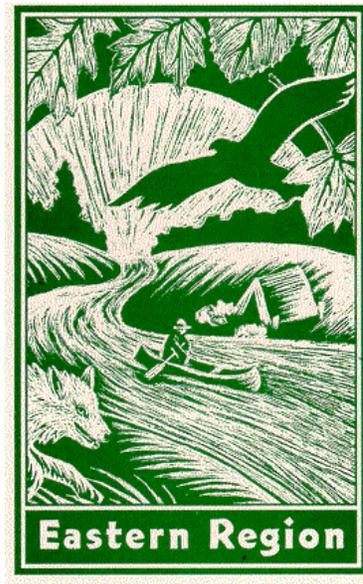


Conservation Assessment
For
Henslow's Sparrow (Ammodramus henslowii)



USDA Forest Service, Eastern Region
2003

Prepared by:



This Conservation Assessment was prepared to compile the published and unpublished information and serves as a Conservation Assessment for the Eastern Region of the Forest Service. It does not represent a management decision by the U.S. Forest Service. Though the best scientific information available was used and subject experts were consulted in preparation of this document, it is expected that new information will arise. In the spirit of continuous learning and adaptive management, if you have information that will assist in conserving the subject community, please contact the Eastern Region of the Forest Service - Threatened and Endangered Species Program at 310 Wisconsin Avenue, Suite 580 Milwaukee, Wisconsin 53203.

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NOMENCLATURE AND TAXONOMY

Scientific Name: *Ammodramus henslowii*

Common Name: Henslow's Sparrow

Family: Emberizidae

Synonyms:

USFS Region 9 Status: Sensitive

USFWS Status: Watch List

Illinois Status: Endangered

GLOBAL AND STATE RANK:

The Illinois Natural Heritage Program ranks this species as G4/S2 (Illinois Natural Heritage Database 1999). This ranking means Henslow's Sparrows are globally widespread, but with cause for long-term concern and imperiled in Illinois. Reasons for this decline include habitat alteration (The Nature Conservancy 1999).

RANGE:

Breeding: occurs locally from eastern South Dakota across the Great Lakes region of the eastern United States and southern Canada (Ontario, formerly Quebec) to New England (where now extirpated in most areas), south to Kansas, Oklahoma, Missouri, Illinois, Kentucky, West Virginia, and North Carolina; formerly in eastern Texas. Currently most abundant in the western portion of the Great Lakes Plain and in Minnesota (Smith 1992). Figure 1 indicates this current distribution in North America.

Wintering: coastal states from South Carolina south to Florida, west to Texas, casually north to Illinois, Indiana, New England, and Nova Scotia (Smith 1992); most common along the coast of Texas and the Florida panhandle and around Cocoa Beach, Florida (Root 1988).

In Illinois (in recent times, 1990-1999), this species is found in 32 counties: Cass, Champaign, Coles, Cook, Cumberland, De Witt, DuPage, Effingham, Ford, Fulton, Grundy, Iroquois, Jasper, Jo Daviess, Johnson, Knox, Lake, LaSalle, Lee, Marion, McDonough, McHenry, McLean, Peoria, Perry, Pope, Pulaski, Saline, Vermillion, Washington, Will, and Winnebago (see Figure 2).

PHYSIOGRAPHIC DISTRIBUTION:

Henslow's Sparrows in Illinois are found in the Central Till Plains Section and the Central Dissected Till Plains Section of the Prairie Parkland Province and the Central Till Plains, Oak-Kickory Section and the Southwestern Great Lakes Morrainal Section of the Eastern Broadleaf Forest Province (Keyes et. al. 1995). Illinois has been divided up into Natural Divisions based on physiography, flora, and fauna (Schwegman et. al. 1973). Henslow's Sparrows are found within the Grand Prairie Division, the Northeastern Morainal Division, the Wisconsin Driftless Division, the Rock River Hill Division, the Southern Till Plain Division, the Wabash Border Division, and the Shawnee Hills Division.

HABITAT:

Henslow's Sparrows use grasslands that have well-developed litter (Wiens 1969, