

UMore Park Wind Turbine Project

Loggerhead Shrike Survey



Draft Report to Barr Engineering
Lee A. Pfannmuller
June 15, 2010

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Project Area

The University of Minnesota owns approximately 5,000 acres in Dakota County, known as the University of Minnesota Outreach, Research and Education (UMore) Park. A concept master plan was developed for the site and approved by the University's Board of Regents in December 2008. The University is now planning to construct a wind turbine in the northeast corner of the property for research purposes. The larger area outlined in orange in Figure 1, is the project boundary; the smaller area outlined in yellow is the site where the turbine will be located. Much of the project area is currently cropland, although there are small linear corridors along old roads that are lined by trees and shrubs. Figure 2 outlines the areas where trees will be removed as a part of the project.

Trees present on the project site include: Elm (*Ulmus* sp.), Hackberry (*Celtis occidentalis*), Cottonwood (*Populus deltoides*), Red Pine (*Pinus resinosa*), Aspen (*Populus tremuloides*), White Oak (*Quercus alba*), Red Oak (*Quercus borealis*), Eastern Red Cedar (*Juniperus virginiana*), Green Ash (*Fraxinus pennsylvanica*) and Box Elder (*Acer negundo*). Shrubs include Buckthorn (*Rhamnus* sp.), Sumac (*Rhus* sp.), Choke-cherry (*Prunus virginiana*) and Prickly Ash (*Zanthoxylum americanum*).

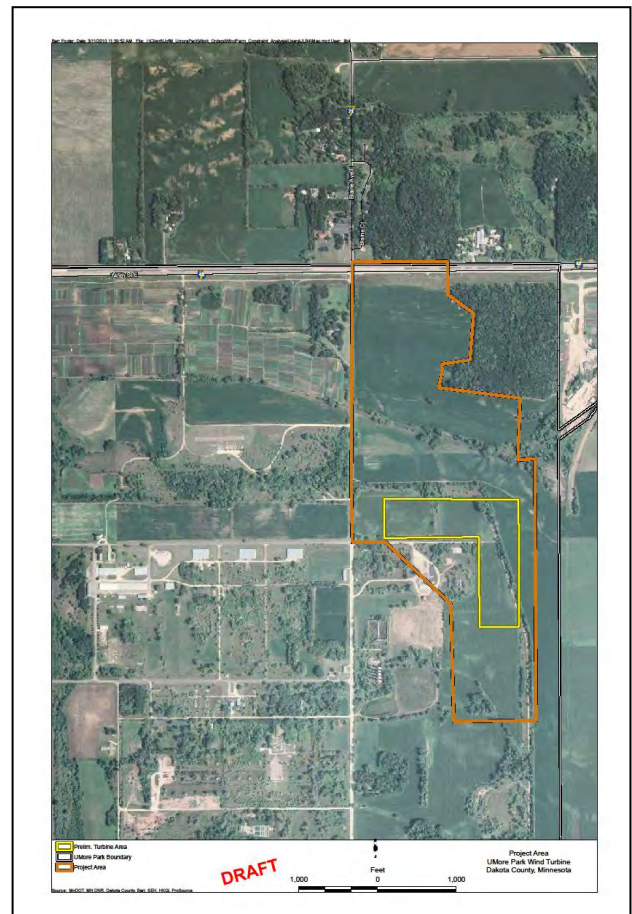


Figure 1. UMore Park Wind Turbine Project Area

Loggerhead Shrikes

The project area is located in a region of the state where Loggerhead Shrikes (*Lanius ludovicianus*) are consistently observed and known to be nesting. With populations steadily declining throughout its breeding range, the Loggerhead Shrike is officially listed as a state Threatened species in Minnesota; its status may be upgraded to Endangered during the current list review process. The shrike is also considered a Species of Special Concern in Minnesota and is a U.S. Fish and Wildlife Species of Regional Concern in the Midwest Region.

