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March 9, 2010

Mr. Larry Hartman
Energy Facility Permitting
Office of Energy Security
85 7th Place East, Suite 500
St. Paul, MN 55101-2198

Re: Response to Comments for Oak Glen Wind Farm Project, Steele County, Minnesota
File 20091170.00

Dear Larry:

On behalf of Oak Glen Wind Farm, LLC (Oak Glen Wind), Westwood Professional Services (Westwood) provides the following response to wildlife and natural resource comments on the proposed Oak Glen Wind Project. The project is located in Steele County in southeastern Minnesota, approximately 3 miles northwest of Blooming Prairie, Minnesota. Agency comments addressed in this letter include the:

1. Minnesota Department of Natural Resources (DNR) letter dated February 17, 2010, and
2. U.S. Fish and Wildlife Service (USFWS) letter dated February 18, 2010.

General Project History, Pre-construction Agency Coordination, and Surveys
Since very early on in the siting process, it has been Oak Glen Wind's intent to responsibly site the project outside of sensitive habitats recognized for having higher value for wildlife (e.g. principally within agricultural areas), and well outside of state and federally-owned properties. This process started with early coordination with the U.S. Fish and Wildlife Service and the Department of Natural Resources during the fourth quarter of 2008 and throughout 2009. Response emails and letters were received on November 12, 2008 and May 19, 2009 from the U.S. Fish and Wildlife Service and December 5, 2008 and April 9, 2009 from the Minnesota Department of Natural Resources.

The first response email prepared by Gary Wege of the U.S. Fish and Wildlife Service simply stated that "there are currently no federally endangered or threatened species known to occur at the project locations. Therefore, this precludes the need for further action on this project as required under Section 7 of the Endangered Species Act of 1973, as amended." The email requested further consultation should the project area change. The second letter prepared by Mr. Tony Sullins dated May 19, 2009 provided additional information regarding the project in the context of the Migratory Bird Treaty Act (MBTA) and the Endangered Species Act (ESA). The letter reconfirmed the original finding that the USFWS currently has "no records of federally-

listed threatened or endangered species or critical habitat at the project site." The USFWS did recommend concentrating turbines in the southwestern portion of the project parcel away from Oak Glen and Aurora WMAs. The Straight Creek WPA, and potential setbacks, was not mentioned in this letter.

A response letter was received from Ms. Lisa Joyal dated December 5, 2008 (Correspondence # ERDB 20090267) in reply to a Minnesota Natural Heritage Information System (NHIS) database search request. Based on the query, several rare features were identified within the search area including several WMAs, a calcareous fen, prairie remnants, the loggerhead shrike, and red-necked grebes and sandhill crane breeding areas. The letter strongly encouraged pre-construction surveys and consideration of alternate locations for the proposed wind farm. A second letter was received from Ms. Joyal dated April 9, 2009 (Correspondence # ERDB 20090267-0001b). The updated NHIS database search indicated the following:

- *"Three juvenile and nine adult Henslow's sparrows were observed last year in a CRP field within the project boundary in the SW¼ of T106N, R19W, Section 29. Given that this is a decent size population for this species, there is potential for the birds to return to this area to breed in future years. As such, we recommend that ground disturbance within this CRP field be avoided. If this is not feasible, any construction within this field will need to occur outside of the breeding season."*

In response to the DNR letters requesting pre-construction surveys for state-listed birds, Oak Glen Wind Farm, LLC engaged two firms to complete studies within the region during the 2009 field season. WEST, Inc. (WEST) was chosen to complete Site Characterization and Wildlife Baseline Studies for the project area between April and November, and Graham Environmental Services, Inc. (GES) was hired to complete loggerhead shrike and Henslow's sparrow surveys.

The WEST, Inc. Site Characterization Study (*Site Characterization Study of the Oak Glen Wind Farm Resource Area* –report attached) dated November 5, 2009 evaluated a windfarm boundary quite different than the one ultimately proposed in the MPUC site permit application, and the one submitted for comment on January 7, 2010 to various regulatory agencies. The original boundary was comprised of five smaller areas, two of which were further north near the Aurora Wildlife Management Area. The primary conclusions/findings of the report were:

- *Project developments in areas with less wetlands and native grasslands would likely have lower impacts to wildlife,*
- *Adult and juvenile Henslow's sparrows, a Minnesota endangered species, were observed in 2008 within the project area,*
- *The loggerhead shrike, a Minnesota threatened species, has been documented multiple times in two years in the vicinity of the project area,*
- *Many species of raptors could be found in or near the project area based on ranges; however, no topographic features exist that would concentrate raptor use,*

- *Care should be taken in placing turbines in close proximity to the Steele County landfill due to the concentration of gulls and crows, and*

- *Maximizing distances from open water and wetlands should decrease the potential for bat interactions.*

GES completed pre-construction loggerhead shrike and Henslow's sparrow surveys on five separate parcels between April 15 and July 10, 2009 (*Oak Glen Wind Farm Project Loggerhead Shrike and Henslow's Sparrow Surveys* – report attached). Surveys were conducted three times during this time period for each bird species. The study found the following:

- *A total of 45 occurrences of Henslow's sparrows were documented on one of the parcels reviewed for the Oak Glen Wind Farm during the spring survey period, although some of these occurrences might represent re-counting of the same individuals,*

- *Henslow's sparrows were not observed on grassland habitats in any other Oak Glen Wind parcels during the survey period. All occurrences were observed on a parcel located north of County Route 4, directly northwest of Bixby.*

- *No observations of loggerhead shrikes were made on parcels within the Oak Glen Wind project boundary or on lands adjacent to these parcels.*

WEST completed pre-construction bird surveys over a 12,911-acre area containing the current project boundary submitted within the MPUC site permit application and the areas surveyed by GES for Henslow's sparrows and loggerhead shrike (*Wildlife Baseline Studies for the Oak Glen Wind Resource Area, Steele County, Minnesota* – report attached). Fixed-point surveys were conducted from April 1 through November 13, 2009 at 10 points established throughout the Oak Glen Wind Farm area (see attached report). Raptor nests were not observed during the course of this study, but specific surveys for raptor nests were not conducted. The study made the following conclusions:

- *The surveys documented significant use by waterbirds (i.e. gulls) in the vicinity of the Steele County landfill,*

- *There was a documented higher use at observed points near the landfill by large corvids, raptors, vultures, and passerines,*

- *Gulls and American crows appear to be using the landfill as a foraging area,*

- *Consideration of the high use of the landfill should be included when deciding to place turbines in the vicinity of this facility,*

- *Raptor use at Oak Glen Wind Farm was compared to 37 other wind facilities implementing similar protocols. Comparatively, Oak Glen Wind Farm ranks low to moderate for raptor use. Raptor fatality rates would be similar to those*

observed at sites in Oregon and Washington, where rates have been relatively low.

- *Minimizing impacts to the grassland and wetland areas should lower potential displacement impacts to breeding birds.*

Recent Comment Letters Received

Letters from both the Minnesota DNR and USFWS touched on a variety of issues including DNR public waters and meandered public waters, Wildlife Management Areas, State Waterfowl Refuge Areas, Waterfowl Production Areas, wetlands, shorelands, grasslands, calcareous fens, rare species, migratory birds, federal and state land preservation programs, among others. The Oak Glen Wind Project team recognizes that there are a multitude of issues related to LWECS and related infrastructure siting, and are balancing those identified by regulatory agencies with others such as energy efficiency and suitability for wind development, transmission availability, land lease agreements, construction logistics, noise receptors, nearby residents, transportation and roadways, utilities, aeronautics (e.g. nearby airports and airstrips), public safety, telecommunications, existing mining operations, and cultural resources, to name a few. This multitude of factors can render certain natural resources unavoidable.

