



Graham Environmental Services, Inc.

GES

Oak Glen Wind Farm Project Loggerhead Shrike and Henslow's Sparrow Surveys



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OAK GLEN WIND FARM PROJECT

LOGGERHEAD SHRIKE AND HENSLOW'S SPARROW SURVEYS

SUMMARY OF FINDINGS

Graham Environmental Services, Inc. (GES) was contracted by Merjent, Inc. (Merjent) to conduct surveys for the loggerhead shrike and Henslow's sparrow which are listed as sensitive species by the Minnesota Department of Natural Resources. Pre-construction loggerhead shrike and Henslow's sparrow surveys were conducted on and adjacent to the proposed Oak Glen Wind Farm project area in Steele County, Minnesota (**Figure 1**). The project includes (5) separate parcels encompassing approximately 4080 acres (**Figure 2**). As part of the environmental review for the wind farm project, presence/absence surveys for the loggerhead shrike and Henslow's sparrow were conducted three times for each species between 15 April and 10 July, 2009. GES documented suitable habitat for both species within the parcels that comprise the survey area. We also documented a total of 33 territorial Henslow's sparrows, and no loggerhead shrikes during all survey periods.

INTRODUCTION

The purpose of the survey is to assess the presence or absence of Minnesota State endangered Henslow's sparrow (*Ammodramus henslowii*) and threatened loggerhead shrike (*Lanius ludovicianus*). Minnesota's Endangered Species Statute (Minnesota Statutes, Section 84.0895) requires the Minnesota Department of Natural Resources (DNR) to adopt rules designating species meeting the statutory definitions of endangered, threatened, or species of special concern (TES). The resulting List of Endangered, Threatened, and Special Concern Species is codified as Minnesota Rules, Chapter 6134. The Endangered Species Statute also authorizes the DNR to adopt rules that regulate treatment of species designated as endangered and threatened. These regulations are codified as Minnesota Rules, Parts 6212.1800 to 6212.2300. TES species, as defined by the DNR as endangered, threatened, and special concern and are defined as:

Minnesota Endangered Species: are species threatened with extinction throughout all or a significant portion of its range within Minnesota.

Minnesota Threatened Species: are species that are likely to become endangered within the foreseeable future throughout all or a significant portion of its range within Minnesota.

Minnesota Special Concern Species. are species that are not endangered or threatened, but are extremely uncommon in Minnesota, or have unique or highly specific habitat requirements and deserve careful monitoring of their status. Species on the periphery of their range that are not listed as threatened may be included in this category along with those species that were once threatened or endangered but now have increasing or protected, stable populations.

SURVEY METHODS

Loggerhead Shrike

We relied on past experience, and three other loggerhead shrike studies in designing and implementing survey methods to detect the presence of this grassland species. Studies conducted by Bonnie Brooks (1988) masters thesis, Matthew Etter (1995), and a report produced by Bonita Eliason (MDNR) were utilized to develop a protocol that incorporated the most cost-effective and successful method of surveying for loggerhead shrikes. Based upon these reports and 15 years of loggerhead shrike observation within Dakota County, we utilized a combination of survey methods which include;

- “direct observation and searches of features utilized by breeding loggerhead shrikes.” Areas with suitable nest sites such as fence rows, trees, and powerlines that are utilized by shrikes for foraging areas or nests were documented and were only included if they were on or directly adjacent to parcels within the wind farm project. Those features that occurred within public right-of-ways were searched, while areas on adjacent properties were only observed from the survey point.
- We utilized observation points on public right-of-ways and observed for 8 minutes at each point.
- Our survey period (15 April to 10 July) was chosen to correspond with pre-hatching (pair bonding and nest building behaviors), nestling, and fledging as it occurs on known territories at Dakota County sites. GES observed loggerhead shrikes during the pre-hatching period at two locations in Dakota County in 2009 and conducted our initial survey within one-week of these observations.

