

# **Citizen-Based Grassland Bird Monitoring in the Lower Chippewa River 2010**

The Prairie Enthusiasts-Chippewa Savannas Chapter



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March 2011

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## Synopsis

In the summer of 2010, The Prairie Enthusiasts-Chippewa Savannas Chapter (TPE) launched the Grassland Bird Monitoring in the Lower Chippewa River Project. This is a long-term citizen-based monitoring (CBM) project to determine the birds that utilize grassland and savanna habitats within key sites of the Lower Chippewa River (LCR). The primary focus of this project is to fulfill a need for widespread bird surveys in the LCR that will create a baseline documentation to allow future monitoring of trends in bird populations that depend on grassland habitats. Survey sites were focused in the Dunnville Wildlife Area (owned and managed by the Wisconsin Department of Natural Resources, WDNR) and the Tyrone Property (owned by Xcel Energy and managed in partnership with TPE and WDNR). Trained volunteer citizen scientists conducted avian surveys on 6 survey sites covering 15 plots from June-July 2010. Information collected included the identification of avian species observed and their general abundance.

## Acknowledgements

This project was made possible with funding from the Wisconsin's Citizen-Based Monitoring Partnership Program and individual TPE members. Invaluable technical assistance and support was provided by Matt McFarlane (Xcel Energy) and Dave Sample (WDNR). Yoyi Steele (WDNR) shared her findings about bird habitat and management in the Lower Chippewa River. Matt Kuchta (UW-Stout) graciously provided photographs throughout the project and donated his time to act as the project's GIS technician by producing all of the maps in this report.



*Citizen monitors gather in the field for survey methods and bird identification training in Dunnville Wildlife Area (Photo: Matt Kuchta)*

## **Introduction**

### The Prairie Enthusiasts

The Prairie Enthusiasts is a non-profit volunteer-based organization committed to the protection and management of native prairie and savanna habitats of the Upper Midwest. The Chippewa Savannas chapter of The Prairie Enthusiasts is a community of local volunteers throughout Dunn, Eau Claire, and Pepin counties that work to restore remnants of prairie ecosystems still remaining in the Chippewa Valley. The grassland bird monitoring project fully supports the mission of TPE by assisting with the perpetuation of the remaining native prairies and savannas through scientific research; engaging the public through hands-on research experiences; and assisting public agencies and private organizations with the management of prairie and savanna communities.

### Lower Chippewa River

The LCR is an ecological hotspot. The LCR contains large contiguous complexes of floodplain terraces and rugged bluffs that feature a mosaic of high-quality natural communities including prairies, oak barrens, savannas, sloughs, and floodplain forests, as well as surrogate grasslands, agricultural fields, and conifer plantations. The LCR covers over 72,000 acres throughout Eau Claire, Pepin, Dunn and Buffalo counties and stretches for the final 40 miles before it joins the Mississippi River. Today, less than .01% of remnant grasslands remain in the state of Wisconsin. The LCR contains 25% of the total acreage of remaining remnant prairies and savannas in Wisconsin, the largest concentration remaining in the state. According to the Wisconsin Bird Conservation Initiative, the Lower Chippewa River is considered a critical Important Bird Area due to large numbers of rare and high priority avian species this area supports. During migration season, this area experiences an exceptional concentration of migratory birds, with 100,000 birds passing through in a single day.

The Dunnville Wildlife Area and Tyrone Property are located entirely within the LCR, in southern Dunn County. The Dunnville Wildlife Area is located along the north bank of the Chippewa River. Over 4,000 acres in size, this area contains several large tracts (300+acres) of dry prairie and floodplain savanna. Present management efforts are improving grassland habitat by the removal of woody features and the creation of gradual ecotones. Bird surveys will help to guide and inform future management activities to maximize their impact on these species.

The Tyrone Property is located immediately adjacent to the Dunnville Wildlife Area, south of the Chippewa River, and contains highly restorable remnant prairies and savannas. The property is a 4,000 acre undeveloped power plant site. The Tyrone Property is the most significant privately owned parcel within the entire LCR. Despite decades of neglect and non-management, extensive habitat restoration activities have recently been initiated on the Tyrone Property in partnership between TPE, WDNR, and Xcel Energy. Now is a critical opportunity to establish baseline data during the beginning phase of restoration in the Tyrone Property.

When evaluated together, the monitoring of these two properties offer an opportunity to compare the effects of different management regimes. Property managers at WDNR and Xcel Energy have expressed strong cooperation with this project. Both properties required bird surveys to better estimate populations, establish baselines, to measure the effects of ongoing management, and guide future actions.

### Grassland Birds

Grassland birds are defined as those species using grassland habitats during the breeding season for courtship, nesting, foraging, rearing young, and roosting or resting. Breeding bird surveys indicate that, between 1966 and 2004, grassland bird populations have declined dramatically in Wisconsin. Of those grassland species surveyed, 77% declined significantly, 23% were stable, and none showed an increase. Species experiencing the greatest declines were Henslow's sparrow, dickcissel, western meadowlark, vesper sparrow, and grasshopper sparrow (Sauer, quoted in Sample and Mossman). These trends emphasize the urgent need to coordinate species monitoring with habitat management practices to maximize the beneficial impacts for at-risk species.



*A Henslow's sparrow perched on a grass stem in Plot 1 within the Dunnville Wildlife Area (Photo: Matt Kuchta)*

## Methods

### Background

The goal of this project was to determine the species and relative abundance of birds that utilize grassland and savanna habitats within key sites of the Lower Chippewa River. The Area Search method was chosen for this survey because it uses a method that, while quantitative, mimics a method that a birder would use while searching for birds in a given area. The Area Search method allows for citizen scientists with varying identification skills and requires little training due to its simplicity. Non-birders may even participate by serving as recorders or tallying obvious species. The Area Search is defined by habitat and is constrained by time, consisting of a series of three 20-minute surveys in which the observer can move throughout a restricted plot of predetermined size of 25-acres. This method proved to be a very comfortable survey method for this project's citizen scientists.

Time duration was the one problem with the Area Search method that seemed to persist throughout the survey. According to the citizen scientists, the allotted time was not enough to thoroughly cover the designated plot area. This issue will be further discussed in the recommendation section.

### Choosing a Survey Site

Initial consideration of survey sites were recommended by WDNR and Xcel Energy land managers for their respective properties. Further considerations taken into account included, 1) sites containing a definable habitat, 2) sites that allowed for relatively easy detection and identification of birds (by sight or sound), 3) site accessibility, 4) sites that allowed the observer to move about freely, and 5) sites currently undergoing grassland management and restoration. Survey sites sufficiently large enough to provide three separate 25 acres plots were sought, however in some cases plot sizes were less than 25-acres and survey times were adjusted.

### Selecting a Plot

Majority of plots were 25 acres in size, however due to property size, some plot sizes were less than 25 acres and survey times were adjusted accordingly using a 0.8 minute per acre ratio. Square plots are ideal, however plots were created in a shape that kept habitat type uniform and allowed citizen scientists to easily cover the area over the allotted time period. In some cases, plots had adjoining boundaries with other plots. At other cases, plots were completely isolated from other plots and were located in separate regions of the survey site. In general, the plot boundaries were at least 25 meters from the edge of the chosen habitat or from different habitats, such as an edge between a forest and a grassland. Plot boundaries were planned and marked with a GPS (Appendix A) prior to start of surveys. If plot acreage was altered due to vegetation cover or size of survey site, the allotted survey time was calculated by using a ratio of 0.8 minutes per acre.

### Time of Surveys

Surveys were conducted during the breeding season beginning in early June and completed in the beginning of July. Future surveys are suggested to start as early as mid-May. Each location was surveyed three times, at least 14 days apart between visits. Observations began within 15 minutes of sunrise and were complete by 10:00 am.

### Conducting a Survey

A survey group consisted of no less than 2 observers and no more than 5 observers. The protocol (Appendix B) states that the entire 25-acre plot was to be covered in the 20-minute survey time. There was no official begin or end point. All three plots of a survey site were surveyed in one morning. Citizen scientists walked throughout the plot for exactly 20 minutes, stopping or moving to investigate sightings or calls when appropriate. If time ran short, the focus was to try to cover all 25 acres of plot. A designated scribe recorded the numbers of each bird species seen or heard in the search area during the allotted time. Raptors, cranes or birds of known special interest observed outside the search area were recorded separately. Audio players were not allowed.



*Project Coordinator, Jeanette Kelly (right), working with citizen monitors to identify bird species in the field. (Photo: Bill Hogseth)*

## Results

Volunteer citizen scientists donated 203 hours from June to July 2010 conducting a total of 45 grassland bird surveys, covering 6 survey sites and 15 plots. A total of 1,631 birds (Appendix C) were counted and a total of 68 species were observed (Fig.1, Fig.2, and Fig.3).