However, in response to pre-construction surveys and site characterization studies previously identified and discussed, and through assistance from respective agencies, Oak Glen Wind Farm, LLC voluntarily adjusted the boundaries of the project site to avoid impacts to identified sensitive resources to the degree practicable. Originally five separate and discontinuous polygons, the project has since been reduced in size to condense the overall project into a single footprint. This will have an overall effect of minimizing the regional impacts of the project on the landscape by concentrating the turbines and roads in one geographic area. It will also make the project more efficient by reducing the required distance of new access roadway necessary to service the arrays.

The project footprint was purposefully moved southward to create distance between the project and a known population of Henslow's sparrow (northwest of Bixby) identified by DNR staff and confirmed by GES surveys during spring/summer 2009. By doing so, the project also created distance from the Aurora Wildlife Management Area and eliminated some relatively large areas of grassland located near this WMA. Minimizing impacts to grassland should lower potential displacement impacts to breeding birds, including loggerhead shrike and Henslow's sparrow.

The portion of the project containing the Steele County landfill was also eliminated from the project area. This was done in response to results identified within the WEST report *Wildlife Baseline Studies for Oak Glen Wind Resource Area*. The report recognized the landfill area as a hotspot for many avian species including raptors, gulls, vultures, corvids, and passerines. In fact, the majority of large bird and waterbird observations were made at points 1 through 4, located in the northern tier of the original project area (now eliminated).

A small portion of the project area located east of U.S. Highway 218 and north of Oak Glen Lake was eliminated from the project footprint. This was done partially to reduce potential impacts to

the colony of red-necked grebes documented to be nesting on Oak Glen Lake in 2007 and 2008. It also served to reduce potential impacts to WMAs by moving this area away from the Oak Glen Wildlife Management Area. Potential for impacts to know prairie remnants along the I&M railroad have also been reduced by eliminating the need to cross U.S. Highway 218 with utilities.

As described above, Oak Glen Wind Farm, LLC has used the results of various technical studies, and comments from regulatory agencies, in modifying plans for the Oak Glen Wind Farm Project to avoid direct impacts to the following sensitive landscape resources and features:

- MCBS sites of biodiversity including native prairie remnants and calcareous fens,
- Known populations of sensitive species including loggerhead shrike, Henslow's sparrow, and red-necked grebes,
- Three Waterfowl Management Areas (WMAs),
- Two Waterfowl Production Area (WPAs),
- Reinvest in Minnesota (RIM) easement lands, and
- Oak Glen Lake, Rickert Lake, and associated shoreland areas.

In addition, Oak Glen Wind will be coordinating with Farm Service Agency (FSA) staff to properly identify Conservation Reserve Program (CRP) lands within the project area, and plans to avoid these areas to the extent practicable.

Response to Minnesota DNR
The February 17, 2010 comment letter prepared by Mr. Kevin Mixon mentions that the Myron Buelow Wildlife Management Area is adjacent to the project area and that the DNR recommends that no direct impacts occur to these recreational lands from construction. The letter also indicates that a 5RD buffer should be established around all WMAs. Oak Glen Wind values the DNRs comments and has incorporated the standard 3 by 5 rotor diameter buffer as required by MPUC rules into the project layout. Once the final turbine selection for the project has been made, and setbacks evaluated, the Oak Glen Wind project team may be able to provide something larger than 3RD by 5RD to these non-participating lands.

At this time, Oak Glen Wind does not plan to place turbines within 1,000 feet of public waters or wetlands, or within 300 feet of public watercourses. Oak Glen Wind is not aware of meander public waters existing within the project boundary as described within the February 17 letter. At this time it appears that utility and road crossing would be required in at least one location to support access roads and cable crossings. Oak Glen Wind will apply for the appropriate licenses and permits for these activities through DNR Division of Waters and the DNR Division of Lands and Minerals.

Mr. Mixon's letter recommends a buffer to wetlands and perennial streams of 600-feet that provide significant habitat value. It is Oak Glen Wind's intention to avoid wetlands to the degree possible given the extent of access roads and cables required to support this 44MW wind project. Jurisdictional wetland delineation within proposed cable and road corridors will be completed this spring/summer. Consequently, it is difficult to predict exactly what buffers to

wetland can be provided at this time. However, Oak Glen Wind anticipates that some level of buffering to most jurisdictional wetlands can be provided. Wetland impacts for the project will likely fall under a Wetland Conservation Act (WCA) deminimis exemption category, and be limited to drainage ditch and watercourse crossings to support access roads. In an effort to minimized turbine and wildlife interactions, Oak Glen Wind will strategically site wind turbines away from wetlands to the degree practicable. Oak Glen Wind will also be required to develop a Stormwater Pollution Prevention Plan (SWPPP) for the project and will acquire the necessary Construction Stormwater Permits from the MPCA to ensure that adjacent waters and wetlands are sufficiently protected from indirect impacts from erosion and sedimentation. Part of this permit will require revegetation of disturbed soils to reduce the potential for erosion and colonization of non-native and invasive weed species.

Grasslands comprise about 11 percent of the overall project area according to available land cover mapping from the National Land Cover Dataset 2000, with cropland comprising approximately 75 percent. Oak Glen Wind recognizes the importance of grassland habitat for wildlife, and purposefully sited the project within a portion of the county containing minimal grassland acreage to reduce impacts to wildlife routinely relying on and utilizing grassland habitat. Oak Glen Wind minimized impacts to grassland within the project area by avoiding, to the degree possible, areas of higher value for wildlife such as WMAs, WPAs, RIM easement lands, and CRP. The previously described decision to move the project further south away from Aurora Wildlife Management Area was partially in response to the need to reduce impacts to existing grasslands.

The February 18, 2010 letter prepared by Ms. Lisa Joyal discusses the calcareous fen located in the Pagones Wildlife Management Area. Oak Glen Wind is aware of the calcareous fen and has consequently worked to maximize the separation between the WMA and fen. Because of the nature of maximizing production from the wind resource, turbines are generally located on topographic highs. Consequently, significant dewatering is not likely to be necessary in these locations. Based on digital elevation mapping of the area provided in the MPUC site permit application, the Pagones WMA is situated significantly lower than the closest proposed turbine. Consequently, Oak Glen Wind does not anticipate interaction with the existing groundwater table during project construction. Should significant dewatering in this area of the project be determined necessary, Oak Glen Wind will work closely with the DNR to ensure that potential groundwater interactions supporting the fen are not disrupted.

Ms. Joyal also recommended post-construction monitoring. Oak Glen Wind plans to work with Office of Energy Security (OES) and DNR staff to determine the potential for and proper approach to post-construction avian studies and surveys.

Response to USFWS

The USFWS comment letter dated February 18, 2010 from Mr. Tony Sullins does not identify any federally threatened or endangered species within the project area, but mentions that the Minnesota dwarf trout lily is present within Steele County. Oak Glen Wind understands that if at any point during project planning, construction, or operation, additional information on listed or

proposed species becomes available or new species are listed, consultation should be reinitiated with the USFWS.

Mr. Sullin's letter mentions the record of a colonial waterbird nesting site on the large open water wetland to the northeast of the proposed project site. Given that grebe species tend to migrate at night, and appropriate lighting of turbines will be necessary to help minimize impacts to the red eared grebe and other night migrants, Oak Glen Wind will work with the FAA and the DNR to appropriately light turbines to maximize both public and wildlife safety.