Henslow’s sparrow

Our Henslow’s sparrow methodology was predicated upon surveying only those areas with grassland on the proposed project parcels. Henslow’s sparrow surveys were conducted three times between 15 April and 10 July between the hours of ½ hour before sunrise until 5 p.m. Survey transects were established spaced 150 yards apart in suitable grassland habitat (**Figure 3**). Transect information was loaded into a hand-held Global Positioning System (GPS) capable of sub-meter accuracy and then used to place biologists at survey locations along the transect segments. When biologists reached the established survey points using GPS technologies, surveys commenced at each point. GES stopped at each point and listened for 3 minutes for the presence or absence of Henslow’s sparrows. Visual and auditory cues were used to identify species at each point. GES biologists also listened and watched for this species while walking between each sampling point. Extra time was spent at a point when road noise or other competing noise reduced detection of Henslow’s sparrow songs. Our initial review of the project parcels indicated that only one parcel contained grassland habitat that could be utilized by Henslow’s sparrows. This parcel is located north of County Route 4 and has a radio tower situated on the southeast corner of the parcel. Survey transects were oriented in such a way as to detect all singing birds within the parcel.

Spatial information was collected using a hand-held GPS unit when a new record was observed. This data was projected onto digital Orthophotographs using a Geographic Information System such as Arcview™. Species ranked as endangered, threatened, or special concern by the DNR that were observed during the survey were also documented using the Minnesota Natural Heritage Information Rare Reporting form (**Appendix B**).

RESULTS

Loggerhead Shrike

Loggerhead shrike nesting habitat in Minnesota has been described by Brooks (1988) as a bird of “primarily open, agricultural areas interspersed with grassland habitat for their breeding territories”. It is often observed in agricultural regions of the state and is correlated with a high percentage of grazed pastures and grasslands rich in perch sites although it is often observed in grassy ditches adjacent to crop fields. It also may utilize residential lawns, golf courses, river floodplains, and mowed roadsides. Brooks’ study found that most nest sites were located between agricultural fields: 37% were located immediately adjacent to a crop field; 45% were located in grassland habitat and 18% in pastures. Habitat characteristics such as elevated perch sites (i.e. telephone wires, trees of relatively short stature (< 7 meters), gravel roads, grasslands with greater than 50% herbaceous ground cover, and open habitat are necessary requirements for this species. Historic records of this species are recorded near the southern parcels of the Oak Glen Wind Farm.

The results of surveys conducted 15 April, 13 June, and 10 July resulted in no observations of loggerhead shrikes on parcels within the wind farm project or on lands adjacent to these parcels. Areas that contain suitable or marginal nesting and foraging habitat were mapped and are depicted in **Figure 4**. Fencerows on parcels we have been granted permission to survey were searched to locate nests or adult shrikes. It does appear that areas with historic records of loggerhead shrike use have been altered by removal of shrubby trees, fencerows or conversion to cropland. No shrikes were observed near historic records of this species. Our final survey took place in July when fledged young should have been out of the nest and shrikes should be much more likely to be detected. These surveys were conducted along road transects by stopping every ½ mile to scan the surrounding area for shrikes. No shrikes were observed during any of the survey periods.

Henslow’s Sparrow

Henslow’s sparrow nesting habitat includes uncultivated grasslands and over- grown fields that may have been cultivated and left fallow for a number of years (Rising, 1996). These sites provide males with stalks for singing perches (Coffin and Pfannmueller, 1988). Grassland sites utilized by this species are generally larger than 200 acres in size and exhibit a substantial uncompressed litter layer (Hanson, 1994). Although large sites are often utilized they have been observed on much smaller grassland sites. In Minnesota, it is considered an uncommon but regular migrant and uncommon summer resident in the south and central portions of the state and a rare summer resident in the north. Normal summer range covers about four-fifths of the state, with rare occurrences in northern counties. Historic records of this species are recorded near northern parcels of the Oak Glen wind farm.

One of the grassland parcels within the survey area held as many as 33 singing Henslow’s sparrows (**Figure 5**) during our second survey period (13 June). Based upon the results compiled during this survey period, the distance between survey transects may have been too close as a number of birds could be heard from two or more survey points along different transects. However, the survey transects allowed us to map territories of singing birds when detected. The Henslow’s sparrow surveys conducted during the 20 May date was conducted during the evening to avoid conflict with turkey

hunting. Weather conditions during the first survey period were considered unacceptable because high winds (Beaufort rating of 4-5) were prevalent so the results of this survey were eliminated as a valid, and are not included in this report. The third survey period was conducted on 10 July between the hours of ½ hour before sunrise until 11 a.m. A total of 12 singing males were still present on the same grassland parcel during the 10 July survey period. No Henslow's sparrows were observed on grassland habitats in any other Oak Glen wind farm parcels during any of the three survey periods.