### Number of birds TOTALS

Dunnville RD TOTAL # =	329
Larrabee RD TOTAL # =	317
Beach TOTAL # =	364
Meridean TOTAL # =	69
Cutoff RD TOTAL # =	274
Hwy 85 TOTAL # =	278

### Number of species TOTALS

Dunnville RD TOTAL sps =	44
Larrabee RD TOTAL sps =	42
Beach TOTAL sps =	42
Meridean TOTAL Sps =	18
Cut-Off RD TOTAL sps =	26
Hwy 85 TOTAL sps =	35

Of the birds counted 160 were listed as unknown. The unknowns were as followed, unknown raptor = 1, unknown sparrow = 155, unknown swallow = 2, unknown woodpecker = 2. Several factors may have attributed to this high number of unknowns. Perhaps the biggest factor was the challenge of identifying brief glimpses of members of the family Emberizidae, or new world sparrows. Sparrows tended to “pop up” from the tall vegetation and then quickly withdraw back into shelter. Restrictions from the allotted survey time did not allow for continued observation of unknown species. Novice birders may have also attributed to the high number of unknown birds.

The 25-acre Beach survey site that is located along the Chippewa River proved to be the site with the highest abundance at 14.56 birds/acre. Meridian a small 7-acre survey site had the lowest abundance with 9.86 birds/acre. (Fig.4) The relatively small Meridian survey site is a remnant prairie and had the highest species diversity with 2.57 species/acre. The mostly fallow fields of the Cutoff Road survey site had the lowest species diversity with 1.04 species/acre. (Fig.5)

The following ten species of a “listed” status were observed: Eastern meadowlark, field sparrow, grasshopper sparrow, lark sparrow, brown thrasher, sedge wren, Henslow’s sparrow, blue-winged warbler, Carolina wren, willow flycatcher, least flycatcher and bobolink.

#### *Definitions of Wisconsin listed species:*

Threatened Species (THR) – Any species, which on the basis of scientific evidence, appears likely to become endangered.

Species of Concern (SC) – Species about which some problem of abundance or distribution is suspected but not yet proved. The purpose of this category is to focus attention on certain species before they become threatened or endangered.

Species of Greatest Conservation Need (SGCN) – Species that have low and/or declining populations that are in need of conservation action.



## **Dunnville Road**

### Site Description:

The Dunnville Road Survey Sites are located on the Dunnville Wildlife Area and are managed by the WDNR. The sites consist of a complex of grassland communities including floodplain savannas, oak barrens, and dry-mesic prairies. Grassland groundlayer vegetation is characterized by little bluestem, big bluestem, Indian grass, as well as forbs such as white indigo, heath aster, small evening primrose and gray goldenrod. Lower floodplain terraces are occupied by bottomland forests with silver maple, American elm, and green ash as dominant tree species. The site contains an outstanding structural diversity ranging from open areas with no tree canopy cover to shrublands with scattered immature black oaks and oak grubs to oak openings with mature bur oaks. The site has been managed with prescribed fire. Floodplain forests and degraded savannas lie adjacent to much of the grassland area within these sites. The Red Cedar State Bike Trail runs through the sites as a forested corridor and divides Plot A and Plot B. The Chippewa River runs along the southern boundary of Plot C. The sites can be accessed along 524<sup>th</sup> Street, also known as Dunnville Road.

The Dunnville Road Survey Site consists of 3 plots. The 3 plots labeled as Plot A, Plot B and Plot C are all 25 acres in size and had a survey time of 20 minutes each. A total of 329 birds of 44 species were counted.

### Plot A

Over 3 survey periods 86 birds were counted and 26 species observed. The highest survey day was June 15, 2010 with a total of 35 birds. Birds listed as Species of Concern included the Eastern Meadowlark, field sparrow and grasshopper sparrow. Also observed, the blue-winged warbler is listed as a Species of Concern as well as a Species of Greatest Conservation Need.

### Plot B

Over 3 survey periods 100 birds were counted and 27 species observed. The highest survey day was June 15, 2010 with a total of 41 birds. The most interesting species was a Carolina wren (SC) that was heard calling just outside of the survey boundary. This bird was not heard on subsequent surveys. Species of Concern counted within survey boundaries include the Eastern meadowlark, field sparrow and grasshopper sparrow. The blue-winged warbler and the brown thrasher are listed as a Species of Concern as well as a Species of Greatest Conservation Need.

### Plot C

Over 3 survey periods 143 birds were counted and 32 species observed. The highest survey day was July 2, 2010 with a total of 62 birds. Species of Concern included the lark sparrow, Eastern meadowlark, field sparrow and grasshopper sparrow. The willow flycatcher is listed as a Species of Concern as well as a Species of Greatest Conservation Need.

## **Larrabee Road**

### Site Description:

The Larrabee Road Survey Site is located within the Dunnville Wildlife Area and is managed by WDNR. The sites consist of a core unfragmented grassland area of approximately 300 contiguous acres. The site has been intensively managed with prescribed fire, brush mowing, and whole-tree removal. Upland areas dominated by dry-mesic prairie vegetation, such as little bluestem, prairie blazing star, wood lily, and culver's root, are dissected by riverine channel swales that contain wet grassland vegetation including prairie cord grass, blue joint grass, as well as shrub coppices of willow, gray dogwood, and red osier dogwood. In the southern portion of the unit, a recently restored oak opening exists with mature overstory bur oak trees and grassland groundlayer vegetation. The site can be accessed along 640<sup>th</sup> Street, also known as Larrabee Road.

The Larrabee Road Survey Site consists of 3 plots. The 3 plots labeled as Plot D, Plot E, and Plot F are all 25 acres in size and had a survey time of 20 minutes each. A total of 317 birds of 42 species were counted.

### Plot D

Over 3 survey periods 76 birds were counted and 20 species observed. The highest survey day was June 16, 2010 with a total of 54 birds. Species of Concern included the bobolink, field sparrow, grasshopper sparrow, lark sparrow and the willow flycatcher, which is also listed as SGCN.

### Plot E

Over 3 survey periods 96 birds were counted and 24 species observed. The highest survey day was June 16, 2010 with a total of 42 birds. Species of Concern included the Eastern meadowlark, field sparrow, grasshopper sparrow and lark sparrow. The willow flycatcher and the brown thrasher are listed as a Species of Concern as well as a Species of Greatest Conservation Need.

### Plot F

Over 3 survey periods 145 birds were counted and a total of 33 species observed. The highest survey day was June 16, 2010 with a total of 54 birds. Species of Concern included the Eastern meadowlark and the field sparrow. The blue-winged warbler is listed as a Species of Concern as well as a SGCN.

## **Beach**

### Site Description

The Beach Survey Site is located in the Dunnville Wildlife Area and is managed by the WDNR. The site consists of a floodplain savanna and oak barrens adjacent to the Chippewa River (Plots G and H) as well as a reconstructed prairie on a former agricultural field (Plot I). Plots G and H contain excellent structural diversity including exposed sands amidst short-grass

prairie, oak barrens, oak openings, shrub thickets, and riverine channel swales. Despite past degradations, the sites have retained much of their original prairie vegetation. Plot I is separated from Plots G and H by a swath of degraded and overgrown savanna. Plot I consists of a reconstructed prairie on former cropland. The plot is structurally monotypic and is dominated by dense grass with no shrub or tree component. All plots contained within the Beach Survey Site are not accessible by road; access is limited to foot travel only.

The Beach Survey Site consists of 3 plots. The three plots labeled as Plot G, Plot H, and Plot I are all 25 acres in size and had a survey time of 20 minutes each. A total of 364 birds of 42 species were counted.

#### *Plot G*

Over three survey periods 120 birds were counted and 32 species observed. The highest survey day was June 2, 2010 with a total of 54 birds. Species of Concern included the Eastern meadowlark, field sparrow, grasshopper sparrow and least flycatcher. The blue-winged warbler and the brown thrasher are listed as a Species of Concern as well as a Species of Greatest Conservation Need.

#### *Plot H*

Over three survey periods 143 birds were counted and 30 species observed. The highest survey day was July 2, 2010 with a total of 63 birds. Species of Concern included the Eastern meadowlark, field sparrow, grasshopper sparrow, lark sparrow, and the willow flycatcher and brown thrasher, which are also listed as SGCN.

#### *Plot I*

Over three survey periods 101 birds were counted and 10 species observed. The highest survey day was July 2, 2010 with a total of 39 birds. Species of Concern included the bobolink, Eastern meadowlark, field sparrow, grasshopper sparrow, sedge wren and the Henslow's sparrow, which is listed as a Threatened species in the state of Wisconsin.