The Service recommends that no turbines be located within ¼-mile of Conservation Reserve Program (CRP), Wetland Reserve Program (WRP), or other similar federally- or state-funded restoration projects. The Service notes several CRP areas within the southern half of the proposed project boundary, and two large high quality WRP areas directly to the north of the proposed project boundary. Oak Glen Wind will coordinate with the FSA to identify CRP and WRP lands within the project area and avoid them to the degree possible. It is the goal of the project proposers to site turbines on agricultural lands to the degree practicable, while avoiding more natural habitats such as wetlands, grasslands, and woodlands.

The Service also indicated that the Straight Creek Waterfowl Production Area (WPA) is located near the southwestern corner of the project area. Oak Glen Wind is aware of the WPA, and have preliminarily sited turbines approximately ½-mile north/northeast of the WPA to minimize potential interactions with wildlife. Regardless of the final layout, Oak Glen Wind will treat the parcel as a nonparticipating land unit and maintained at least a 3RD by 5RD rotor diameter distance from this parcel.

The USFWS mentioned the Migratory Bird Treaty Act (MBTA) and recommended practices to minimize potential impacts on migratory birds. The Oak Glen Wind project team understands that the MBTA prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests. Oak Glen Wind also understand that the USFWS has protected migratory birds by using enforcement, prosecutorial discretion, and relationships with private entities to encourage good faith efforts to minimize avian impacts and the potential for an "incidental take" of migratory birds. The Oak Glen Wind project is implementing many of the practices listed by the USFWS (e.g., ranking habitats, avoiding federally-listed species, avoiding avian concentration areas, avoiding fragmentation of large habitats, using tubular steel towers, etc.). Although the Oak Glen Wind planning process is implementing actions to minimize potential effects on migratory birds, some birds may be killed by wind turbines and power lines, even if all reasonable measures to protect them are implemented. Oak Glen Wind plans to work with OES and USFWS staff to determine the potential for and proper approach to post-construction avian studies and surveys.

Siting Turbines Responsibly

The Oak Glen Wind Project team has identified many of the same natural resources and sensitive habitats acknowledged in the comment letters, voluntarily undertaken pre-construction surveys and studies, and sited turbines in a responsible manner in response to those findings. While

conservation lands and other habitats are present in the project vicinity, the project layout itself minimizes impacts to managed lands, sensitive habitats, rare species, and suitable stopover habitat for migrating birds and bats by concentrating project development within a central core of predominantly agricultural land cover.

Conclusions

The Oak Glen Project team values the comments provided by DNR and USFWS staff, and recognized the importance of proper planning and siting wind power projects to responsibly avoid unnecessary impacts to avian species and previously identified higher value habitats for wildlife. As hopefully demonstrated in this letter, Oak Glen Wind has thoughtfully sited the turbines within the project area based on findings from three voluntarily initiated preconstruction studies and comments from regulatory agencies. The project has been sited to make use of an agricultural core area between more sensitive landscape features. By doing so, Oak Glen Wind has purposefully planned for the more sensitive areas to remain at the periphery of the project to reduce, to the degree possible, interactions between wind turbines and avian species.

The project area will likely be occupied by avian species at various times of the year. However, use will probably be limited to foraging in agricultural areas, which generally occurs at elevations well below the rotor swept height of the turbines proposed. Consequently, from an ecological perspective, Oak Glen Wind submits that the project site is suitable for wind energy development and impacts to birds and bats are anticipated to be relatively minor due to siting within core agricultural areas and persistent avoidance of high value habitat areas.

We respectfully request USFWS and DNR concurrence that the Oak Glen Wind Project planning process includes good faith efforts to minimize effects on migratory birds and bats. Please contact me at david.weetman@westwoodps.com or (952) 906-7419 if you have questions or would like additional information.

Sincerely,

WESTWOOD PROFESSIONAL SERVICES

David M. Weetman, PWS, WDC
Senior Environmental Scientist

Attachments:

1) *Site Characterization Study of the Oak Glen Wind Farm Resource Area*, WEST, Inc., November 5, 2009.
2) *Oak Glen Wind Farm Project Loggerhead Shrike and Henslow's Sparrow Surveys*, Graham Environmental Services, Inc., August 11, 2009.
3) *Wildlife Baseline Studies for the Oak Glen Wind Resource Area, Steele County, Minnesota*, WEST, Inc., February 23, 2010.

cc: Mr. Tony Sullins, U.S. Fish and Wildlife Service; Mr. Kevin Mixon, Minnesota Department of Natural Resources; Ms. Lisa Joyal, Minnesota Department of Natural Resources

Minnesota Department of Natural Resources

Division of Ecological Resources – Reg. 4
261 Hwy 15 South
New Ulm, MN 56073-8915
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February 17, 2010

David Weetman
Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

In re: Oak Glen LWECS
Preliminary Review
Steele County, MN

Dear David:

The Minnesota Department of Natural Resources (DNR) has received information concerning the above referenced wind project. The DNR is providing the following recommendations as a mechanism to collaboratively work together to identify and avoid the natural resources that are found within the project area.

Issues concerning rare features should be identified and resolved prior to applying for the PUC Site Application Permit. To receive information regarding rare features in the vicinity of the proposed project, submit a Natural Heritage Information System (NHIS) request form (**http://files.dnr.state.mn.us/eco/nhnrp/nhis_data_request.pdf**). The NHIS contains important information on the distribution of Minnesota's rare plants, animals, and native plant communities. This information will be useful in the planning of your wind project and should be requested early in the planning process. In addition, significant natural areas identified by the Minnesota County Biological Survey (MCBS Sites of Biodiversity Significance, MCBS Native Plant Communities, and MCBS Railroad Rights-of-Way Prairies) are available as GIS shape files and can be downloaded at no cost from the DNR Data Deli at http://deli.dnr.state.mn.us/. Please contact Lisa Joyal, Natural Heritage Review Coordinator, at 651-259-5109 for more information on the NHIS review process.

Myron Buelow Wildlife Management Area (WMA) is adjacent to the project area. The DNR recommends that no direct impacts occur to these public recreational lands from tower construction, transmission lines, substations, or road networks associated with the project. In addition, a buffer should be established around all WMA that is a minimum of five times the rotor blade diameter. In some instances the DNR may recommend a greater buffer from WMA if they have unique characteristics that warrant a higher level of protection. This buffer may be re-evaluated as the project progresses if more information on sensitive resources associated with the WMA are discovered. State Wildlife Management Area boundaries can be downloaded from the DNR Data Deli (http://deli.dnr.state.mn.us/).

Minnesota has established and designated public waters (Minnesota Statute 103G.005, 103G.201) and developed a regulatory structure to protect and guide sustainable use of those resources. The wind access buffer of 5 rotor diameters (north/south axis) and 3 rotor diameters (east/west) shall be applied to all meandered public waters due to the State of Minnesota ownership rights associated with those parcels and because those parcels are not under easement by the applicant. In order to determine the locations of meandered public waters go to: http://www.lmic.state.mn.us/glo/. Locate the township and range of where the project is and enter it on the right hand side of the screen. Due to the type of mapping available it will be difficult to determine exactly where the meandered public water boundary is located. Under these circumstances the DNR recommends the use of the ordinary high water level in order to circumvent the need for a field survey.

The DNR recommends appropriate buffers be established around all other (non-meandered) public waters in order to reduce potential avian avoidance of the public water and its associated habitat and to reduce avian and bat mortality. Avian avoidance of wetlands (including public waters) occurs when birds no longer use the habitat for resting, feeding, or nesting because the turbines height, noise, shadow flicker, or use of the access road creates a stress factor that results in them avoiding the area. Avian and bat mortality occurs when they strike the turbine and are injured or killed. Buffalo Ridge mortality studies indicated turbines with avian mortality were significantly closer to wetlands (1430.45 feet) than turbines without avian mortality (1,948.82 feet). The presence of NHIS tracked species will also be considered by the DNR when making buffer recommendations. The buffers may be re-evaluated if more information on sensitive resources associated with the area is known or as the project becomes more defined.