Habitat characteristics of the parcel where Henslow's sparrows were observed include rolling topography with a history of different land uses. Herbaceous cover is generally grassland with few scattered shrub species but an area centered around a radio tower appeared to have been planted with a native seed mix that includes species such as:

| | |
|-----------------------------|----------------------------|
| <i>Andropogon gerardii</i> | <i>Sorghastrum nutans</i> |
| <i>Panicum virgatum</i> | <i>Zizoa aptera</i> |
| <i>Eryngium yuccifolium</i> | <i>Glycyrhiza lepidota</i> |
| <i>Dalea purpurea</i> | <i>Monarda fistulosa</i> |

The *Eryngium yuccifolium* is a state Special Concern plant, but appears only on lands planted to native prairie and was probably part of the native seed mix (Figure 5). Topography on this portion of the parcel is relatively flat and no Henslow's sparrows were observed on within this plant community type.

Topography in areas occupied by Henslow's sparrow were more rolling in character with singing sparrows located along the entire topographic gradient from depressions/valleys to tops of hills. Plant communities are characterized by cool season and invasive grasses such as;

| | |
|------------------------------|---------------------------|
| <i>Poa pratensis,</i> | <i>Bromus inermis,</i> |
| <i>Phalaris arundinacea,</i> | <i>Dactylis glomerata</i> |

Forbs and occasional shrubs are distributed throughout the parcels and the Henslow's sparrows were observed singing from tufts of grass, gray dogwood clumps, and dead standing forbs. There are no trees located within the parcel where the sparrows were observed. Fields located west of the radio tower parcel are separated by a fenceline. Land use on these parcels appeared to have been grazed recently or planted to native prairie grasses and no shrubs or standing dead vegetation was observed. No Henslow's sparrows were observed or heard on these parcels. The parcel south of County Route 4 was also planted to native grasses and forbs. Access to this parcel was limited so surveys were conducted from the County Route 4 right-of-way. No Henslow's sparrows were observed or heard on this parcel.

In addition, 47 additional species were observed during the three survey periods. Table 1 lists each species observed and the respective state rank.

Table 1 - List of Species Observed

| Common Name | Scientific Name | Minnesota Rank |
|--------------------------|------------------------------------|-------------------|
| Canada Goose | <i>Branta canadensis</i> | None |
| Wood Duck | <i>Aix sponsa</i> | None |
| Mallard | <i>Anas platyrhynchos</i> | None |
| Blue-winged Teal | <i>Anas discors</i> | None |
| Turkey Vulture | <i>Cathartes aura</i> | None |
| Red-tailed Hawk | <i>Buteo jamaicensis</i> | None |
| American Kestrel | <i>Falco sparverius</i> | None |
| Ring-necked Pheasant | <i>Pheasianus cochicus</i> | None |
| Wild Turkey | <i>Meleagris gallopavo</i> | None |
| Killdeer | <i>Charadris vociferus</i> | None |
| Mourning Dove | <i>Zenaida macroura</i> | None |
| Red-headed Woodpecker | <i>Melanerpes erythrocephalus</i> | None |
| Downy Woodpecker | <i>Picoides pubescens</i> | None |
| Northern Flicker | <i>Colaptes auratus</i> | None |
| Eastern Kingbird | <i>Tyrannus tyrannus</i> | None |
| Warbling Vireo | <i>Vireo gilvus</i> | None |
| Blue Jay | <i>Cyanocitta cristata</i> | None |
| American Crow | <i>Corvus brachyrhynchos</i> | None |
| Horned Lark | <i>Eremophila alpestris</i> | None |
| Tree Swallow | <i>Tachycineta bicolor</i> | None |
| Barn Swallow | <i>Hirundo rustica</i> | None |
| Black-capped Chickadee | <i>Poecile atricapilla</i> | None |
| House Sparrow | <i>Troglodytes aedon</i> | None |
| Sedge Wren | <i>Cistothorus platensis</i> | None |
| Eastern Bluebird | <i>Sialia sialis</i> | None |
| American Robin | <i>Turdus migratorius</i> | None |
| Brown Thrasher | <i>Toxostoma rufum</i> | None |
| Common Yellowthroat | <i>Geothlypis trichas</i> | None |
| Northern Cardinal | <i>Cardinalis cardinalis</i> | None |
| Indigo Bunting | <i>Passerina cyanea</i> | None |
| Field Sparrow | <i>Spizella pusilla</i> | None |
| Clay-colored Sparrow | <i>Spizella pallida</i> | None |
| Chipping Sparrow | <i>Spizella passerina</i> | None |
| Grasshopper Sparrow | <i>Ammodramus savannarum</i> | None |
| Henslow's Sparrow | <i>Ammodramus henslowii</i> | Endangered |
| Savannah Sparrow | <i>Passerculus sandwichensis</i> | None |
| Vesper Sparrow | <i>Pooecetes gramineus</i> | None |
| Song Sparrow | <i>Melospiza melodia</i> | None |