### **Meridean**

#### **Site Description**

This road-accessible site is located adjacent to Meridean Road (Scenic Road) within the northern half of Northern States Power Company's (NSPW) 4400-acre Tyrone Property and directly east of the WDNR's Dunnville Wildlife Area across the Chippewa River. The site consists of a former agricultural field that has undergone succession the past 30 years. In the winter of 2010, TPE and the WDNR removed the majority of encroaching red cedar and white pine from the prairie site, followed by a prescribed burn in the spring of 2010 to facilitate the restoration. Some trees still remain scattered along the prairie edges but are anticipated to be removed during 2011, followed by subsequent prescribed burning.

The Meridean Site is a small remnant dry sand prairie of approximately 9 acres in size. Following the protocol for plot selection, placing plot boundaries at least 25 meters from the edge of the chosen habitat, the Meridian survey site consists of 1 approximately 7-acre plot, labeled as Plot M. Due to the small size of Plot M the survey time equation, (# of acres X 0.8 =

survey time), was used to determine a survey time of 6 minutes. This short time created a rushed survey and was possibly inadequate to thoroughly cover the 7-acre plot.

#### *Plot M*

Over three survey periods 69 birds were counted and 18 species observed. The highest survey day was June 3, 2010 with a total of 29 birds. Species of Concern included the field sparrow, grasshopper sparrow and lark sparrow.

### **Cut-Off Road**

#### Site Description

This road-accessible site is located adjacent to an abandoned road (Cut-Off Road) owned by NSPW and within the eastern boundary of NSPW's 4400-acre Tyrone Property. In the fall of 2010 and decades prior, the site consisted of agricultural land, primarily corn and soybeans, with tall rows of red pine along fencerows. However, these pine rows were removed in the winter 2010 to prepare the site for future prescribed burning. This site will begin its first year of succession in spring 2011. Part of the site will be planted into an oak savanna (white and bur oak) during the 2011 Earth Day event. The remaining acreage is assumed to be restored naturally, using the native seed bank.

The Cut-Off Road Survey Site consists of 3 plots. The 3 plots labeled as Plot N, Plot O, and Plot P are all 25 acres in size and had a survey time of 20 minutes each. A total of 274 birds of 26 species were counted.

#### *Plot N*

Over 3 survey periods 109 birds were counted and 16 species observed. The highest survey day was July 3, 2010 with a total of 42 birds. Species of Concern included the field sparrow, grasshopper sparrow, and lark sparrow.

#### *Plot O*

Over 3 survey periods 74 birds were counted and 16 species observed. The highest survey day was June 3, 2010 with a total of 27 birds. Species of Concern included the field sparrow, lark sparrow and grasshopper sparrow.

#### *Plot P*

Over 3 survey periods 91 birds were counted and 19 species observed. The highest survey day was July 3, 2010 with a total of 43 birds. Species of Concern included the field sparrow, grasshopper sparrow, and lark sparrow.

### **Highway 85**

#### Site Description

This road-accessible site is located adjacent to State Hwy 85 within the southern boundary of NSPW's 4400-acre Tyrone Property. The site consists of a former agricultural field that has undergone succession the past 30 years. In the spring 2010, an adjacent 56-acre

agricultural field was planted into rows of red and white pine. The site itself contains a mixture of scattered shrubs, white pine, and box elder with a grassy groundlayer. NSPW anticipates passively managing this site and letting mother nature take over.

The Highway 85 Survey Site consists of 2 plots. The 2 plots are labeled as Plot R and Plot S and are both 25 acres in size and had a survey time of 20 minutes each. A total of 278 birds of 35 species were counted.

*Plot R*

Over 3 survey periods 141 birds were counted and 25 species observed. The highest survey day was June 3, 2010 with a total of 62 birds. Species of Concern included the Eastern meadowlark, and field sparrow. The blue-winged warbler is listed as a Species of Concern as well as a SGCN.

*Plot S*

Over 3 survey periods 137 birds were counted and 28 species observed. The highest survey day was June 3, 2010 with a total of 57 birds. Species of Concern included the Eastern meadowlark, field sparrow, and grasshopper sparrow. The blue-winged warbler and the brown thrasher are listed as a Species of Concern as well as a SGCN

**Offsite/Flyover**

Raptors, cranes or birds of known special interest spotted outside the search area were recorded separately as “offsite”. Raptors, cranes or birds of known special interest that flew over the survey site, but never actually stopped in the survey site were recorded as “flyover”. Observed birds in these categories were as follows:

<b>Species</b>	<b>Code</b>	<b># Observed</b>	<b>Notes</b>	<b>Listing</b>
American kestrel	AMKE	1	OFFSITE	
bald eagle	BAEA	4	FLYOVER	special concern
blue-winged warbler	BWWA	1	OFFSITE	special concern
Carolina wren	CARW	1	OFFSITE	special concern
red-shouldered hawk	RSHA	2	OFFSITE	threatened
red-tailed hawk	RTHA	2	OFFSITE	
sandhill crane	SACR	17	FLYOVER	
turkey vulture	TUVU	1	FLYOVER	
unknown raptor	UNRA	1	FLYOVER	

## Habitat Considerations and Management Recommendations

Note: Habitat management recommendations are paraphrased from the Wisconsin All-Bird Conservation Plan (WABCP), which synthesizes the requirements and conservation issues of 116 priority bird species and provides recommendations for habitat protection, restoration, and management that will have the greatest impact on state bird populations. The WABCP is coordinated by the Wisconsin Bird Conservation Initiative and can be found at: <http://www.wisconsinbirds.org/plan/>

### **Willow Flycatcher: SC, SGCN**

#### Sites Observed:

Dunnville Wildlife Area: Larrabee Road, Dunnville Road, Beach

- The willow flycatcher is found in a wide variety of woodland edges, boggy forest openings, and roadside shrubs (Sedgwick 2000).
- In the western portion of its range, it favors dense stands of willow shrubs with moist soil underneath.
- In Wisconsin it occurs in lowland shrub habitats (especially willow-dominated shrub swamps) and upland habitats with shrubs (Sample and Mossman 1997).
- Managers should work to maintain lowland shrub swamps, shrub-carr, and scattered patches of grassland-shrubs in open grasslands/natural areas for this species (WDNR 2005).

### **Blue-winged warbler: SC, SGCN**

#### Sites Observed:

Dunnville Wildlife Area: Larrabee Road, Dunnville Road, Beach

Tyrone: Highway 85

- The blue-winged warbler occupies sites with dense vegetation containing a mixture of young trees, shrubs, and thickets in early- to mid-successional habitats (Gill et al. 2001).
- Fink et al. (2006) found blue-winged warblers to be more abundant in glade habitats with more grass and forb cover and less woody cover than regenerating forests.
- Mossman and Lange (1982) found this species in both large and small forest openings, but not on steep slopes and rocky substrates.
- Management should focus on conserving large blocks of shrub-successional habitats that contain areas >50-80 m from edges (WDNR 2005, Rodewald and Vitz 2005). Even-aged forest management (e.g., clearcutting) that favors square or circular patches rather than rectangular or irregular ones will increase the interior habitat of clearcuts and benefit many shrubland species (Rodewald and Vitz 2005).
- Continued management of glade habitats (i.e., controlled burning, mowing, grazing, cedar felling) is important to the conservation of the blue-winged warbler and other shrubland birds in the Midwestern United States (Fink et al. 2006).

## **Lark Sparrow: SC, SCGN**

### Sites Observed:

Dunnville Wildlife Area: Larrabee Road, Dunnville Road, Beach

Tyrone: Cut-off Road, Meridean

- Lark sparrows prefer sites with bare soil or sand blows and short, sparse herbaceous vegetation (Sample and Mossman 1997).
- In Wisconsin this species is a specialist of oak barrens and sand prairies, but it also occurs in short idle grasslands, farmlands, grassland-shrub, and pastures (Sample and Mossman 1997, Martin and Parrish 2000). These habitats typically, but not always, have scattered shrubs and trees (Sample 2006).
- Ground nests often are placed at the base of an herbaceous or woody plant (Martin and Parrish 2000). Lark Sparrows will nest in moderately to heavily grazed pasture lands (Lusk et al. 2003).
- Management for this species should focus on maintaining short (<15cm), sparse herbaceous vegetation with a high grass:forb ratio, high percentage of bare ground, and <5% woody cover (Sample and Mossman 1997).
- Lark sparrows typically respond positively to prescribed burning and will quickly colonize recently burned areas that maintain some woody cover (Dechant et al. 1999, Martin and Parrish 2000).
- Lark sparrows also respond positively to grazing, preferring moderate to heavy grazed fields over ungrazed fields (Martin and Parrish 2000).

