First Documentation that Henslow's Sparrow Regularly Occurs During the Breeding and Wintering Seasons in Arkansas

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Conservation of grassland and other open habitats has been greatly overlooked in North America relative to other habitat types, particularly forests and woodlands (Askins, 2001). For example, Noss et al. (1995) reported that 79% of ecosystems in eastern North America that had declined by ≥98% were composed of grassland, savanna, barren, and shrubland habitat types. This conservation oversight has been followed by the decline of most bird species dependent on grassland and other open habitats. Indeed, since 1966, 15 of the 19 species of grassland and savanna birds in eastern North America have declined in abundance, some with rapid population changes (Askins, 2000).

Henslow's Sparrow (*Ammodramus henslowii*) is a species whose numbers have declined dramatically due to loss of grassland habitat (Pruitt, 1996; Herkert et al., 2002) with the steepest population decline of any grassland bird in North America from 1966 through 2000 (Sauer et al., 2001). Its breeding range is generally considered to be from the central prairies to the coastal marshes of the northeastern United States with very small populations in southern Ontario and Quebec (Herkert et al., 2002). Henslow's Sparrow winters in the southeastern United States (Herkert et al., 2002).

During the breeding season this inconspicuous bird prefers large grassland areas with tall, dense grass, residual standing dead vegetation, thick accumulations of litter, and sparse woody vegetation (Herkert et al., 2002). Occasional disturbance by fire, grazing, haying, or mowing is necessary to prevent encroachment of woody vegetation and to maintain the open grassland habitat that the species prefers (Pruitt, 1996). However, because these disturbances reduce or eliminate accumulated litter and other dead vegetation, Henlow's Sparrows in general will not use an area for breeding for one or two years following such disturbances (Herkert, 1994; Pruitt, 1996).

Winter habitat requirements of Henslow's Sparrow are less well known, though a recent study by Carrie et al. (2002) suggests that in Louisiana they prefer grassland areas with little or no litter and large amounts of herbaceous cover. They found Henslow's Sparrow wintering in longleaf pine (*Pinus palustris*) savannas and in forest openings created by insect damage and wind throw. Tucker and Robinson (2003) found Henslow's Sparrow wintering in pitcher plant bogs of longleaf pine communities of southern Alabama and northern Florida. Their study indicated that Henslow's Sparrow is most likely to occur in their study area on bogs that have a high frequency of grass seeds and a high density of forbs. Both studies found modest patches of shrubs in areas occupied by Henslow's Sparrows.

Henslow's Sparrow often occurs in highly localized, relatively rare habitats and its short, soft song is difficult for many people to hear (Pruitt, 1996). In addition, this species often walks or runs on the ground in dense grass (Herkert et al., 2002) making detection difficult visually even when they are nearby. The higher difficulty of detecting Henslow's Sparrow relative to other bird species has resulted in it being inadequately sampled using standardized methods such as North American Breeding Bird Survey routes (Pruitt, 1996) and Christmas Bird Counts (Carrie et al., 2002).

Until recently it was assumed that Henslow's Sparrow was a rare and irregular transient and winter visitor in Arkansas (James and Neal, 1986; Pruitt 1996). In 2002 Herkert et al. described the wintering range as extending north at least to southern Arkansas. However, the degree to which Henslow's Sparrow regularly winters and breeds in Arkansas is poorly understood because no research has focused on detecting this species there. This lack of knowledge makes it difficult to know if habitat management for this species in Arkansas is appropriate and if so, where. Thus, the objective of this study was to investigate the locations and regularity of Henslow's Sparrows in Arkansas during the breeding and wintering seasons.