Placing turbines, access roads, or other infrastructure in close proximity to wetlands (non-meandered, non-public water) may result in avian avoidance of the wetland and its associated habitat and may result in increased avian and bat mortality. The general DNR recommended buffer to wetlands (FWS Circular 39 Type III-VIII) and perennial streams that provide significant habitat value is 600 feet. The DNR may recommend buffers for some Type I and II wetlands that contain high habitat value based on a project-by-project basis. The DNR wetland buffer is consistent with prior DNR recommendations to counties during their development of county wind ordinances. Numerous counties have adopted the 600 foot wetland setback distance into their wind ordinance. Further coordination should occur with the DNR in situations where the project proponent feels the wetland buffer should not apply.

Project developers crossing (over, under, or across) any state land or public water with any utility (power lines, including feeder lines) need to secure a DNR license to cross (Minnesota Statue 84.415). Information on how to obtain a License for Utility can be found at http://www.dnr.state.mn.us/permits/utility_crossing/index.html. For information on where the Public Waters are located in your project area go to the following site and click on the Public Waters Inventory (PWI) Maps Download button:
http://www.dnr.state.mn.us/waters/watermgmt_section/pwi/download.html

Grassland habitat that is greater than 40 acres in size has been shown to have an increased diversity of species and provide habitat for area sensitive species. Area sensitive species select larger blocks of habitat for nesting and when that habitat is fragmented by turbines, access roads, or substations it may result in species avoiding the area or lower nesting success. Consideration should also be given to a complex of smaller sized grassland patches that are in close proximity to each other and when combined provide suitable habitat for colonization by grassland birds. In many instances this habitat will be Conservation Reserve Program, Conservation Reserve Enhancement Program, Reinvest In Minnesota (RIM), restored prairie, or be in another easement program. Large grassland habitat should be avoided and an appropriate buffer should be established in order to avoid and minimize the fragmentation affect. In addition, mortality from operational turbines is likely to increase when they are constructed in close proximity to large blocks of grassland habitat that have concentrated bird and bat activity.

The area also contains numerous tracts of Waterfowl Production Areas that are managed by the U.S. Fish and Wildlife Service (USFWS). Rich Davis (612-725-3548) of the USFWS needs to be contacted in order to coordinate potential impacts and setbacks from these federally managed lands. In addition, you should also inquire about any USFWS conservation easements that may occur in the project area.

The US Fish and Wildlife Service guidelines to avoid and minimize impacts to wildlife from wind development should be adhered to as part of the project. The guidelines and additional information can be found at the following site:
http://www.fws.gov/habitatconservation/Service Interim Guidelines. PDF

The DNR looks forward to working in a positive and collaborative manner on this project to ensure that sustainable energy sources are developed while protecting Minnesota's natural resources. Please contact me directly at 507-359-6073 if you have any questions.

Very truly yours,

Kevin Mixon
Regional Environmental Assessment Ecologist

Cc: Lisa Joyal, DNR
Jamie Schrenzel, DNR
Randall Doneen, DNR
John Schladweiler, DNR
Ken Varland, DNR
Paul Hansen, DNR
Jeanine Vorland, DNR
Lisa Gelvin-Innvaer, DNR
Bob Hobart, DNR
Cheryl Kelly-Dobie, DNR
Ben Schaefer, DNR
Rich Davis, U.S. FWS

United States Department of the Interior

FISH AND WILDLIFE SERVICE
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February 18, 2010

David M. Weetman
Westwood Professional Services
7699 Anagram Drive
Eden Prairie, Minnesota 55344-7310

Re: Oak Glen Wind Farm Review, Steele County, Minnesota
FWS TAILS #32410-2010-CPA-0031

Dear Mr. Weetman:

This is in response to your January 7, 2010, request for our review of the proposed Oak Glen Wind Farm in Steele County, Minnesota. The proposed project includes the installation of wind turbines, and associated infrastructure including roads, transmission lines, and staging areas. The macro-siting project boundary sent to our office covers a total area of approximately 3,800 acres located in all or parts of sections 3 -5, 7 -10, 16, and 17, Township 105 North, Range 19 West, Steele County, Minnesota.

The following comments are being provided pursuant to the Endangered Species Act (ESA), Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act, and Fish and Wildlife Act of 1956. This information is being provided to assist you in making an informed decision regarding wildlife issues, site selection, project design, and compliance with applicable laws.

The Service has been in contact with the DNR as they have developed recommended survey protocols and site evaluations that will satisfy both state and federal wildlife statutes, and this letter describes these measures, in part. We appreciate your early coordination with both the Service and the DNR, and recommend continued collaboration on this project to ensure wildlife and habitat issues are fully and appropriately addressed.

The Fish and Wildlife Service supports the development of wind power as an alternative energy source. However, wind farms can have negative impacts on wildlife and their habitats if not sited and designed with potential wildlife and habitat impacts in mind. Selection of the best sites for turbine placement is enhanced by ruling out sites with known, high concentrations of birds and/or bats passing within the rotor-swept area of the turbines or where the effects of habitat fragmentation will be detrimental. In support of wind power generation as a wildlife-friendly, renewable source of power, development sites with comparatively low bird, bat and other wildlife values would be preferable and would have relatively lower impacts on wildlife.

The Service recommends that impacts to streams and wetlands be avoided, and buffers surrounding these systems be preserved. Streams and wetlands provide valuable habitat for fish

and wildlife resources, and the filtering capacity of wetlands helps to improve water quality. Naturally-vegetated buffers surrounding these systems are also important in preserving their wildlife-habitat and water quality-enhancement properties. Furthermore, forested riparian systems (wooded areas adjacent to streams) provide important stopover habitat for birds migrating through the region.

The proposed activities do not constitute a water-dependent activity, as described in the Section 404(b)(1) guidelines, 40 CFR 230.10. Therefore, practicable alternatives that do not impact aquatic sites are presumed to be available, unless clearly demonstrated otherwise. Therefore, before applying for a Section 404 permit, the client should closely evaluate all project alternatives that do not affect streams or wetlands, and if possible, select an alternative that avoids impacts to the aquatic resource. If water resources will be impacted, the St. Paul District of the Corps of Engineers should be contacted for possible need of a Section 404 permit.

Federally-listed Threatened, Endangered, and Candidate Species

Because of the potential for wind power projects to impact federally-listed species, they are subject to the Endangered Species Act (16 U.S.C. 1531-1544) section 9 provisions governing "take," similar to any other development project. "Take" incidental to a lawful activity may be authorized through the initiation of formal consultation, if a Federal agency is involved. If a federal agency, federal funding, or a federal permit are not involved in the project, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA may be obtained upon completion of a satisfactory habitat conservation plan for the listed species. However, there is no mechanism for authorizing incidental take after the project is constructed and operational.

Currently Minnesota dwarf trout lily (Endangered) is present within Steele County. Our records do not indicate any individuals within the proposed macro-siting boundary. At any point during project planning, construction, or operation should additional information on listed or proposed species become available, or new species are listed that may be affected by the project, consultation should be reinitiated with the Twin Cities Field Office.

Migratory Birds

The Migratory Bird Treaty Act (16 U.S.C. 703-712; MBTA) implements four treaties that provide for international protection of migratory birds. The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Bald and golden eagles are afforded additional legal protection under the Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d). Unlike the Endangered Species Act, neither the MBTA nor its implementing regulations at 50 CFR Part 21, provide for permitting of "incidental take" of migratory birds.