## **Grasshopper sparrow: SC, SCGN**

### Sites Observed:

Dunnville Wildlife Area: Dunnville Road, Larrabee Road, Beach

Tyrone: Cut-off Road, Meridean, Highway 85

- Found in open grasslands and prairies (Vickery 1996) such as fallow fields, pastures, idle short to medium height grasslands, dry old fields, and open barrens.
- This species is especially abundant in larger tracts of native dry prairie (Sample and Mossman 1997). Some bare soil is required and stiff-stemmed forbs are attractive song perches.
- Most common in relatively short vegetation with areas of bare ground and clumps of taller dense vegetation. Can inhabit taller grass habitats if vegetation is patchy and not overly dense (Sample and Mossman 1997).
- Grasshopper sparrows prefer larger tracts of habitat (Vickery 1996) and are at least moderately area-sensitive (DeChant et al. 2003, Herkert et al. 1993).
- Management for this species should seek to create the short-grass, low-litter layer conditions that are associated with this species' presence in an open, grass-dominated landscape.
- In Illinois, patches of grass >10-30 ha were needed to support this species (DeChant et al. 2003). This can be done by restoring native dry prairies on appropriate sites or by

managing non-native grassland types (hay, pasture, fallow field) within a larger bird conservation area framework.

- On larger sites, seek to maintain a mosaic of grassland successional stages (treat 20-30% of total area annually) throughout the treatment area (DeChant et al. 2003).
- Site-level management can incorporate burning, mowing, grazing or other disturbance systems as necessary to create the proper structure for this species.
- Delayed mowing, especially on public lands and airports, light to moderate grazing, and burning may be beneficial for grasshopper sparrows (Vickery 1996). Avoid treating areas during the nesting season; mowing or intensive grazing should be delayed until after July 15 (Sample and Mossman 1997).
- The use of fire and light grazing can be used in alternating lots of grasslands to achieve a more heterogeneous vegetation structure that could benefit grassland birds that use a diverse continuum of vegetation structure (Rich et al 2004).
- Grasshopper sparrows will remain in fields cut during the breeding season to re-nest, however their reproductive success in these second attempts is unknown.
- They will also colonize a field not long after it has been burned and will tolerate moderate grazing for the diverse vegetation structure and bare areas these practices create.
- Most old, un-managed smooth brome fields are not suitable habitat for this species and should be periodically rejuvenated through disturbance.



*Grasshopper sparrow perched on Canada tick trefoil in Plot I of Dunnville Wildlife Area. (Photo: Matt Kuchta)*



## **Henslow's sparrow: T, SCGN**

### Sites Observed:

Dunnville Wildlife Area: Beach (Plot H only)

- Henslow's sparrows prefer grasslands with dense, grass-dominated vegetation of tall to moderate height, in either uplands or lowlands.
- Sample and Mossman (1997) classify Henslow's sparrow as a tall-grass species preferring medium to tall vegetation heights, dense litter, and significant residual vegetation in grass dominated fields with little to no woody cover.
- Nests are placed in thick litter at the base of a clump of grass usually slightly elevated from the ground.
- Henslow's sparrows are more likely to be encountered, and densities may be higher, in large grassland areas. Thus, large grasslands may be needed to support persistent populations (Herkert 1998, rev. 2001). Sample and Mossman (1997) list this species as moderately area-sensitive.
- In winter, Henslow's sparrows are found in grass/sedge dominated pine savannas, pitcher plant bogs and other wet low areas.
- Managers should seek to create large (>50ha, preferable 100ha), open grasslands with little to no woody vegetation (Herkert et al. 2003).
- Management should focus on providing tall vegetation with high amounts of litter (Sample and Mossman 1997, Knutson et al. 2001, Herkert et al. 2003).
- Henslow's sparrows do not use disturbed grasslands for one or two breeding seasons post-disturbance due to their requirement for litter and residual vegetation (Sample and Mossman 1997, Herkert et al. 2003). Individual grassland sites should be disturbed on relatively long rotations (4-6 years) or 20%-30% of a site in a given year (Herkert et al. 2003).
- Remove woody treelines or patches of forest that may fragment existing or potential Henslow's sparrow sites (Sample and Mossman 1997, Herkert et al. 2003).

## **Sedge Wren: SC**

### Sites Observed:

Dunnville Wildlife Area: Beach (Plot H only)

- Sedge wrens require dense stands of tall grass or sedge with abundant litter (Sample and Mossman 1997). In Wisconsin, sedge wrens can be found nesting in sedge meadows, wet meadows dominated by reed-canary grass, wet and wet-mesic prairie, and any dense upland grassland. They are especially common in idle Conservation Reserve Program (CRP) fields dominated by brome or warm season grasses.
- They typically do not occur in drier sites.
- Sedge wrens occupy both small and large meadows/grasslands. Vegetation structure seems to be more important than habitat area in predicting sedge wren occurrence (DeChant et al. 2003). Male territories as small as 0.2 ha have been reported (Byrde and Johnson 1991).

- Areas used by nesting sedge wrens tend to be affected by local rainfall conditions, which results in sedge wrens being highly mobile with low site fidelity (Kroodsma and Verner 1978). This results in sedge wrens occupying habitats in some years and being entirely absent in others.
- In winter, this species uses a variety of dense, grassy areas along the lower gulf coast (Herkert et al. 2001).
- Practices that maintain residual vegetation and maintain meadows/grassland will attract sedge wrens.
- Sedge wrens tend to nest later than many grasslands species. Therefore, haying, especially in wet meadows should be postponed until later than the mid-July recommendation give for other grassland species (DeChant et al. 2003), whenever possible.
- Woody encroachment will degrade sedge wren nesting habitat. Periodic disturbances like grazing, mowing, and prescribed burning can be used to set-back woody encroachment. Where used, rotating prescribed burning, mowing, and grazing to provide a mosaic of untreated nesting habitat may minimize negative impacts of these disturbances on sedge wrens.

### **Bobolink: SGCN**

#### Sites Observed:

Dunnville Wildlife Area: Larrabee Road, Beach

- Bobolinks are found in a wide variety of mid-successional native and non-native grassland types, resulting in a broad distribution throughout the state. Many of the non-native grasslands used by bobolinks are still fairly common throughout the state.
- Bobolink conservation requires restoration and management of large grassland landscapes.
- Restorations should seek to create patch sizes greater than 10-30 hectares with little woody edge.
- Management of grassland patches through burning, mowing, or grazing should be done on a 3-6 year rotation in order to limit woody vegetation and provide adequate amounts of mid-successional grassland.
- Avoid disturbing more than 50% of smaller patches and 20% of larger patches on an annual basis (Dechant et al. 2003).
- Mowing should be delayed until after July 15 to protect fledglings and late nesters. If mowing cannot be delayed, one possible solution is to mow from inside out to provide fledglings an escape route. Also, idle lands adjacent to cut fields may allow for second nest attempts since bobolinks will abandon fields mowed during the breeding season.

## **Field Sparrow: SC, SCGN**

### Sites Observed:

Dunnville Wildlife Area: Dunnville Road, Larrabee Road, Beach

Tyrone: Cut-off Road, Meridean, Highway 85

- Field sparrows are a dominant species in dry upland sites such as grassland-shrub, dry prairie, barrens, cut and burned-over areas, young conifer plantations, and woody edges. They are also common in pasture, idle grasslands, dry old fields, oak savannah (Sample and Mossman 1997), woodland openings, roadsides, and railroad right of ways (Carey, Burhans, and Nelson 1994) if proper woody vegetation is available for nesting (1-25% shrubs/saplings).
- They nest on the ground or in the woody vegetation <1m tall.
- Field sparrow's field size requirements are small (found in fields as small as 15 acres) (Knutson et al 2001).
- Management practices that maintain open grassland while keeping shrubs will maintain field sparrows.
- Burning once every 5+ years maintains the grassland without eliminating the shrub content.
- Grazed pastures that maintain shrub component is also an attractive option for field sparrows.
- Frequent mowing and burning are not recommended because they reduce the necessary shrub layer (Sample and Mossman 1997), but mowing done in a way that chooses the best mix of open grass to shrub component could be more beneficial than burning.
- Field sparrows are found on smaller sites, so maintain grassland-shrub communities on smaller sites that have less opportunity for other grassland species is recommended.
- Oak opening restorations should maintain patches of shrubs within the site for this and other shrub species.

