NOTE: There are various levels of precision in the original information, but this is not reflected in the latitude/longitude data. For some of the data, particularly historical records, it was not possible to determine exactly where the original observation was made (e.g. "Fort Snelling", or "the south shore of Lake Owasso"). Thus the latitude/longitude reflect the mapped location, and not necessarily the observation location.

Legal: Township, range and section numbers.

Long: [Longitude]. See NOTE under "Latitude"

-M-

MANAGED AREA or Managed Area(s): Name of the federally, state, locally, or privately managed park, forest, 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.

Map Sym: [Map Symbol].

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=no legal status, but tracked. This field is blank for natural communities and colonial waterbird nesting sites, which have no legal status in Minnesota, but are tracked by the database.

-N-

NC Rank: [Natural Community Rank].

-O-

Occ #: [Occurrence Number]. The occurrence number, in combination with the element name, uniquely identifies each record.

OCCURRENCE NUMBER: See "Occ #"

OF OCCURS: The number of records existent in the database for each element within the area searched.

Ownership: Indicates whether the site is publicly or privately owned; for publicly owned land, the agency with management responsibility is listed.

-P-

Precision: Precision of locational information of occurrence: C (confirmed) = known within 1/4 mile radius, U (unconfirmed) = known within 1/2 mile, N (non-specific) = known within 1 mile, G (general) = occurs within the general region, X (unmappable)=location is unmappable on USGS topographic quadrangles (often known only to the nearest county), O (obscure/gone)=element no longer exists at the location.

PS: [Primary Section]. The section containing all or the greatest part of the occurrence.

-Q-

Quad Map: See "DNR Quad"

-R-

Rec #: [Record number].

RNG or Rng: [Range number].

-S-

SECTION or Section: [Section number(s)]. Some records are given only to the nearest section (s), but most are given to the nearest quarter-section or quarter-quarter-section (e.g., SWNW32 denotes the SW1/4 of the NW1/4 of section 32). A "0" is used as a place holder when a half-section is specified (e.g., 0N03 refers to the north 1/2 of section 3). When an occurrence crosses section boundaries, both sections are listed, without punctuation (e.g., the NE1/4 of section 19 and NW1/4 of section 20 is displayed as "NE19NW20").

Site: A name which refers to the geographic area within which the occurrence lies. If no name for the area exists (a locally used name, for example), one is assigned by the County Biological Survey or the Natural Heritage Program.

Source: The collector or observer of the rare feature occurrence.

S RANK: [State Rank]. A rank assigned to the natural community type which reflects the known extent and condition of that community in Minnesota. Ranks range from 1 (in greatest need of conservation action in the state) to 5 (secure under present conditions). A "7" following a rank indicates little information is available to rank the community. Communities for which information is especially scarce are given a "U", for "rank undetermined". 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.

State Status: See "MN STATUS"

-T-

TWP or Twp: [Township number].

-V-

Verification: A reflection of the reliability of the information on which the record is based. The highest level of reliability is "verified," which usually indicates a collection was made or, in the case of bird records, nesting was observed. Plant records based on collections made before 1970 are unverified.

Voucher: The museum or herbarium where specimens are maintained, and the accession number assigned by the repository. In the case of bald eagles, this is the breeding area number.

-W-

Wildlife Area: The Minnesota DNR's Division of Wildlife administrative number.

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 Environmental Review Specialist for the Natural Heritage and Nongame Research Program at 651/296-7863.