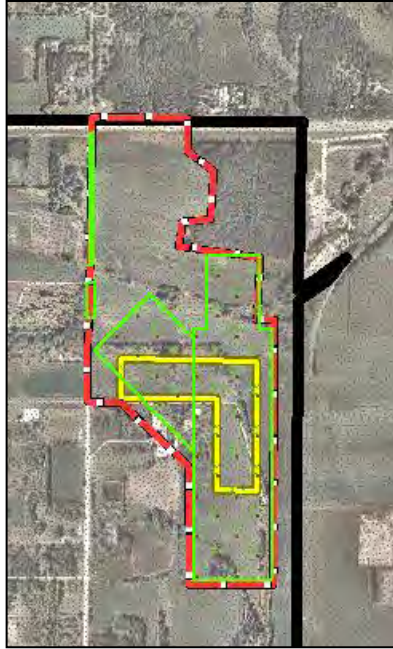


Figure 2. Green Polygons are Tree Removal Areas

Information on the shrike's state threatened status can be found at:

<http://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=ABPBR01030>

Information on its federal status can be found at:

http://www.fws.gov/midwest/eco_serv/soc/birds/LOSH/index.html

Loggerhead shrikes live in open country areas where there is a mixture of short-grass vegetation as well as suitable perching sites, such as fence rows and old orchards with small trees and shrubs. The species occurs in both native and nonnative grasslands. Nesting usually occurs in isolated small trees or large shrubs.

Dakota County is believed to harbor the densest concentration of shrikes in Minnesota. As recently as 2009 a breeding pair was documented to the east of the UMore property, further prompting concern for assessing the species' status on the wind turbine project site.

Site Survey Information

Following asbestos training on Monday, June 7, three site visits were made. The first was made on Tuesday, June 8 from approximately 8 a.m. to 11 a.m. Although it was raining steadily throughout the morning and early afternoon, an initial reconnaissance was made and a preliminary list of species was begun. All areas where trees are slated to be removed were examined. Based on this reconnaissance, several survey areas were delineated for a later visit (See Figure 3).

Barbed wire fence locations along portions of the old patrol road were located and examined for any evidence of shrike activity. A predator, the shrike is known for its habit of impaling its prey on the thorns of shrubs or the barbs of barbed wire fences, providing evidence of its activity in an area. No prey was observed on any of the fences. Following the site visit, time was spent surveying the general area to the east of the project site, where shrikes are known to have nested in 2009.

The second site visit was made on June 11, from approximately 9:30 a.m. till 2:00 p.m. The weather was overcast. With the exception of about 15 minutes at 11 a.m., there was no rain. Survey sites #1-6 and #8 were visited by walking slowly through the areas and stopping frequently to record, listen and observe. All birds were recorded, regardless of whether or not they were grassland or forest species. A third site visit was made on the morning of June 15 from 6:30-7:15 a.m to briefly survey site #7. Once again, the weather was overcast.

A complete list of all the species heard and/or observed on June 11 and June 15 is presented in Table 1, along with information on the primary habitat of each species. A total of 37 different species were recorded during all three visits, including the initial reconnaissance visit on June 8. In addition, a short list of some of the major tree and shrub species was also recorded. The latter is not a complete list of all woody vegetation on the site.