Monitoring should be conducted to assess the daily movement patterns of any species of raptor whose nest is located within the proposed project site or within two miles of the proposed project site. During the incubation and rearing stage, the location of adult birds should be tracked for at

least 4 hours twice per week until consistent activity patterns are established. These monitoring dates will be determined based upon identified species within two miles of the project boundary. Alternate monitoring strategies that assess the degree to which nesting birds utilize the proposed project site will be considered. Information collected will be used to document how frequently the birds enter the proposed project site, and this information can be utilized during micro-siting to minimize substantial risks to birds within close proximity of the project site.

Shoreland bird and waterfowl species are prevalent in areas adjacent to the proposed project area and possibly within the proposed project area. We recommend that surveys be completed to determine bird species that may be moving through the proposed project area and in areas adjacent to the proposed project area during spring and fall migration, and to identify bird species that may be in the area throughout the summer.

The Service's Office of Law Enforcement serves its mission to protect federal trust wildlife species in part by actively monitoring industries known to negatively impact wildlife, and assessing their compliance with Federal law. These industries include oil/gas productions sites, cyanide heap/leach mining operations, industrial waste water sites, and wind power sites. There is no threshold as to the number of birds incidentally killed by wind power sites, or other industry, past which the Service will seek to initiate enforcement action. However, the Service is less likely to prioritize enforcement action against a site operator that is cooperative in seeking and implementing measures to mitigate take of protected wildlife.

Migratory Bird Concentration Areas and Conservation Lands

Minnesota Natural Heritage Database indicates a record of a colonial waterbird nesting site on the large open water wetland to the northeast of the proposed project site. The species indicated in the record is the red eared grebe. Grebe species tend to migrate at night, and appropriate lighting of turbines will be necessary to help minimize impacts to the red eared grebe and other night migrants. At this time the Service recommends the use of white strobe lights for wind turbine facilities.

The Service is committed to conservation on a large landscape scale, and the proposed Oak Glen Wind Project site is located within an area of high conservation value, particularly for migratory waterfowl species. The landscape in this area of Steele County has a collection of privately, Federally, and State-owned permanent and temporary high quality conservation lands. Waterfowl movement throughout the proposed project site and adjacent conservation lands is generally high throughout the year. Negative impacts to these habitat areas, utilization of habitat, and potential for bird strike should be weighed heavily by the project proponent as they move forward with their plans.

We recommend that no turbines be located within ¼ mile of Conservation Reserve Program (CRP), Wetland Reserve Program (WRP), or other similar federally- or state-funded restoration projects. There are several CRP areas within the southern half of the proposed macro-siting boundary, and two large high quality WRP areas directly to the north of the proposed macro-

siting boundary. A State Waterfowl Refuge Area is located directly adjacent to the southeast corner of the proposed project boundary.

Service-owned Lands

The Straight Creek Waterfowl Production Area (WPA) is located directly adjacent to the southwest corner of the project site. Should the proposed project move forward into the micro-siting phase the Service recommends that no turbines be placed within ½-mile of the Straight Creek WPA, and if feasible a 1-mile buffer between the WPA and any turbines would be preferred.

Interim Service Guidelines

Research into the actual causes of bat and bird collisions with wind turbines is limited. To assist Service field staffs in review of wind farm proposals, as well as aid wind energy companies in developing best practices for siting and monitoring of wind farms, the Service published *Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines* (2003). We encourage any company/licensee proposing a new wind farm to consider the following excerpted suggestions from the guidelines in an effort to minimize impacts to migratory birds and bats.

1) Pre-development evaluations of potential wind farm sites to be conducted by a team of Federal and/or State agency wildlife professions with no vested interest in potential sites;

2) Rank potential sites by risk to wildlife;

3) Avoid placing turbines in documented locations of federally-listed species;

4) Avoid locating turbines in known bird flyways or migration pathways, or near areas of high bird concentrations (i.e., rookeries, leks, refuges, riparian corridors, etc.);

5) Avoid locating turbines near known bat hibernation, breeding, or maternity colonies, in migration corridors, or in flight paths between colonies and feeding areas;

6) Configure turbine arrays to avoid potential avian mortality where feasible. Implement storm water management practices that do not create attractions for birds, and maintain contiguous habitat for area-sensitive species;

7) Avoid fragmenting large, contiguous tracts of wildlife habitat;

8) Use tubular supports with pointed tops rather than lattice supports to minimize bird perching and nesting opportunities;

9) If taller turbines (top of rotor-swept area is greater than 199 feet above ground level) require lights for aviation safety, the minimum amount of lighting specified by the Federal

Aviation Administration (FAA) should be used. Unless otherwise requested by the FAA, only white strobe lights should be used at night, and should be of the minimum intensity and frequency of flashes allowable. Red lights should not be used, as they appear to attract night-migrating birds at a higher rate than white lights;

10) Adjust tower height to reduce risk of strikes in areas of high risk for wildlife.

The full text of the guidelines is available at http://www.fws.gov/habitatconservation/wind.pdf. The Service believes that implementing these guidelines may help reduce mortality caused by wind turbines. We encourage you to consider these guidelines in the planning and design of the project. We particularly encourage placement of turbines away from any large wetland, stream corridor, or wooded areas, and avoiding placing turbines between nearby habitat blocks.
If this proposal is to move forward, we strongly recommend that on-the-ground surveys using radar, infrared, and/or acoustic monitoring be conducted during the peak of spring and fall bird migrations and during the breeding season over a period of several years (consistent with the Service's *Interim Guidelines, op. cit.)* to identify breeding and feeding areas and migration stopover sites. Observations made from greater than ¼ mile of target areas are likely to be insufficient to accurately assess bird use of the landscape, particularly if the observer is moving. Generalized ground research survey protocols, such as those followed in the Waterfowl Breeding Population and Habitat Survey (Smith 1995) and the North American Breeding Bird Survey (Pardieck 2001), among others, often do not accept observations made at greater than ¼ mile from the observer due in part to high probabilities of missed detections (R. Russell, personal communication). Furthermore, spring and fall raptor migration surveys may be necessary, as will surveys to document movement patterns of bald eagles that may use the project area or surrounding habitat. We request that any on-the-ground survey protocols be consistent with the Service's Interim Guidelines (2003), and be coordinated with this office and with the Minnesota Department of Natural Resources prior to implementation.

Pre-Construction Surveys

The Service recommends that the project proponent and their consultants conduct rigorous assessments of bird and bat use of the area before proceeding with project design (i.e., preliminary siting of specific turbines). We strongly recommend development of a protocol for bird/bat surveys at this site, and specific consideration should be given to the movement of waterfowl species through the proposed project site. We encourage the project proponent to maintain consistency with other wind farm survey protocols, thus allowing us to compare results with other wind farm survey data. These comparisons will potentially provide valuable information that can be applied in future wind farm/turbine macro- and micro-siting.

In addition to on-the-ground (point or transect) surveys, we recommend that the assessments include the use of mobile, horizontally- and vertically-scanning radar to study the direction, altitude, and numbers of flying animals moving through and within the project area during the fall and spring migration of birds and bats, and the breeding period of birds in the area. We recommend that radar be employed for 24 hours a day, 7 days a week during migration, and at a

minimum from dawn to dusk during the breeding period. Radar studies are providing useful information in evaluating bird and bat activity at wind generation sites in Wisconsin, Vermont, Massachusetts and other locations. The use of radar coupled with ground-truthing (surveys) can provide a more complete assessment of bird and bat use of a potential wind project area than point counts or other traditional survey methods alone. Such information could inform project design and minimize potential mortality associated with the project.