Revised 9/2002

TWP	RING	PRIMARY SECTION	FED STATUS	MN STATUS	S RANK	ELEMENT and OCCURRENCE NUMBER	MANAGED AREA
T108N	R46W	01		THR	S1	CALCAREOUS SEEPAGE FEN (SOUTHWEST) PRAIRIE SUBTYPE #3	ALTONA WMA
T108N	R46W	01		THR		EMYDOIDEA BLANDINGII (BLANDING'S TORTLE) #121	ALTONA WMA
T108N	R46W	01		THR		RHYNCHOSPORA CAPILLACEA (HAIR-LIKE BEAK-RUSH) #33	ALTONA WMA
T109N	R45W	07		SPC		HESPERIA DACOTAE (DAKOTA SKIPPER) #37	HOLE-IN-THE-MOUNTAIN COUNTY PARK
T109N	R45W	07		THR		ORARISMA POWESHEIK (POWESHEIK SKIPPER) #18	HOLE-IN-THE-MOUNTAIN COUNTY PARK
T109N	R45W	17		THR		HESPERIA DACOTAE (DAKOTA SKIPPER) #38	
T109N	R45W	17		THR		HESPERIA DACOTAE (DAKOTA SKIPPER) #41	
T109N	R45W	17		THR		HESPERIA OTTOE (OTTOE SKIPPER) #15	
T109N	R45W	17		SPC		ORARISMA POWESHEIK (POWESHEIK SKIPPER) #16	
T109N	R45W	17		SPC		ORARISMA POWESHEIK (POWESHEIK SKIPPER) #19	
T109N	R45W	17		SPC		SPEYERIA IDALIA (REGAL FRITILLARY) #113	
T109N	R45W	17		SPC		SPEYERIA IDALIA (REGAL FRITILLARY) #108	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	18		THR		HESPERIA DACOTAE (DAKOTA SKIPPER) #39	
T109N	R45W	18		SPC		ORARISMA POWESHEIK (POWESHEIK SKIPPER) #14	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	18		SPC		ORARISMA POWESHEIK (POWESHEIK SKIPPER) #150	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	18		SPC		SPEYERIA IDALIA (REGAL FRITILLARY) #11	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		ANTENNARIA PARVIFOLIA (SMALL-LEAVED PUSSYTOES) #5	
T109N	R45W	19		SPC		ARISTIDA PURPUREA VAR. LONGISETA (RED THREE-AWN) #5	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		ARISTIDA PURPUREA VAR. LONGISETA (RED THREE-AWN) #6	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		ATRYTONE AROGOS (AROGOS SKIPPER) #15	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		ATRYTONE AROGOS (AROGOS SKIPPER) #44	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		BOTRYCHIDUM CAMPESTRE (PRAIRIE MOONWORT) #1	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		CYPRIDEDIM CANDIDUM (SMALL WHITE LADY'S-SLIPPER) #132	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC	S3	DRY PRAIRIE (SOUTHWEST) HILL SUBTYPE #30	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		HABRONATTUS TEXANUS (A SPECIES OF JUMPING SPIDER) #2	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		THR		HESPERIA DACOTAE (DAKOTA SKIPPER) #32	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		THR		HESPERIA DACOTAE (DAKOTA SKIPPER) #40	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		HESPERIA LEONARDUS PANNEE (PANNEE SKIPPER) #1	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		THR		HESPERIA OTTOE (OTTOE SKIPPER) #9	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		END		HESPERIA UNCAS (UNCAS SKIPPER) #3	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		ORARISMA POWESHEIK (POWESHEIK SKIPPER) #13	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		ORARISMA POWESHEIK (POWESHEIK SKIPPER) #17	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		PHIDIPPUS PIUS (A SPECIES OF JUMPING SPIDER) #1	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		SOLIDAGO MOLLIS (SOFT GOLDENROD) #5	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		SPEYERIA IDALIA (REGAL FRITILLARY) #12	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	19		SPC		SPEYERIA IDALIA (REGAL FRITILLARY) #161	HOLE-IN-THE-MOUNTAIN PRAIRIE
T109N	R45W	20		THR		HESPERIA DACOTAE (DAKOTA SKIPPER) #33	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	20		THR		HESPERIA OTTOE (OTTOE SKIPPER) #10	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	20		SPC		ORARISMA POWESHEIK (POWESHEIK SKIPPER) #12	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	30		SPC		CALAMAGROSTIS MONTANENSIS (PLAINS REEDGRASS) #2	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	30		THR		HESPERIA DACOTAE (DAKOTA SKIPPER) #35	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	30		THR		HESPERIA DACOTAE (DAKOTA SKIPPER) #36	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	30		THR		HESPERIA LEONARDUS PANNEE (PANNEE SKIPPER) #2	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	30		SPC		HESPERIA OTTOE (OTTOE SKIPPER) #11	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	30		SPC		ORARISMA POWESHEIK (POWESHEIK SKIPPER) #15	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	31		THR		HESPERIA DACOTAE (DAKOTA SKIPPER) #34	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	31		SPC		ORARISMA POWESHEIK (POWESHEIK SKIPPER) #11	HOLE-IN-THE-MOUNTAIN WMA
T109N	R45W	31		SPC		SPEYERIA IDALIA (REGAL FRITILLARY) #106	HOLE-IN-THE-MOUNTAIN WMA