| Common Name | Scientific Name | Minnesota Rank |
|----------------------|------------------------------|----------------|
| Eastern Meadowlark | <i>Sturnella magna</i> | None |
| Bobolink | <i>Dolichonyx oryzivorus</i> | None |
| Brown-headed Cowbird | <i>Molothrus bonariensis</i> | None |
| Red-winged Blackbird | <i>Agelaius phoeniceus</i> | None |
| Common Grackle | <i>Quiscalus quiscula</i> | None |
| Baltimore Oriole | <i>Icterus galbula</i> | None |
| House Finch | <i>Carpodacus mexicanus</i> | None |
| American Goldfinch | <i>Carduelis tristis</i> | None |
| House Sparrow | <i>Passer domesticus</i> | None |

CONCLUSIONS

A total of 45 occurrences of Henslow's sparrow were documented on one of the parcels reviewed for the Oak Glen Wind Farm during three spring surveys. Some of these occurrences might represent re-counting of the same individuals. Suitable habitat for loggerhead shrikes was mapped on survey parcels and lands adjacent to parcels within the Oak Glen Wind Farm. Although suitable habitat for loggerhead shrikes was present no shrikes were observed during the three sampling periods.

REFERENCES

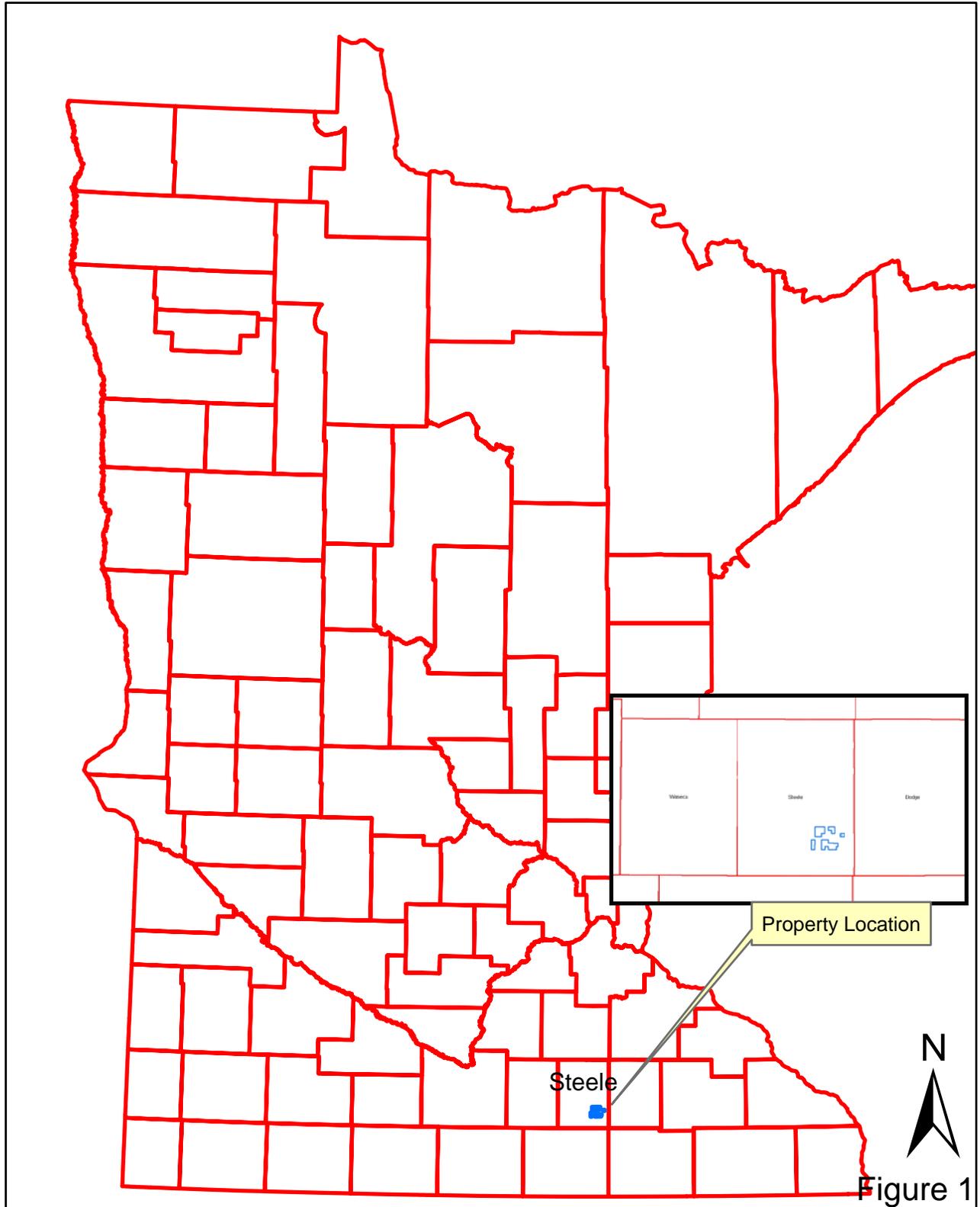
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Appendix A