## **Eastern Meadowlark: SGCN**

### Sites Observed:

Dunnville Wildlife Area: Dunnville Road, Larrabee Road, Beach

Tyrone: Highway 85

- Pastures with light grazing, hayfields with delayed mowing, and managed idle/CRP fields with the appropriate vegetation structure are important for maintaining the Eastern meadowlark population in Wisconsin (Renfrew and Sample 2002).
- Many native prairies are too small and isolated to maintain meadowlark populations on their own (Sample and Mossman 1997).
- Grassland restoration and management for Eastern meadowlarks should seek to create large patches of habitat with a variety of successional stages and types (Hull 2003).
- It is best to delay mowing until mid to late July to avoid nest destruction (Sample and Mossman 1997).

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- Fields left idle, like CRP fields, are good substitutes for native prairie. However; managers should periodically disturb these fields (3-5 years) to limit woody encroachment and to increase forb diversity (Hull 2003).
- Moderate grazing levels are compatible with this and other grassland bird species (Hull 2003, Sample and Mossman 1997).

### **Brown Thrasher: SC, SGCN**

#### Sites Observed:

Dunnville Wildlife Area: Dunnville Road, Larrabee Road, Beach

Tyrone: Highway 85

- The brown thrasher occurs in a wide variety of habitats, including large clearcut areas with oak or other deciduous tree regeneration. It reaches its highest densities on the edge of shrub habitat or mid-successional forests (Cavitt and Haas 2000).
- Although an edge species, brown thrashers are more likely to occur along fields >6 hectares (Knutson et al. 2001).
- The brown thrasher nests in hedgerows and along the edges of fields, farmsteads, and deciduous forests (Robbins 1991, Knutson et al 2001).
- Isolated shelterbelts and shrub patches may afford greater nesting success than those close to other wooded habitats (Haas 1997). Isolated patches may be less accessible to mammalian and other types of predators.
- Management should seek for enhancement of shrub habitats. Efforts are needed to preserve and/or enhance shrubland habitats and/or mid-successional stages of forest.
- Prescribed fire may be a viable management tool to maintain barrens and shrubland habitats.
- Brown thrashers will use areas with frequent burn rotations (annual) as long as a shrub-component remains (Davis et al. 2000).

### **Project Recommendations**

The primary focus of the Grassland Bird Monitoring in the Lower Chippewa River Project was to fulfill a need for widespread bird surveys in the LCR to create a baseline documentation to allow future monitoring of trends in bird populations that depend on grassland habitats. In preparation of future monitoring the following recommendations are made:

- Provide more opportunities for training before the field season begins. For the 2010 season, volunteer citizen scientists were presented with a ½ day training workshop that included a classroom portion and a field portion. Materials and CDs of bird songs were provided to each volunteer. Prior to the start of the 2011 field season conduct original training workshop and then provide 2-5 additional training days were citizen scientist volunteers can have more practice in the field learning bird identification, conducting mock surveys, reviewing protocols and proper data collection methods.

- Design a pre-/post-survey for volunteers to determine strengths and weaknesses of training and gain in awareness and skills.
- Strive to retain and continue to recruit volunteers.
- Chose qualified “lead birders” to select a survey site for which they will be in charge of for the field season. Lead birders will mentor other volunteers in proper bird identification, following protocol and data collection. Lead birders will be responsible for ensuring data sheets are correct and complete, they will enter data in database and email to project coordinator.
- A survey time of 20 minutes proved to be a challenge when trying to survey 25 acres. Often the whole 25 acres were not thoroughly covered or birds were not able to be followed/observed long enough to identify species. Consider increasing the survey time from 0.80minutes/acre to 1 minute per acre. As prior stated, survey time would be adjusted accordingly for survey plots with varied acreage.
- Other possibilities: Divide surveyors into groups, one recorder, two continuous surveys that keep walking forward and two birders who follow unidentified birds. Divide survey plot and have individual surveyors/teams survey designated section of plot.
- Meet with property managers fro WDNR and Xcel to determine future recommended survey sites.

### **Future Additions to the Project**

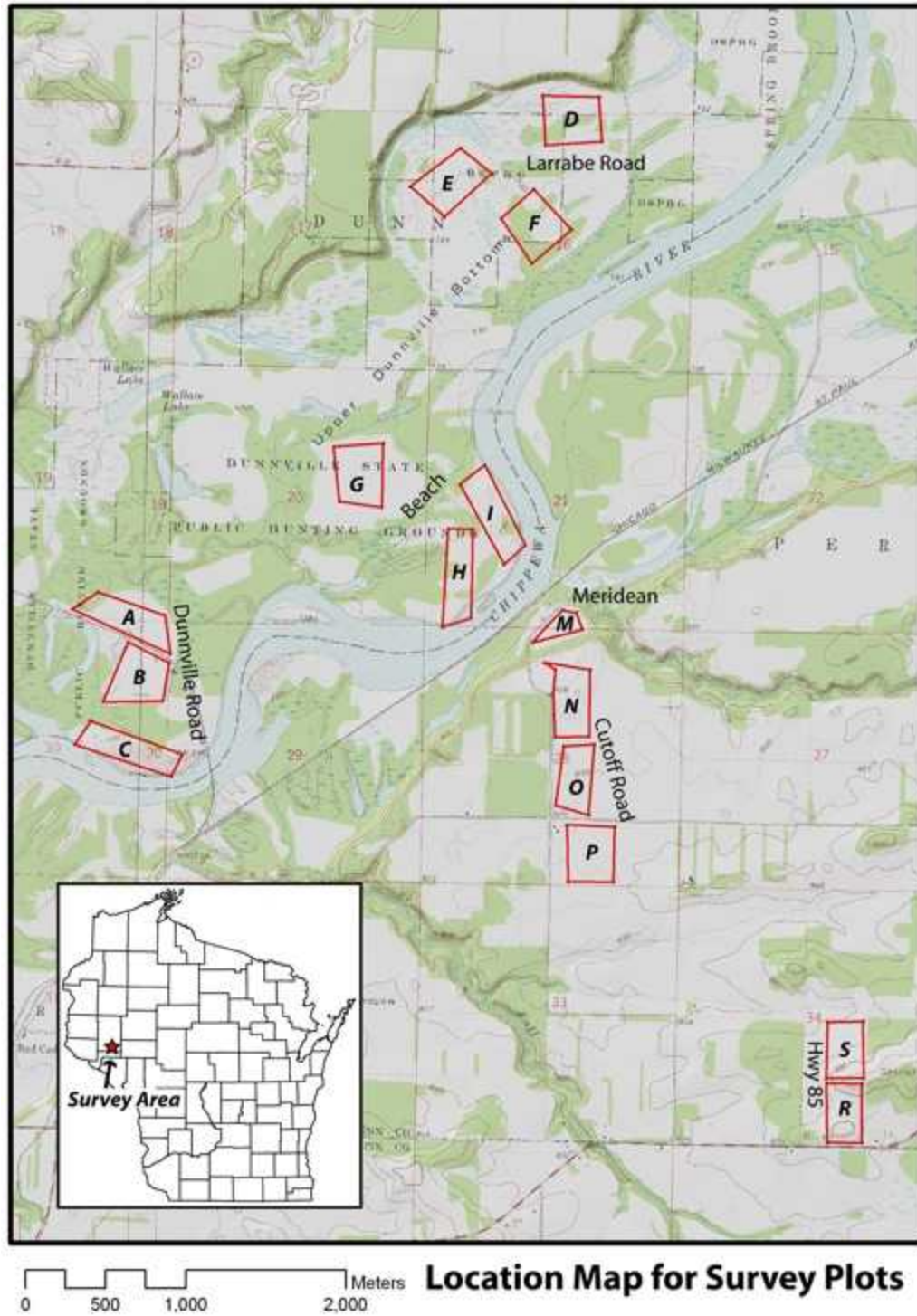
*Banding* – Bird banding is a universal and indispensable technique for studying the movement, survival, population, nesting and behavior of birds.

*Nest Searching* - Nest searching is important to determine if a species is present, and how successful birds reproduce in a given habitat or area.

*Project Expansion* - Further fulfill land managers needs by expanding to other locations within the LCR or outside of the LCR.