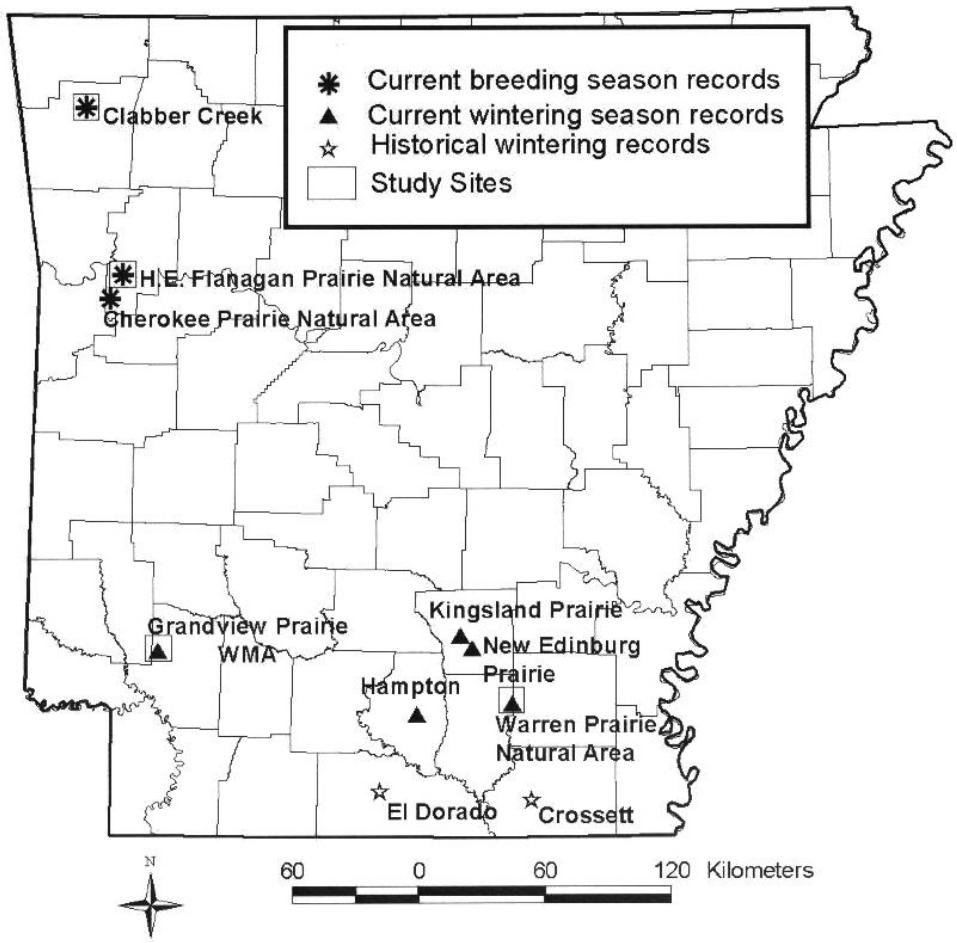

Fig. 1. Map of the field sites and other known Henslow's Sparrow locations.

We conducted field work at four sites in Arkansas where habitat was thought to be suitable for breeding or wintering Henslow's Sparrow (Fig. 1). The four sites were Warren Prairie Natural Area in southern Arkansas, Grandview Prairie Wildlife Management Area in southwestern Arkansas, and H.E. Flanagan Prairie Natural Area and Clabber Creek, both in northwestern Arkansas.

Warren Prairie Natural Area (WPNA) is a 493-ha nature preserve owned and managed by the Arkansas Natural Heritage Commission and The Nature Conservancy. It is located approximately 11 km southeast of Warren in Bradley and Drew counties. It consists of a mosaic of salt slick barrens, saline soil prairies (barrens), and pine-oak woodlands (Arkansas Natural Heritage Commission, 2003).

Grandview Prairie Wildlife Management Area (GPWMA) is a 1,977-ha area managed for the protection, enhancement, and restoration of Blackland Prairie. It is located three km north of Columbus in Hempstead County. The site protects the largest contiguous tract of Blackland Prairie in public ownership in the nation and consists of a mosaic of prairie, woodland, and bottomland habitat (Arkansas Game and Fish Commission, 2004).

H.E. Flanagan Prairie Natural Area (FPNA) is a 104-ha nature preserve owned and managed by the Arkansas Natural Heritage Commission. It is located approximately 6.5 km northeast of Charleston in Franklin County and consists of a remnant tallgrass prairie that was once part of the extensive Cherokee Prairie that formerly occupied approximately 54,630 ha (Arkansas Natural Heritage Commission, 2003).