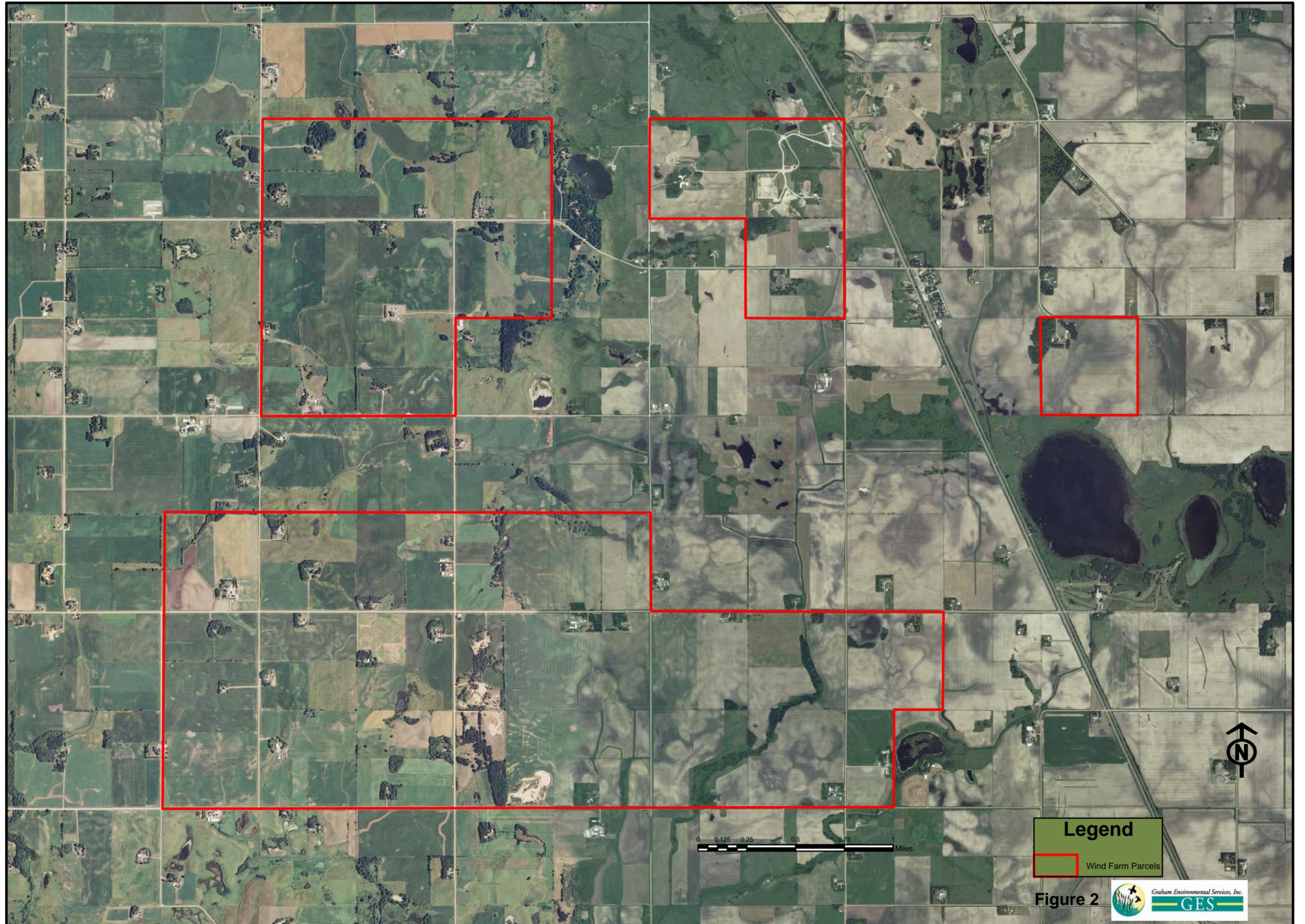
Figures



Project Location



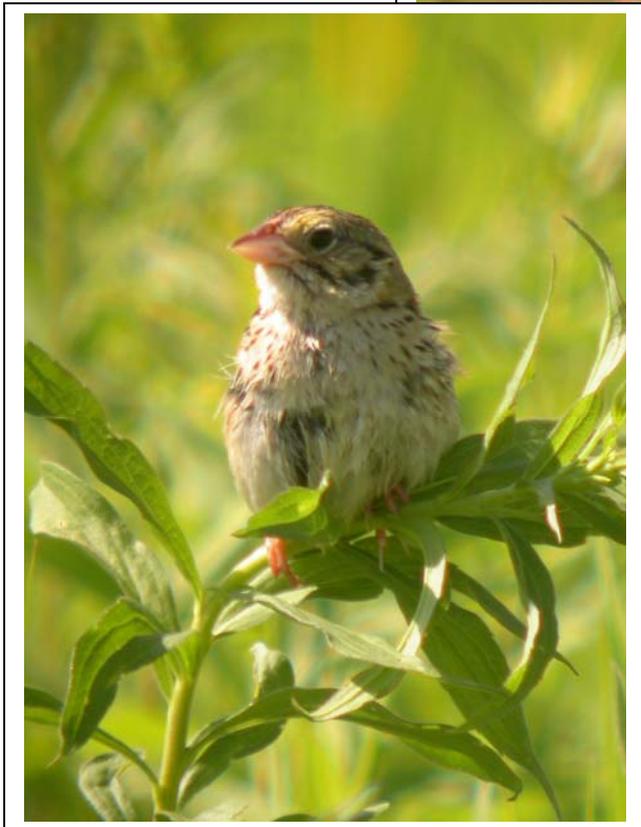
Oak Glen Wind Farm Parcels



Legend
Wind Farm Parcels

Figure 2





**Appendix C. Henslow's sparrow
photo documentation**

Oak Glen Wind Farm
Steele County, Minnesota

GES Project No. 2009.009



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Graham Environmental Services, Inc.