## Appendices

### *Appendix A. Maps and GPS Coordinates for Survey Plots*















**Dunnville Road**

<i><b>DR/A</b></i>	<i><b>24.9 acres</b></i>
Point 1:	91° 52' 49.9" W 44° 42' 47.0" N
Point 2:	91° 52' 42.7" W 44° 42' 50.5" N
Point 3:	91° 52' 23.7" W 44° 42' 46.1" N
Point 4:	91° 52' 21.9" W 44° 42' 38.4" N

<i><b>DR/B</b></i>	<i><b>24.9 acres</b></i>
Point 1:	91° 52' 22.2" W 44° 42' 36.6" N
Point 2:	91° 52' 23.8" W 44° 42' 28.8" N
Point 3:	91° 52' 40.6" W 44° 42' 28.4" N
Point 4:	91° 52' 33.9" W 44° 42' 40.5" N

<i><b>DR/C</b></i>	<i><b>24.7 acres</b></i>
Point 1:	91° 52' 48.3" W 44° 42' 19.6" N
Point 2:	91° 52' 44.1" W 44° 42' 24.4" N
Point 3:	91° 52' 17.9" W 44° 42' 18.0" N
Point 4:	91° 52' 20.9" W 44° 42' 13.6" N

**Larrabee Road**

<i><b>LR/F</b></i>	<i><b>25.3 acres</b></i>
Point 1:	91° 50' 51" W 44° 44' 8" N
Point 2:	91° 50' 42" W 44° 44' 14" N
Point 3:	91° 50' 31" W 44° 44' 6" N
Point 4:	91° 50' 42" W 44° 43' 59" N

<i><b>LR/E</b></i>	<i><b>24.9 acres</b></i>
Point 1:	91° 51' 17" W 44° 44' 14" N
Point 2:	91° 51' 3" W 44° 44' 22" N
Point 3:	91° 50' 54" W 44° 44' 17" N
Point 4:	91° 51' 7" W 44° 44' 8" N

<i><b>LR/D</b></i>	<i><b>24.8 acres</b></i>
Point 1:	91° 50' 40" W 44° 44' 33" N
Point 2:	91° 50' 39" W 44° 44' 23" N
Point 3:	91° 50' 23" W 44° 44' 24" N
Point 4:	91° 50' 24" W 44° 44' 33" N

**Beach**

<i><b>Beach/I</b></i>	<i><b>24.7 acres</b></i>
Point 1:	91° 50' 48" W 44° 42' 58" N
Point 2:	91° 51' 1" W 44° 43' 14" N
Point 3:	91° 50' 54" W 44° 43' 18" N
Point 4:	91° 50' 42" W 44° 43' 2" N

<i><b>Beach/H</b></i>	<i><b>24.9 acres</b></i>
Point 1:	91° 51' 4" W 44° 43' 5" N
Point 2:	91° 51' 5" W 44° 42' 45" N
Point 3:	91° 50' 57" W 44° 42' 47" N
Point 4:	91° 50' 57" W 44° 43' 5" N

<i><b>Beach/G</b></i>	<i><b>25.4 acres</b></i>
Point 1:	91° 51' 37" W 44° 43' 21" N
Point 2:	91° 51' 23" W 44° 43' 22" N
Point 3:	91° 51' 23" W 44° 43' 9" N
Point 4:	91° 51' 35" W 44° 43' 10" N

**Meridean Road**

<i>Mer/M</i>	<i>7.1 acres</i>
Point 1 - flag	91° 50' 35" W
	44° 42' 46" N
Point 2	91° 50' 31" W
	44° 42' 49" N
Point 3	91° 50' 27" W
	44° 42' 49" N
Point 4	91° 50' 25" W
	44° 42' 45" N
Point 5	91° 50' 39" W
	44° 42' 42" N

**Cut Off Road**

<i>CO/N</i>	<i>25.0 acres</i>
Point 1	91° 50' 33" W
	44° 42' 32" N
Point 2	91° 50' 32" W
	44° 42' 23" N
Point 3	91° 50' 23" W
	44° 42' 24" N
Point 4	91° 50' 23" W
	44° 42' 37" N
Point 5	91° 50' 33" W
	44° 42' 37" N
Point 6	91° 50' 38" W
	44° 42' 36" N

<i>CO/O</i>	<i>25.0 acres</i>
Point 1	91° 50' 32" W
	44° 42' 09.5" N
Point 2	91° 50' 22" W
	44° 42' 07.7" N
Point 3	91° 50' 21" W
	44° 42' 22" N
Point 4	91° 50' 30" W
	44° 42' 21.5" N

<i>CO/P</i>	<i>24.9 acres</i>
Point 1	91° 50' 29" W
	44° 42' 6" N
Point 2	91° 50' 15" W
	44° 42' 5" N
Point 3	91° 50' 15" W
	44° 41' 54" N
Point 4	91° 50' 28" W
	44° 41' 54" N

**HWY 85**

<i>Hwy 85/R</i>	<i>20.0 acres</i>
Point 1	91° 49' 12.8" W
	44° 41' 2.5" N
Point 2	91° 49' 3.0" W
	44° 41' 2.6"
Point 3	N 91° 49' 3.3" W
	44° 41' 14.6" N
Point 4	91° 49' 13.3" W
	44° 41' 14.5" N

<i>Hwy 85/S</i>	<i>19.9 acres</i>
Point 1	91° 49' 2.9" W
	44° 41' 15.7" N
Point 2	91° 49' 3.4" W
	44° 41' 27.2" N
Point 3	91° 49' 13.4" W
	44° 41' 26.9" N
Point 4	91° 49' 13.5" W
	44° 41' 15.5" N

***Appendix B. Grassland Bird Monitoring in the Lower Chippewa River Survey Protocol.***

## **Area Search Protocol**

### **Background**

The Area Search uses a method that, while quantitative, mimics the method that a birder would use while searching for birds in a given area. An Area Search is defined by habitat and is constrained by time. This allows bird relationships to be determined and land management techniques assessed. The Area Search method is a series of three 20-minute surveys in which the observer can move around birding in a restricted plot. This method is ideal for citizen scientists with varying identification skills. Observers are able to interact, compare notes and chase down unfamiliar species or sounds. It is ideal for recruiting new observers in that it requires little training. Non-birders may even participate by serving as recorders or tallying obvious species.

### **Preparation**

Citizen scientists should attend the Grassland Bird Survey Training. It is helpful if observers are reasonably familiar with the common bird species likely to be encountered. Conducting a mock survey with a person familiar with the area birds allows the observer to ask questions and become more efficient.

### **Choosing a Survey Site**

Any site containing a definable habitat may be chosen for a census. The Survey Site should allow relatively easy detection and identification of birds (by sight or sound) and allow the observer to move about freely. Each Survey Site should consist of three separate 25-acre plots.

### **Choosing a Plot**

The Survey Site should be sufficiently large to provide three separate plots, each plot 25 acres. The plot should be such that it can be easily covered and birded thoroughly over a 20-minute period. The plots can have adjoining boundaries or can be in completely separate regions of the Survey Site. Plots are typically square, but can be of any shape. In general the plot boundaries should be at least 25 meters from the edge of the chosen habitat or from different habitats; this may not always be possible. Plot boundaries should be planned and marked with a GPS. If Plot acreage must be altered due to vegetation cover or size of Survey Site, determine the survey time by using the following equation: # of acres x 0.8 = survey time

### **Time of Day**

Surveys should begin within 15 minutes of local sunrise, and be complete by 10 am.

### **Conducting a Survey**

The entire 25-acre plot should be covered in the 20-minute survey time. There is no official begin or end point. All three plots of a Survey Site should be covered in a morning. Walk throughout the plot for exactly 20 minutes, stopping or moving to investigate sightings or calls when appropriate. Record numbers of each bird species seen or heard in the search area during the allotted time. Record birds outside the search area separately, but concentrate on finding as many birds as possible within the plot. Remember, the time limit is 20 minutes. Do not be distracted or spend too much time looking for birds or nests. An Area Search can be intense. An accompanying observer can act as a timekeeper, recorder or a monitor of obvious birds. Please

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be sensitive, do not harass birds, stay too long near a nest or anywhere where birds are distress calling. Audio players are not allowed.

### **Filling in the Data Form**

A data form is not complete until each section is entirely filled in. Please do not turn in data sheets until they are complete.

During the census, carefully record the name of each species seen or heard on the plot in the Species Code column, using the 4-letter alpha code. Fill in the Total column for each species after the census is complete. Recording any special behaviors (such as food carries, flocking, displaying) is strongly recommended but not required; add to the Notes column. Other species not recorded in the 20 minutes, observed off the plot, as a flyover or exhibiting interesting behaviors may also be recorded under the Notes column.

### **Frequency**

3 plots, completing a search area, should be surveyed in a single morning. At least 2, ideally 3, censuses of each plot should be done during the breeding season. Space surveys at least 2 weeks apart. The same exact plots must be censused annually and at approximately the same time of year.

### **Equipment**

- Data forms
- Stopwatch
- Extra pen
- Binoculars
- Field guide
- Clipboard
- Map
- GPS
- Hat
- Sunscreen
- Bug spray
- Water
- Snacks

*Appendix C. Species List for All Surveys*

**Individual Species Totals  
Across all Sites**

<u>Species</u>	<u>Total Counted</u>
American crow	23
American goldfinch	63
American redstart	1
American robin	28
bald eagle	1
Baltimore oriole	21
barn swallow	3
black-capped chickadee	2
blue jay	8
blue-headed vireo	1
blue-winged warbler	13
bobolink	32
brown thrasher	9
brown-headed cowbird	136
cedar waxwing	27
chipping sparrow	57
clay-colored sparrow	89
cliff swallow	4
common grackle	2
common yellow-throat	50
downy woodpecker	2
Eastern towhee	1
Eastern bluebird	56
Eastern kingbird	43
Eastern meadowlark	63
Eastern phoebe	1
Eastern towhee	17
Eastern wood peewee	1
field sparrow	163
grasshopper sparrow	96
gray catbird	35
great-crested flycatcher	2
hairy woodpecker	1
Henslow's sparrow	14
horned lark	19
house wren	14
indigo bunting	20
killdeer	3
lark sparrow	26
least flycatcher	1
mourning dove	54
Northern flicker	17
Northern harrier	1



orchard oriole	19
oven bird	2
red-bellied woodpecker	5
red-tailed hawk	3
red-winged blackbird	8
rock dove	1
rose-breasted grosbeak	4
ruby-throated hummingbird	11
sandhill crane	17
savannah sparrow	2
scarlet tanager	1
sedge wren	2
song sparrow	107
tree swallow	20
turkey vulture	2
unknown raptor	1
unknown sparrow	155
unknown swallow	2
unknown woodpecker	2
warbling vireo	1
white-breasted nuthatch	2
willow flycatcher	18
wood thrush	1
yellow warbler	24
yellow-throated vireo	1