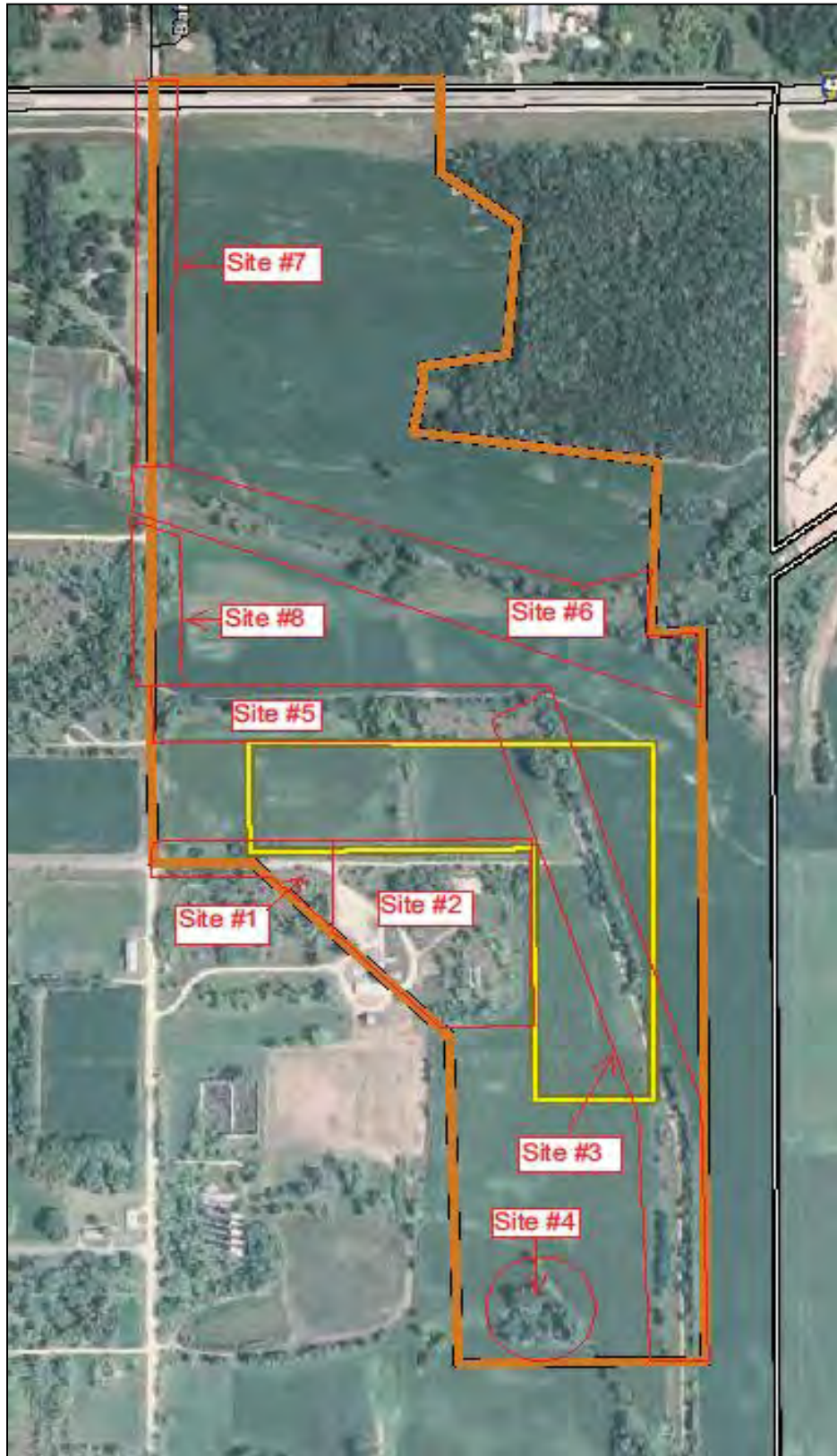


Figure 3. Loggerhead Shrike Survey Polygons

Status of Loggerhead Shrikes on the UMore Park Wind Turbine Project Site

No evidence of loggerhead shrikes was found during any of the site visits. Barbed wire fence lines that were present on the property were examined for evidence of impaled prey and none were found. The barbed wire fence line was intermittent along the old patrol road. In addition, no shrikes were observed or heard during the surveys.

The habitat present on the wind turbine project site is not ideally suited for shrikes. It is predominantly cropland with scattered trees along old fence rows and roads. Although some cropland may be present in shrike territories, the presence of short grass is essential. Some studies have shown a direct correlation between the amount of grassland cover and the presence of shrikes. The only grassland present in the project site is a very small area located north of the proposed turbine area (Figure 4). The area has been hayed and several hay bales remain. This is the area where an Eastern Kingbird was observed, another species dependent on pastures and grassland.

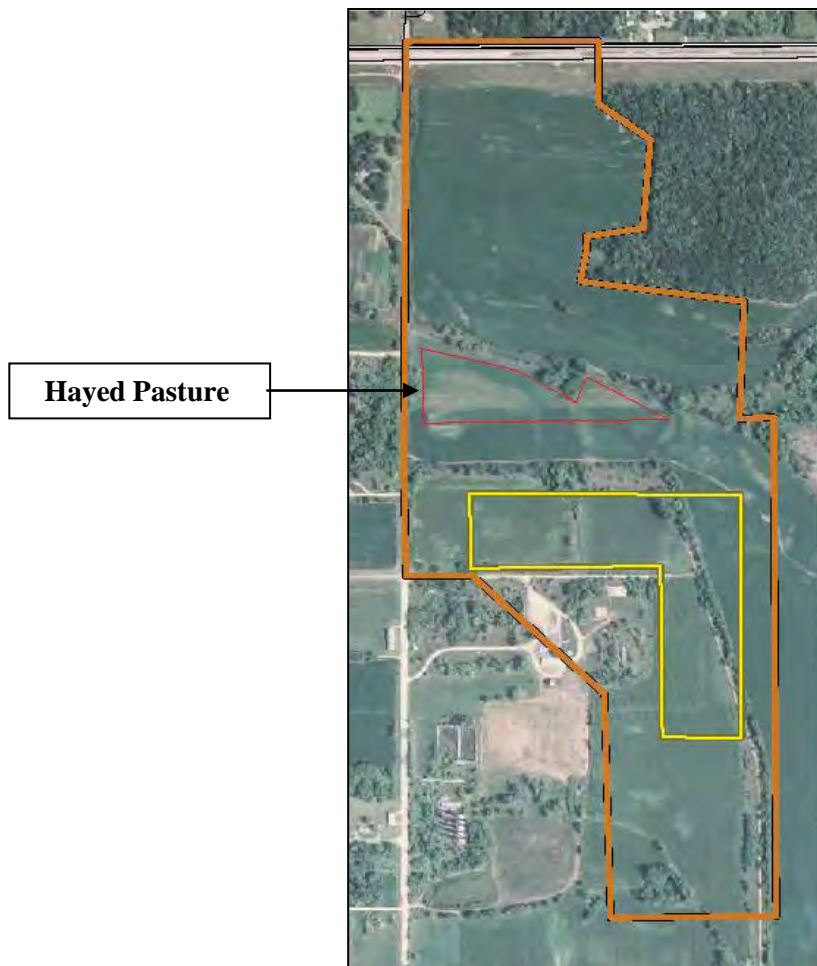


Figure 4. Hayed Pasture on UMore Wind Turbine Project Site

Table 1. List of Birds and Common Trees and Shrubs found during the Loggerhead Shrike Survey in June 2010
(Bird species are listed in taxonomic order; general habitat characteristics are listed for each species)

Survey Site	Description	Birds¹	Common Trees and Shrubs²
#1	Along road between buildings and intersection with Blaine Road	Wild Turkey (cultivated edges of forest) Blue Jay (upland mixed forest) American Crow (open habitats with scattered trees) Black-capped Chickadee (upland deciduous & mixed forest) House Wren (edges of deciduous forests & open woodlots) Gray Catbird (brushy open space and wetlands) Field Sparrow (grassland with shrubs) Vesper Sparrow (upland grassland) Song Sparrow (edge habitats) Indigo Bunting (upland deciduous woods w/openings) Baltimore Oriole (semi-open deciduous woods) American Goldfinch (deciduous woodland edge)	Hackberry Aspen Eastern Red Cedar Buckthorn
#2	Area immediately east of buildings	Eastern Phoebe (residential areas w/structures) American Crow (open habitats with scattered trees) Barn Swallow (rural open country with buildings) Black-capped Chickadee (upland deciduous & mixed forest) House Wren (edges of deciduous forests & open woodlots) Eastern Bluebird (grassland w/scattered trees) American Robin (upland forest with edge openings) Gray Catbird (brushy open space and wetlands) Brown Thrasher (dense brushy edges) European Starling (urban and rural settings) Cedar Waxwing (semi-open deciduous & lowland forest) Yellow Warbler (edge; upland & lowland brush) Clay-colored Sparrow (grassland with shrubs) Field Sparrow (grassland with shrubs) Vesper Sparrow (upland grassland) Song Sparrow (edge habitats) Indigo Bunting (upland deciduous woods w/openings)	Hackberry Cottonwood Aspen Eastern Red Cedar Red Oak