Clabber Creek (CC) consists of two units. The first, Wilson Springs (WS), is an 80-ha mesic bottomland field that once was tallgrass prairie. This site is located on the northwestern edge of Fayetteville, and CC bisects this unit. The second unit is a 24-ha mesic bottomland field approximately 0.8 km downstream from WS. Both units

Site	92-93	93-94	94-95	95-96	96-97	97-98	98-99	99-00	00-01	01-02	02-03	03-04
Warren Prairie	1	4	3	3	1	6	1	–	–	1	14	6
Hampton	–	–	–	–	1	1	2	2	2	1	1	3
Kingsland Prairie	–	–	4	1	–	–	–	–	–	–	–	1
Grandview Prairie	–	–	–	–	–	–	4	1	–	–	–	1
New Edinburg Prairie	–	–	–	–	–	–	–	–	–	–	–	1
Totals	1	4	7	4	2	7	7	3	2	2	15	13

Table 1. Henslow's Sparrows observed in southern Arkansas from the winter of 1992-1993 through the winter of 2003-2004.

have modest remnants of tallgrass prairie vegetation.

Field work consisted of searching for Henslow's Sparrows in grassland areas at the four sites. We conducted winter searches by walking haphazard paths throughout grassland fragments and observing flushed birds. Winter surveys were conducted December through March from March 1993 through March 2004. We conducted breeding season searches in the summer (May-August) from 1998 through 2004 by listening for singing males, using playback songs to attract males defending territories, and by walking haphazard paths throughout grassland fragments and observing flushed birds. We recorded the locations of observed territories and revisited them throughout the summer to search for Henslow's Sparrow fledglings. The fledging period is defined as the interval between hatching and sustained flight (Skutch, 1976). We labeled birds seen during this period as fledglings. Because fledglings are incapable of long-distance dispersal by flight and are unlikely to do so by walking, the observation of fledglings provides strong evidence that birds likely successfully nested nearby. Fledglings were easily identified by their short tails, conspicuous gape, lack of or weak ability to fly, and dependency on parents for food. The postfledging period for passerines is defined as the period between first independence from parents until departure on migration (Vega Rivera et al., 1998). We labeled birds seen during this period as juveniles. Fledglings and juveniles have the same plumage, which is distinctive from that of adults (Herkert et al., 2002). Juveniles are easily separated from fledglings by their full or nearly full-length tail, fully developed gape and flight ability, and their independence from adults for food. We did not search for nests.

In addition, data from the Arkansas Audubon Society Bird Records Database (Arkansas Audubon Society, 2003) for the period 1992-2003 were searched to determine if other areas recently supported Henslow's Sparrow. This also augmented data we collected for the four sites we surveyed. Additional data for Hampton (Calhoun County) was provided by personal communication from Joe Cambre. WMS visited the Hampton site one winter and confirmed identification.

Henslow's Sparrows were observed wintering in southern Arkansas in each of the 12 years from the winter of 1992-1993 through the winter of 2003-2004. We found Henslow's Sparrows consistently wintering at four sites located in portions of five counties in southern Arkansas (Fig. 1). These wintering sites are located in the contiguous counties of Bradley, Calhoun, Cleveland, and Drew and in southwestern Arkansas in Hempstead County. Data from the Arkansas Audubon Society Bird Records Database (Arkansas Audubon Society, 2003) indicates that Henslow's Sparrow consistently occurred in Hampton in November in addition to the winter season. We did not investigate arrival and departure dates.

Henslow's Sparrows were observed exhibiting breeding behavior in northwestern Arkansas in six of the seven years from 1998 through 2004. Young fledglings dependent on adults for food were observed in or adjacent to known territories in three years and a juvenile was observed with two adults near a known territory in a fourth year. We found two sites in northwestern Arkansas (Fig. 1) consistently supporting Henslow's Sparrows throughout the breeding season. These breeding season sites are located in Franklin and Washington Counties. In addition, Henslow's Sparrows were observed feeding young fledglings at a third site in 2004, also located in Franklin County.