Total # of birds =	1631
Total # of species =	68
Unknown Birds =	160

*Figures*

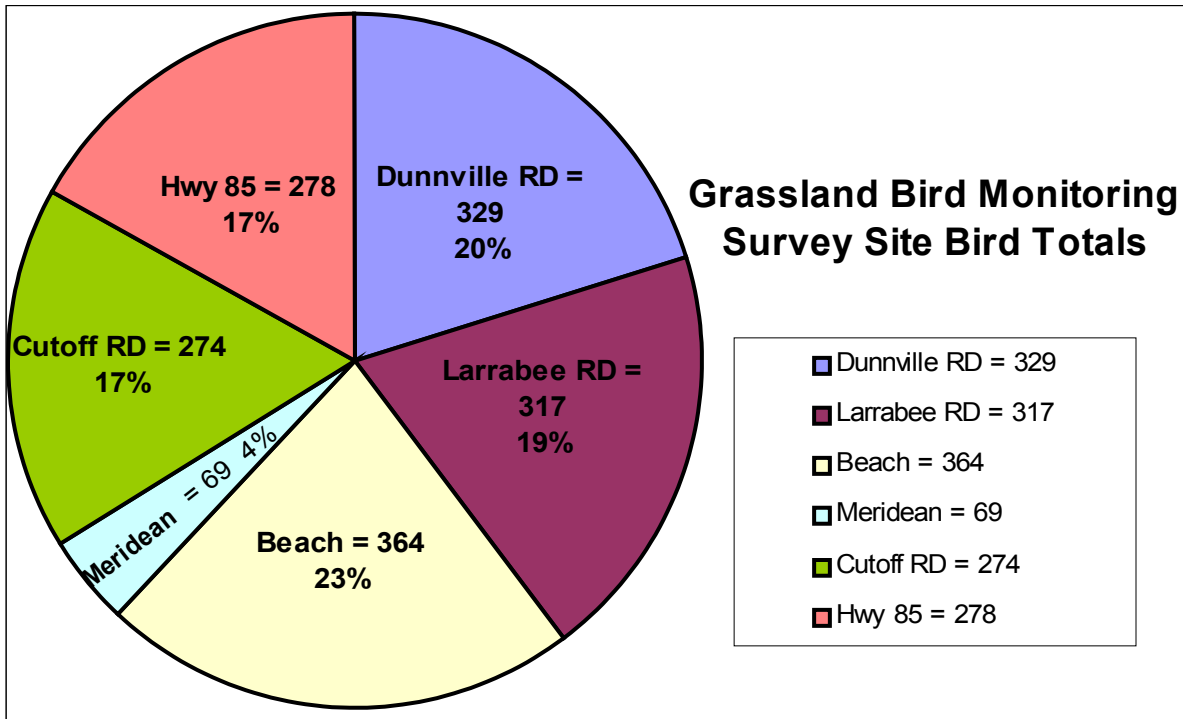


Figure 1

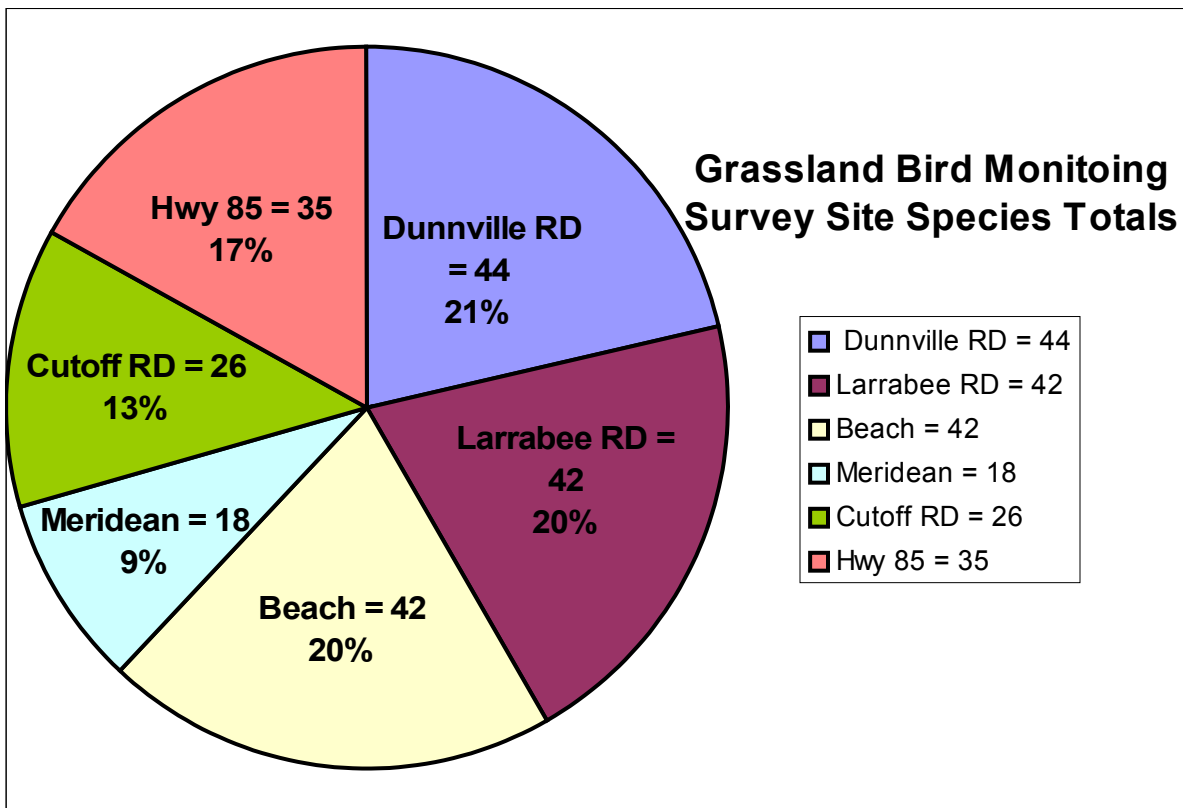


Figure 2

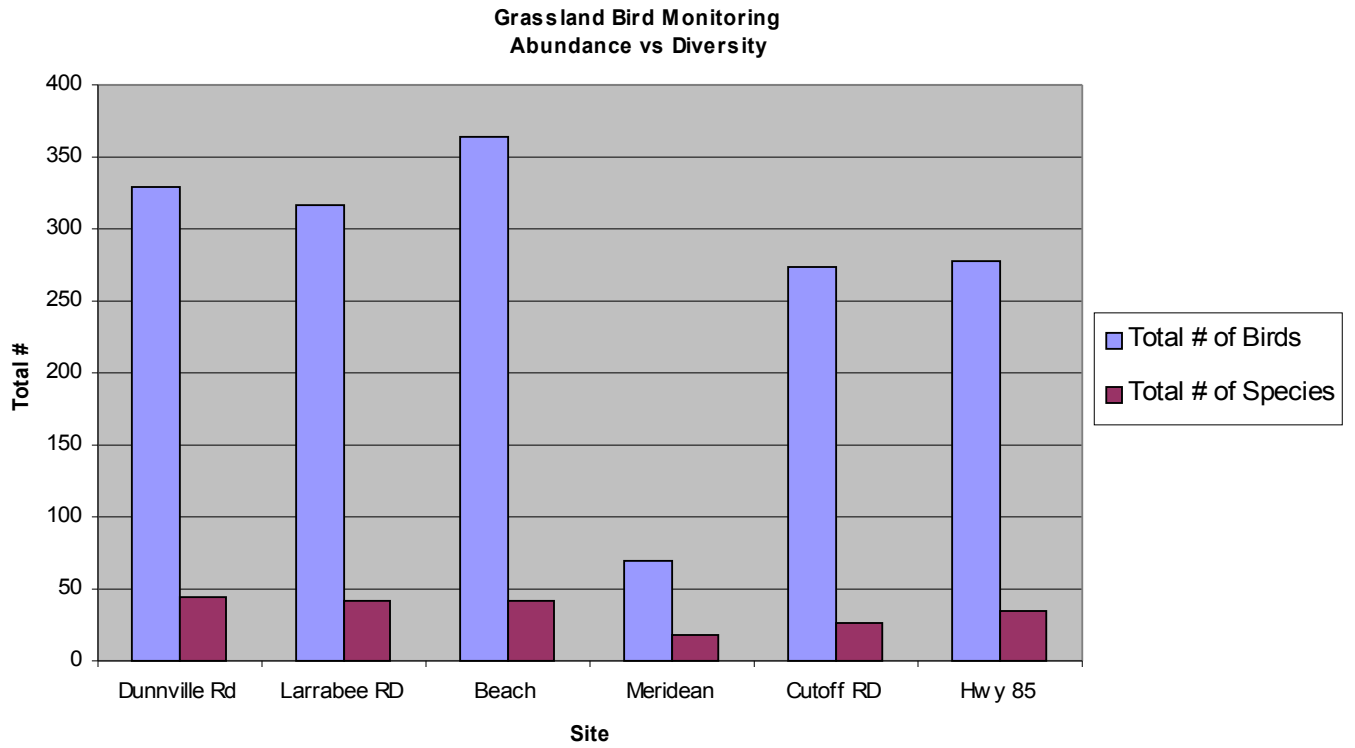
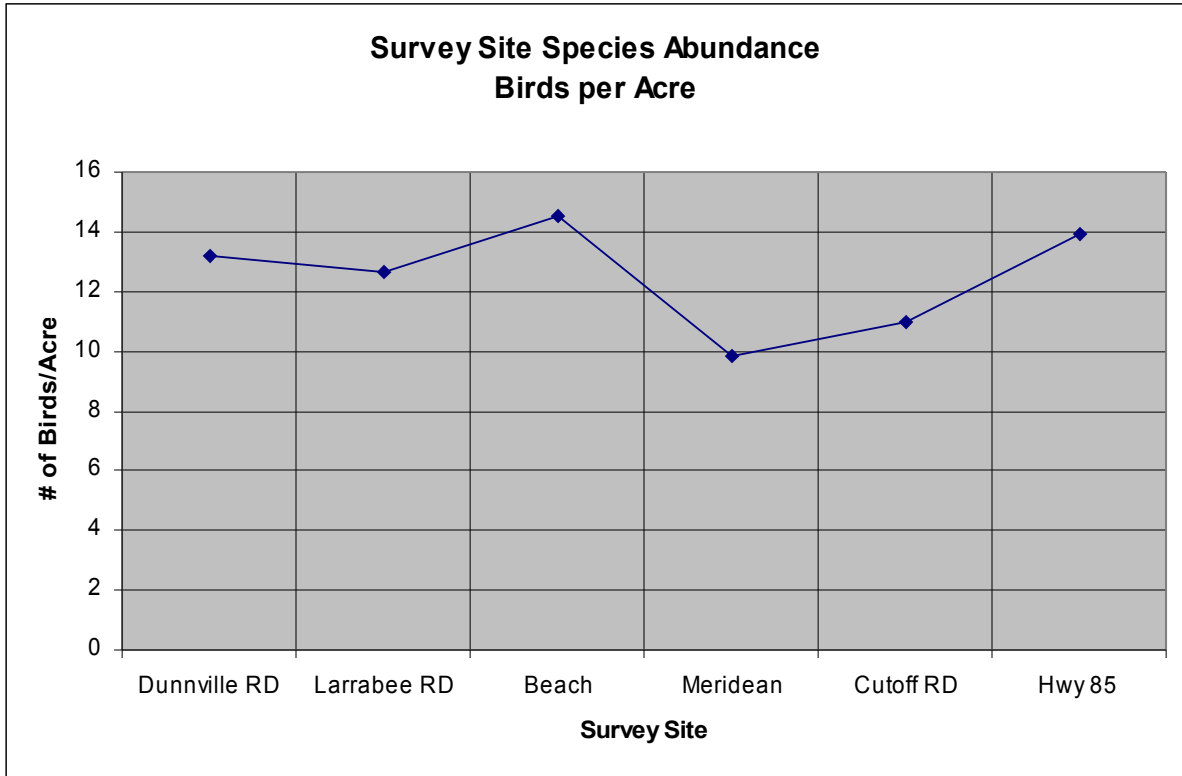


Figure 3



Figure

4

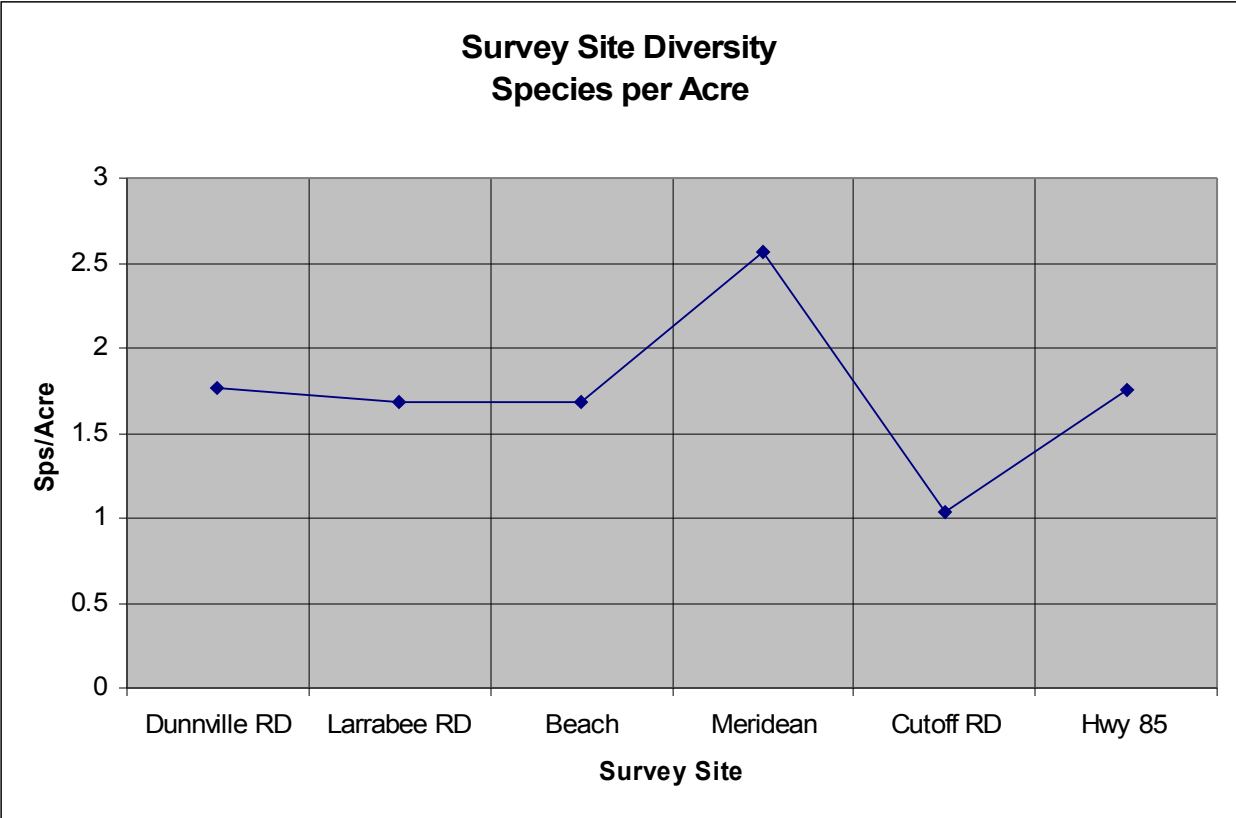


Figure 5

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