Survey Site	Description	Birds	Common Trees and Shrubs
#1 cont.		Brown-headed Cowbird (fragmented edge of woods) Baltimore Oriole (semi-open deciduous woods) American Goldfinch (deciduous woodland edge)	
#3	Old Patrol Road (north-south segment)	Killdeer (human altered grasslands) Mourning Dove (suburban, farmsteads) Northern Flicker (open upland with trees) Blue Jay (upland mixed forest) American Crow (open habitats with scattered trees) Horned Lark (cultivated row crops, short pasture) Barn Swallow (rural open country with buildings) Black-capped Chickadee (upland deciduous & mixed forest) House Wren (edges of deciduous forests & open woodlots) American Robin (upland forest with edge openings) Gray Catbird (brushy open space and wetlands) Brown Thrasher (dense brushy edges) Cedar Waxwing (semi-open deciduous forest) Clay-colored Sparrow (grassland with shrubs) Field Sparrow (grassland with shrubs) Vesper Sparrow (upland grassland) Song Sparrow (edge habitats) Northern Cardinal (residential, open space) Rose-breasted Grosbeak (deciduous & mixed forest) Indigo Bunting (upland deciduous woods w/openings) Brown-headed Cowbird (fragmented edge of woods) American Goldfinch (deciduous woodland edge)	Hackberry Red Pine Cottonwood Green Ash Buckthorn Prickly Ash
#4	Cottonwood Island	Blue Jay (upland mixed forest) House Wren (edges of deciduous forests & open woodlots) Gray Catbird (brushy open space and wetlands) Song Sparrow (edge habitats) Rose-breasted Grosbeak (deciduous & mixed forest) Indigo Bunting (upland deciduous woods w/openings) American Goldfinch (deciduous woodland edge)	Cottonwood Hackberry Red Oak Buckthorn

Survey Site	Description	Birds	Common Trees and Shrubs
#5	Old Patrol Road (east-west segment)	Wild Turkey (cultivated edges of forest) Black-capped Chickadee (upland deciduous & mixed forest) House Wren (edges of deciduous forests & open woodlots) American Robin (upland forest with edge openings) Gray Catbird (brushy open space and wetlands) Brown Thrasher (dense brushy edges) Field Sparrow (grassland with shrubs) Vesper Sparrow (upland grassland) Song Sparrow (edge habitats) Rose-breasted Grosbeak (deciduous & mixed forest) Brown-headed Cowbird (fragmented edge of woods) American Goldfinch (deciduous woodland edge)	Cottonwood Hackberry Eastern Red Cedar
#6	Northern Trail/Tree Line (runs east-west)	Red-tailed Hawk (semi-open deciduous woodlots) Eastern Wood Pewee (upland deciduous forest) Great Crested Flycatcher (upland deciduous and mixed forest) Eastern Kingbird (grassland) Warbling Vireo (mixed deciduous woodlands) American Crow (open habitats with scattered trees) Horned Lark (cultivated row crops, short pasture) Black-capped Chickadee (upland deciduous & mixed forest) House Wren (edges of deciduous forests & open woodlots) Eastern Bluebird (grassland w/scattered trees) American Robin (upland forest with edge openings) Gray Catbird (brushy open space and wetlands) Brown Thrasher (dense brushy edges) Clay-colored Sparrow (grassland with shrubs) Field Sparrow (grassland with shrubs) Vesper Sparrow (upland grassland) Song Sparrow (edge habitats) Northern Cardinal (residential, open space) Rose-breasted Grosbeak (deciduous & mixed forest) Indigo Bunting (upland deciduous woods w/openings)	Cottonwood Hackberry Sumac Buckthorn Eastern Red Cedar

Survey Site	Description	Birds	Common Trees and Shrubs
#6 cont.		Brown-headed Cowbird (fragmented edge of woods) American Goldfinch (deciduous woodland edge)	
#7	Woods along northern segment of Blaine Road	Eastern Wood Pewee (upland deciduous forest) House Wren (edges of deciduous forests & open woodlots) Gray Catbird (brushy open space and wetlands) Chipping Sparrow (fragmented edge of mixed forest) Song Sparrow (edge habitats) American Goldfinch (deciduous woodland edge)	Box Elder Elm sp.
#8	Woods between east-west segment of Old Patrol Road and North Trail along Blaine Road	Eastern Wood Pewee (upland deciduous forest) House Wren (edges of deciduous forests & open woodlots) Cedar Waxwing (semi-open deciduous forest) Field Sparrow (grassland with shrubs) Song Sparrow (edge habitats) Brown-headed Cowbird (fragmented edge of woods)	Hackberry Cottonwood Box Elder Elm sp.

- 1 *A few additional species were seen and/or heard on the Project Site on the first reconnaissance visit on June 8 but not on subsequent visits: Ring-necked Pheasant, Rock Pigeon and Chimney Swift*
- 2 *This is not a complete list of all the trees and shrubs in the survey area; only a list of those commonly or easily observed while surveying for birds*