We recommend installation of two AnaBat SDI detectors per meteorological tower to be used within the project area, and data should be collected from March 15 - November 15, 2010 and 2011. One AnaBat detector should be mounted at 5 meters above ground, and the other should be mounted as close to the rotor-swept area as possible. The AnaBat's sensitivity should be adjusted to detect a calibration tone at 20 meters. AnaBat units must monitor from 0.5 hour before sunset until 0.5 hour after sunrise. This will help to gauge bat activity and to some degree, to determine bat species/guild composition within the project area during spring and fall migration and the maternity season.

Post-Construction Surveys

The Service recommends the project be monitored post-construction to determine impacts to migratory birds and bats. A specific post-construction monitoring plan should be prepared and reviewed by the Service and should include a scientifically robust, peer reviewed methodology of mortality surveys. Generally the Service recommends that surveys be conducted for a minimum of three years following construction to assess impacts to birds and bats. The duration of post construction surveys is project specific and will be determined based upon pre construction survey results. We also recommend that the post-construction mortality studies be conducted by an independent third party contractor with expertise in bird/bat mortality monitoring. Results of mortality surveys and other forms of monitoring should be used to adjust operations to reduce mortality if necessary and feasible, as well as improve design and siting of future wind generation facilities. **The Developer or its contractor should provide to this office each year, no later than December 31, copies of annual bird/bat mortality monitoring reports.**

Infrastructure Considerations

Development of transmission infrastructure associated with wind facilities also poses risks to wildlife. These risks include potential avian mortality, particularly electrocution of raptors (hawks, eagles, kites, falcons, and owls), that could occur when they attempt to perch on uninsulated or unguarded power poles. Recently published information about which types of power line poles and associated hardware (e.g., wires, transformers and conductors) pose the greatest danger of electrocution to raptors and what modifications can be made to reduce this threat can be found on the internet at http://www.aplic.org/

Thank you for the opportunity to provide comments on this proposed project. Please contact Rich Davis, Fish and Wildlife Biologist, at (612) 725-3548, ext. 2214, to discuss the proposed Oak Glen Wind Project in greater detail.

Sincerely,

Tony Sullins
Field Supervisor

cc: Gerry Shimek, USFWS, Minnesota Valley WMD
Kevin Mixon, MN DNR
Jeannie Vorland, MN DNR

Minnesota Department of Natural Resources

Division of Ecological Resources, Box 25

500 Lafayette Road

St. Paul, Minnesota 55155-4025

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

February 18, 2010 **Correspondence # ERDB 20090267-0003**

Brie Anderson
Westwood Professional Services, Inc.
7699 Anagram Drive
Eden Prairie, MN 55344

RE: Natural Heritage information in the vicinity of the proposed Oak Glen Wind Farm;
T105N R19W Sections 3-5, 7-10, 16-17; Steele County

Dear Ms. Anderson,

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 revised project boundary. Based on this query, rare features have been documented within the search area (for details, see the enclosed database reports; please visit the Rare Species Guide at http://www.dnr.state.mn.us/rsg/index.html for more information on the biology, habitat use, and conservation measures of these rare species). Please note that the following **rare features *may* be impacted** by the proposed project:

- Several Wildlife Management Areas (WMAs) are located in the vicinity of the project area (please see the enclosed map; a GIS shapefile of the State Wildlife Management Area Boundaries can be downloaded from the DNR Data Deli at http://deli.dnr.state.mn.us/).

- A calcareous fen is located in the Pogones Wildlife Management Area just south of the project boundary. A calcareous fen is a rare and distinctive peat-accumulating wetland that is legally protected in Minnesota (please see the attached fact sheet). Calcareous fens are designated as "outstanding resource value waters" in water quality regulations administered by the MPCA (*Minnesota Rules*, part 7050.0180) and they are given special protection through *Minnesota Rules*, parts 8420.1010 to 8240.1060. The Wetlands Conservation Act, authorized by *Minnesota Statutes*, section 103G.223, states that calcareous fens may not be filled, drained, or otherwise degraded, wholly or partially, by any activity, except as provided for in a management plan approved by the commissioner of the Department of Natural Resources. Many of the unique characteristics of calcareous fens result from the upwelling of groundwater through calcareous substrates. Because of this dependence on groundwater hydrology, calcareous fens can be affected by nearby activities or even those several miles away.

  The DNR would have concerns regarding any activities that might affect groundwater flows, including groundwater pumping or discharge. Otherwise, impacts to the fen are unlikely. However, Doug Norris, DNR Wetlands Program Coordinator, would like to see a map of the final tower locations once they are determined. Doug can be reached at 651-259-5125 or Doug.Norris@state.mn.us.

- The Minnesota County Biological Survey (MCBS) has identified prairie remnants outside of the project boundary in the right-of-way of the I&M Railroad (please see the enclosed map; a GIS shapefile of MCBS Railroad Rights-of-Way Prairies can be downloaded from the DNR Data Deli at http://deli.dnr.state.mn.us/). Given that 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. As such, the prairies should be considered an avoidance area for any transmission lines or other utilities associated with the wind farm.

- 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.

- The Henslow's sparrow (*Ammodramus henslowii*), a state-listed endangered bird, was documented north of the project area in a CRP field in 2008 and 2009 (not on the enclosed reports). Henslow's sparrows prefer uncultivated grasslands and old fields with stalks for singing perches and with a substantial litter layer. This species may also occur within the project boundary if suitable habitat exists within the area.

- A colony of red-necked grebes (*Podiceps grisegena*) a Species in Greatest Conservation Need as identified in Minnesota's Comprehensive Wildlife Conservation Strategy (http://www.dnr.state.mn.us/cwcs/index.html), has been documented on Oak Glen Lake. The birds were actively nesting in 2007 and 2008 when checked. This species and other waterbirds are at risk for collisions with turbines and transmission lines.

  Given the proposed project's proximity to several WMAs and a breeding colony of a species in greatest conservation need, the potential for state-listed threatened and endangered birds to breed in the area, and the potential for wind turbines to cause avian mortality, we strongly encourage pre- and post-construction avian monitoring. Please send me a copy of the results from the bird monitoring that was conducted by WEST, Inc.

- 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.

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. For these concerns, please contact your DNR Regional Environmental Assessment Ecologist, Kevin Mixon, at 507-359-6073. Please be aware that additional site assessments or review may be required.

Thank you for consulting us on this matter, and for your interest in preserving Minnesota's rare natural resources. An invoice will be mailed to you under separate cover.

Sincerely,

Lisa Joyal

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: Calcareous Fens, Loggerhead Shrikes
Map

Links: Loggerhead Shrike
http://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=ABPBR01030
Henslow's Sparrow

http://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=ABPBXA0030

cc: Jamie Schrenzel
Kevin Mixon
Lisa Gelvin-Innvaer
Doug Norris

Printed January 2010
Data valid for one year

Minnesota Natural Heritage Information System
Index Report of records within 1 mile radius of:
ERDB #20090267-0003 - Oak Glen Wind Farm
Multiple TRS
Steele County

Rare Features Database:

Element Name and Occurrence Number	Federal Status	MN Status	State Rank	Global Rank	Last Observed Date	EO ID #
Vertebrate Animal						
Emydoidea blandingii (Blanding's Turtle) #26 T105N R19W S18, T105N R19W S19, T105N R20W S13 ; Steele County		THR	S2	G4	1956-05	1669
Lanius ludovicianus (Loggerhead Shrike) #207 T105N R20W S10, T105N R20W S11, T105N R20W S12, T105N R20W S13 ; Steele County	No Status	THR	S2B	G4	2007-07-17	34408
Animal Assemblage						
Colonial Waterbird Nesting Area (Colonial Waterbird Nesting Site) #835 T106N R19W S35, T105N R19W S3, T105N R19W S2, T106N R19W S34 ; Steele County		N/A	SNR	GNR	1991-09-05	13393
Freshwater Mussel Concentration Area (Mussel Sampling Site) #273 T105N R19W S17, T105N R19W S16 ; Steele County		N/A	SNR	G3	1987	19223
Vascular Plant						
Baptisia bracteata var. leucophaea (Plains Wild Indigo) #1 T106N R19W S35, T105N R19W S4, T105N R19W S2, T105N R19W S10, T [...] ; Steele County		SPC	S3	G4G5T4T5	1951-10-10	3712
Eryngium yuccifolium (Rattlesnake-master) #106 T106N R19W S34 ; Steele County		SPC	S3	G5	1998-07-28	23865
Eryngium yuccifolium (Rattlesnake-master) #107 T106N R19W S34, T105N R19W S3 ; Steele County		SPC	S3	G5	1998-07-28	23864
Eryngium yuccifolium (Rattlesnake-master) #108 T105N R19W S11 ; Steele County		SPC	S3	G5	1998-07-28	23862
Eryngium yuccifolium (Rattlesnake-master) #129 T105N R19W S3, T105N R19W S2 ; Steele County		SPC	S3	G5	1998-08-13	23880
Terrestrial Community - Other Classification						
Calcareous Fen (Southeastern) Type #44 (NPC Code: OPp93c) T105N R19W S18 ; Steele County		N/A	S1	GNR	2004-09-11	28256

Printed January 2010
Data valid for one year

Minnesota Natural Heritage Information System
Index Report of records within 1 mile radius of:
ERDB #20090267-0003 - Oak Glen Wind Farm
Multiple TRS
Steele County

Records Printed = 10

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.

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).

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).

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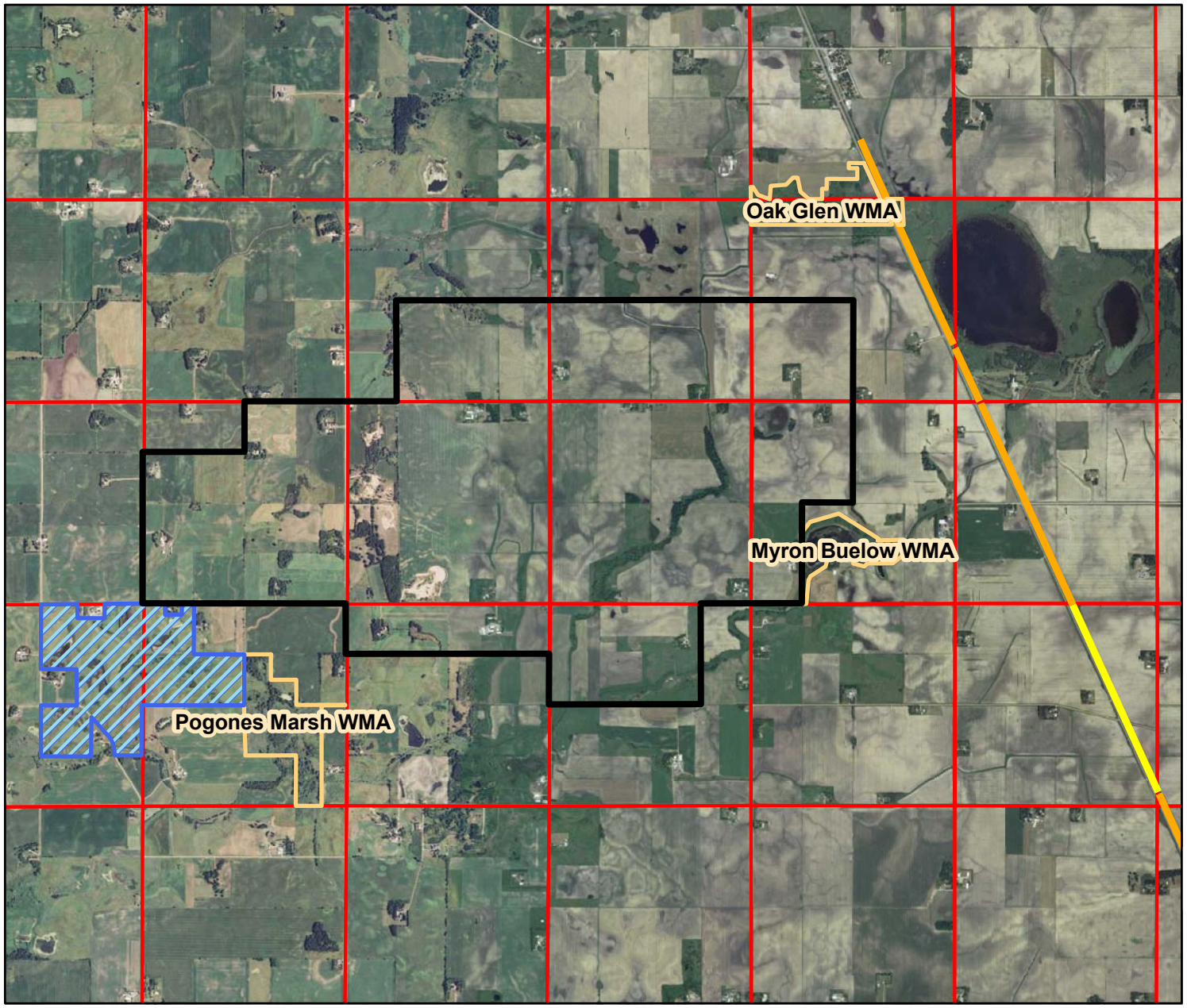
* Element Occurrence – an area of land and/or water in which an Element (i.e., a rare species or community) is, or was, present, and which has practical conservation value for the Element as evidenced by potential continued (or historical) presence and/or regular recurrence at a given location. Specifications 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.

ERDB #20090267-0003 - Oak Glen Wind Farm
T105N R19W Sections 3-5, 7-10, 16, & 17
Steele County