TWP	RNG	PRIMARY SECTION	FED STATUS	MN STATUS	S RANK	ELEMENT and OCCURRENCE NUMBER	MANAGED AREA
T109N	R46W	04	LE	SPC		NOTROPIS TOPEKA (TOPEKA SHINER) #62	
T109N	R46W	18	LE	SPC		NOTROPIS TOPEKA (TOPEKA SHINER) #33	
T109N	R46W	36	LE	THR		EMYDOIDEA BLANDINGII (BLANDING'S TURTLE) #405	ALTONA WMA
T110N	R46W	31	LE	SPC		NOTROPIS TOPEKA (TOPEKA SHINER) #63	

RECORDS PRINTED = 52

Steinhauer, Suzanne

From: Cinadr, Thomas [thomas.cinadr@mnhs.org]
Sent: Monday, June 21, 2004 10:33 AM
To: Steinhauer, Suzanne
Subject: FW: Buffalo Ridge to White 115kV Transmission Line



Archaeology.doc
(20 KB)

> Suzanne,

- >
- > The results of the search you requested are attached. No properties
- > were identified in the History/Architecture database for the
- > coordinates supplied.
- >
- > The result of this database search does not include an assessment for
- > archaeological site potential, or provide a listing of all potential
- > historic architectural properties. It represents only known and
- > recorded archaeological sites and historic architectural properties
- > from the current SHPO databases. If you require an assessment for
- > archaeological site potential and/or historic architectural
- > properties, you will need to hire a qualified archaeologist and/or historian to provide this service.
- > Please contact the SHPO by phone at 651-296-5434 or by email
- > mnshpo@mnhs.org <mailto:mnshpo@mnhs.org> for current lists of
- > professional consultants in these fields.
- >
- > <<Archaeology.doc>>
- >
- >
- > Tom Cinadr
- > Survey and Information Management Coordinator Minnesota State Historic
- > Preservation Office Minnesota Historical Society
- > 345 Kellogg Blvd. West
- > St. Paul, MN 55102
- >
- > 651-296-5434 (voice)
- > 651-282-2374 (fax)
- >

May 25, 2004

RECEIVED

JUN 1 2004

Ms. Suzanne Lamb Steinhauer
Environmental Planner
HDR Engineering
6190 Golden Hills Drive
Minneapolis, MN 55416

HDR Engineering, Inc.

Dear Ms. Steinhauer,

We received your letter dated May 21, 2004, regarding your request of support for Xcel Energy's Buffalo Ridge-White 115kV Transmission Line Project (Option 1). Thank you for also including the meeting minutes and maps from the April 6, 2004 meeting.

After much review and on-site evaluation, it is the conclusion of The Nature Conservancy that we cannot support Option 1: *Township Road Alternative*. While initially optimistic about that option, further review has led us to conclude that that Option 1 has great potential to adversely impact the ecology and aesthetics of the area, which is inconsistent with our management objectives. We believe that Option 1 would adversely impact our preserve to the same degree as the earlier proposed northern route, which Xcel Energy graciously chose not to pursue at our request.

The Nature Conservancy would express our strong support for Option 2, which routes from the Buffalo Ridge Substation, south along County 108, west along County 9, south along US HWY 75, and west along County 9 again, on the south side of the DNR's Hole in the Mountain WMA. It is our hope that both DNR and Xcel Energy can support this routing option, as it is the most compatible option for the wildlife and the public who use this area. In addition, it is our hope that Xcel Energy would move forward with removal of power lines and release of easements along the existing 115 kV line bisecting sections 16, 20 and 30 - which is the DNR property.

We would like to express our sincere gratitude to Xcel Energy and HDR Engineering for involving The Nature Conservancy in this process in the early stages. Only through cooperation can we move forward with well designed programs and projects in this biologically rich area. Thank you for your consideration.

Sincerely,


Ron Nargang, State Director

cc: Brian Winter, TNC
Tom Landwehr, TNC
Gail Lewellan, TNC
Rachel Hampton, TNC

Bob Meyer, DNR
Shannon Fisher, DNR
John Schladweiler, DNR
Pete Bauman, TNC