At least one wintering Henslow's Sparrow was observed in 10 out of 12 winters at WPNA from the winter of 1992-1993 through the winter of 2003-2004 (Table 1). A low of one bird was observed four times, and a high of 14 was

observed during 2002-2003. Six birds were observed during two different winter seasons.

Two Henslow's Sparrows observed at New Edinburg Prairie (Cleveland County) were made by WCH in a saline barren on 19 March 2004 during an unrelated study. In addition, a single Henslow's Sparrow was observed by WMS south of Crossett in open, commercially managed pine woods in Ashley County in December of 1988. Less recent records include observations near El Dorado in Union County during the winter months of 1950 and 1951 and near Stuttgart in Arkansas County in February of 1951 (Arkansas Audubon Society Bird Pre-1987 Record Files).

Henslow's Sparrows were observed exhibiting breeding behavior at FPNA in four out of seven years from 1998 through 2004. Singing males were observed as early as 26 May 2004 and as late as 5 August 2003, though those dates also mark the earliest and latest dates for surveys at this site. The number of singing males observed ranged from two in 1998, 1999 and 2004 to four in 2003. A Henslow's Sparrow fledgling with a tail length approximately one-fourth that of an adult and a conspicuous gape was observed being fed by adults on 14 July 2003. This bird appeared incapable of sustained flight and could only glide for about two meters before it would flutter and then drop to the ground. A juvenile was observed with two adults near a known territory on 21 July 1998.

Henslow's Sparrows were further noted to exhibit breeding behavior at CC in all four years from 2001-2004. Singing males were observed as early as 25 April 2002 and as late as 6 August 2002. In 2003, Henslow's Sparrows were observed each month from 10 May – 4 September. We observed one singing male in 2001, four in 2002, five in 2003, and four or five in 2004. The four males in 2002 were first detected singing on 25 April during a pre-survey visit and were subsequently observed singing each month through 6 August 2002. Fledglings dependent on adults for food were observed in a known territory in 2002 (undocumented date) and on 13 August 2003. All birds observed in 2001 and 2002 were at the WS unit, in 2003 all birds were observed at the unit approximately 0.8 km downstream, and in 2004 one bird was observed at the WS unit and the remainder 0.8 km downstream. The tall grass where Henslow's Sparrows established territories at WS was hayed by the city of Fayetteville during the nesting season in summer of 2001 and 2003. It appears likely that a significant portion of the WS unit will soon be developed for commercial and residential uses.

In addition, WCH observed Henslow's Sparrow exhibiting breeding behavior at Cherokee Prairie Natural Area (Franklin County) in 2004 during an unrelated study. This site is three miles southwest of FPNA and contains 229 ha of remnant tallgrass prairie. Four active territories were observed, two of which had fledglings on 9 July 2004. One territory contained two very young fledglings that each had a tail length approximately one-fourth that of an adult, a conspicuous gape, and weak, short flights (< 5 m).

Henslow's Sparrows were observed every winter in southern Arkansas from the winter of 1992-1993 through the winter of 2003-2004. In addition, we observed evidence of breeding behavior in six out of seven years in northwestern Arkansas from 1998 through 2004. Further, we observed young fledglings incapable of sustained flight and totally dependent on adults for food during three years, which we believe strongly suggests that Henslow's Sparrows successfully bred in northwestern Arkansas in those years. A juvenile was observed in a fourth year. This represents the first documentation that Henslow's Sparrow regularly occurs during the breeding and wintering seasons in Arkansas. Until recently this species was considered a rare and irregular transient and winter visitor in Arkansas (James and Neal, 1986; Pruitt 1996); though Herkert et al. (2002) recently described the wintering range as extending north at least to southern Arkansas based on data collected during this study by WMS.