Legend

Oak Glen Wind

USFWS Waterfowl Production Areas

State Wildlife Management Area Boundaries

MCBS Railroad Rights-of-Way Prairies

- Very Good
- Good
- Fair

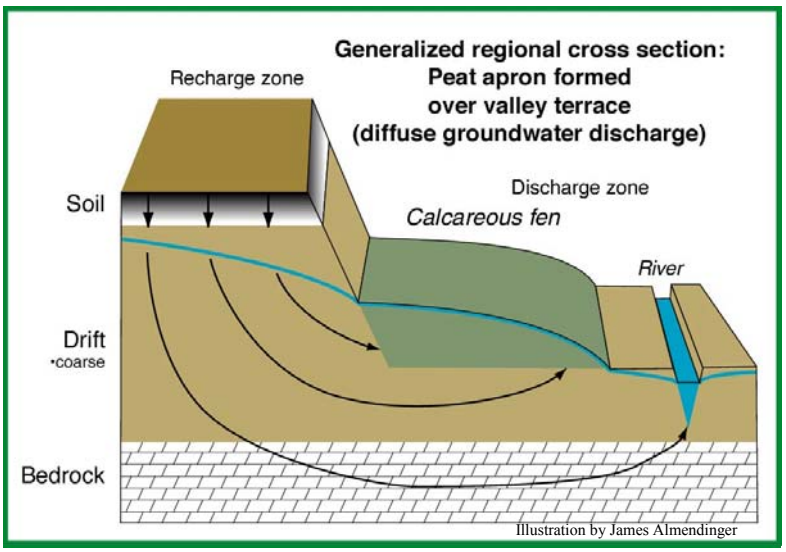
PLS Sections

0 0.5 1 2 Miles

N

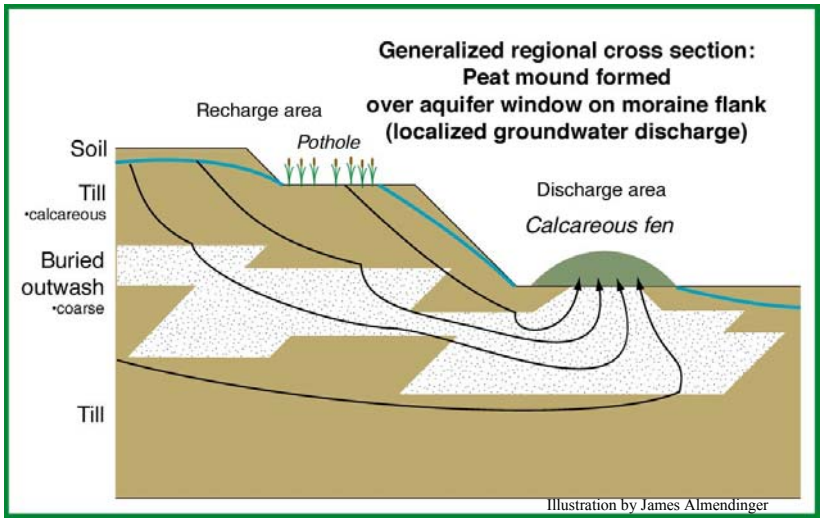
Rare Feature, Prairie Railroad Survey, Native Plant Community, and Sites of Biodiversity Significance data are from the Natural Heritage Information System. The absence of rare features for a particular location should not be construed to mean that the DNR is confident rare features are absent from that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

WHAT IS A CALCAREOUS SEEPAGE FEN?



Calcareous fens are rare and distinctive wetlands characterized by a substrate of non-acidic peat and dependent on a constant supply of cold, oxygen-poor groundwater rich in calcium and magnesium bicarbonates. This calcium-rich environment supports a plant community dominated by "calciphiles," or calcium-loving species. These fens typically occur on slight slopes where upwelling water eventually drains away and where surface water inputs are minimal. Sometimes they occur as domes of peat that grow to the height of the hydraulic head. These settings create an unusual wetland regime where the substrate is almost always saturated to the surface, but flooding is rare and brief. Shallow pools of water in which marl precipitates are typically present surrounded by low, tussocky, grass- and sedge-dominated vegetation. The substrate is springy or quaking underfoot. The figures above and below illustrate the geologic features and groundwater flows that lead to the formation of calcareous seepage fens.

HOW RARE ARE CALCAREOUS SEEPAGE FENS?



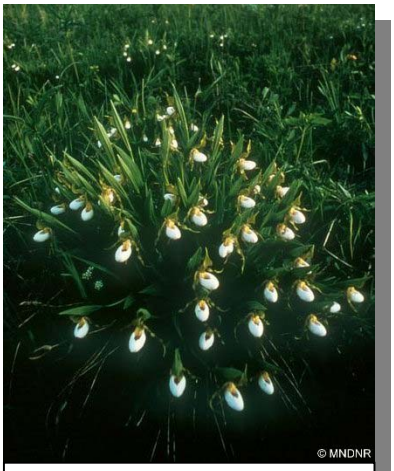
Calcareous seepage fens are one of the rarest natural communities in the United States. These fens have been reported from 10 states, mostly in the Midwest. Approximately 200 are known in Minnesota, most of which are only a few acres in extent. They are concentrated at the bases of terrace escarpments in river valleys in southeastern Minnesota, on the sides of morainal hills and valley sideslopes in southern and west-central Minnesota, and on the downslope side of beach ridges in the Glacial Lake Agassiz basin in the northwest. There are also a few in northern Minnesota where upwelling groundwater reaches the surface within large, more acidic peatlands.

WHY ARE CALCAREOUS SEEPAGE FENS PROTECTED?

In addition to the rarity of the community itself, calcareous seepage fens support a disproportionately large number of rare plant species in Minnesota, four of which (*) occur almost exclusively in this community. Eight state-listed, rare plant species are known from calcareous seepage fens:

*Carex sterilis**	Sterile sedge	State threatened
*Cladium mariscoides**	Twig-rush	State special concern
*Rhynchospora capillacea**	Fen beak-rush	State threatened
*Fimbristylis puberula**	Hairy fimbristylis	State endangered
Scleria verticillata	Nut-rush	State threatened
Eleocharis rostellata	Beaked spike-rush	State threatened
Valeriana edulis	Valerian	State threatened
Cypripedium candidum	Small white lady's slipper	State special concern

Calcareous seepage fens are highly susceptible to disturbance. Reduction in the normal supply of groundwater results in oxidation of the surface peat, releasing nutrients and fostering the growth of shrubs and tall, coarse vegetation that displaces the fen plants. Nitrogen-rich surface water runoff into fens promotes the invasion of aggressive exotic plants, especially reed canary grass, that also outcompete the fen plants. Flooding drowns the fen plants. The soft, saturated character of the peat makes almost any level of activity within them, by humans or domestic livestock, highly disruptive.



Small white lady's slipper

The DNR maintains a list of known calcareous fens, which is available at the DNR's website at:
http://files.dnr.state.mn.us/publications/waters/Calcareous_Fen_List.pdf.
Landowners interested in protecting or managing a calcareous fen should contact the DNR, Ecological Resources Division at 651-259-5125.

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?

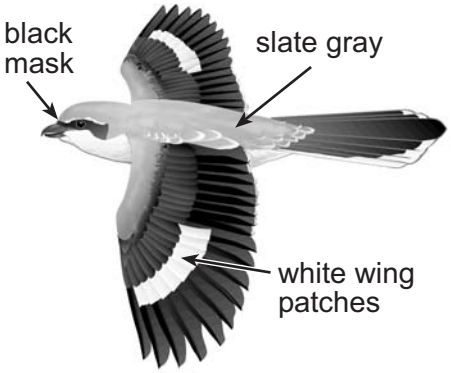
Loggerhead shrikes are special birds – an interesting cross between songbird and hawk. They feed on large insects such as grasshoppers and beetles, mice, small birds, frogs and toads. Shrikes spend much of their time perched on powerlines, fences or the top-most branches of trees and shrubs, scouting 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.

Loggerhead Shrike

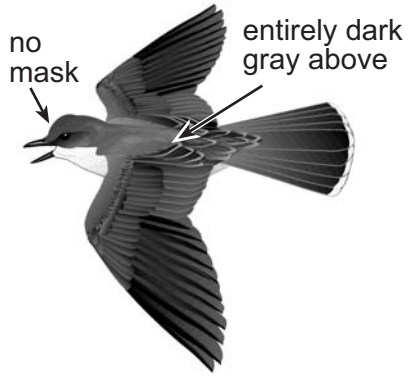


Where do they live?

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

Eastern Kingbird



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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.

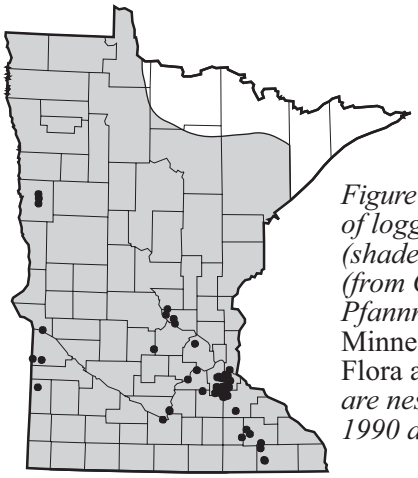

Figure 1. Historical range of loggerhead shrikes (shaded) in Minnesota. (from Coffin and Pfannmuller. 1988. Minnesota's Endangered Flora and Fauna). *Dots are nests found between 1990 and 1996.*

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 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 or locally contact:
(651) 297-3764
1-800 766-6000

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