Four sites in Arkansas consistently supported wintering Henslow's Sparrows. Three of the four sites were in the contiguous area of Bradley, Calhoun, Cleveland, and Drew Counties (WPNA crosses two counties). In addition, Henslow's Sparrows had been previously documented in Ashley County in 1988 and Union County in 1951 (Arkansas Audubon Society Bird Pre-1987 Record Files). Both of these counties are adjacent to the southern border of Bradley County, suggesting that there may be at least six contiguous counties in southern Arkansas that support wintering populations of Henslow's Sparrows in Arkansas.

The primary habitat where wintering Henslow's Sparrows occur within the contiguous six-county area consists of saline soil barrens. These barrens are generally small and range from less than 0.1 ha to 4 ha. The barrens are dominated by wiregrass (*Aristida* sp.) and mid-height grasses such as little bluestem (*Andropogon scoparius*). The barrens are very wet in the winter and support a fair amount of moss (two species of *Polytrichum* Hedw.; Witsell, pers. comm.). The soil on the edge of the barrens is less saline and supports Delta post oak (*Quercus similis*), loblolly pine (*Pinus taeda*), and shortleaf pine (*P. echinata*) that are mostly in a stunted shrub state due to the salinity of the soil. These barrens are surrounded primarily by pine-oak woodlands that occur in deeper, less saline soils (Pittman, 1988).

Only 1,000 ha or less of saline soil barrens occur in southern Arkansas (Foti, pers. comm.). Therefore, with such little available habitat, Henslow's Sparrow may be a rare winter resident in Arkansas. However, Tucker and Robinson (2003) found Henslow's Sparrow wintering in open, pitcher plant bogs of longleaf pine communities of southern Alabama and northern Florida ranging in size

from 0.06-1.17 ha. This suggests that even small open areas could support wintering Henslow's Sparrows. Not all of the saline barrens in Arkansas have been searched for Henslow's Sparrows. In addition, southern Arkansas historically supported extensive open pine forests (savannas and woodlands) with grass and forb understories (Bragg, 2002). Pine savannas in Louisiana support large populations of wintering Henslow's Sparrows (Carrie et al., 2002). Though little pine savanna remains in southern Arkansas, this reduced habitat has not been investigated for wintering Henslow's Sparrows. Therefore, though it appears likely that Henslow's Sparrow is a rare winter resident of Arkansas, additional research is warranted.

The habitat where Henslow's Sparrows occurred during the breeding season in northwestern Arkansas is characterized as mesic tallgrass prairie remnants. At FPNA, Henslow's Sparrows established territories in tallgrass prairie in the northeastern portion of the natural area that lies in a slight depression that is more mesic than adjacent habitat where the species does not occur (Holimon, per. obs.). FPNA supports a mosaic of mesic, xeric, and seasonally flooded tallgrass prairie (Arkansas Natural Heritage Commission, 2002). The Henslow's Sparrow territory areas at FPNA also had a higher proportion of dense grass than the remainder of the natural area (Holimon and James, pers. obs.). At CC, Henslow's Sparrows established territories in bottomland areas near the creek that historically supported mesic tallgrass prairie. These wet areas are occasionally used for agricultural purposes, but have not been farmed for several years. During our study this area had dense, waist-high vegetation with scattered patches of native forbs and grasses (Neal, pers. obs.).

Our discovery of a population of Henslow's Sparrow that regularly occurs during the breeding season in Arkansas may be related to a recent range expansion by the species. It appears that Henslow's Sparrow has expanded its breeding range west and southwest over the last two decades (Reinking, 2002). This range expansion has resulted in a large breeding population in northeastern Oklahoma that may consist of thousands of Henslow's Sparrows (Reinking et al., 2000). The large population in Oklahoma is in relatively close proximity and could be a source population for breeding and wintering birds in Arkansas. If so, additional Henslow's Sparrows may have successfully colonized other parts of northwestern Arkansas. Massard Prairie at the Fort Chaffee Maneuver Training Center has a large landscape of tallgrass prairie that experiences occasional disturbance related to military maneuvers that may help create and maintain Henslow's Sparrow habitat. Henslow's Sparrows have been observed here during fall migration (Kirkpatrick, pers. comm.) and should be investigated for evidence of a breeding population.

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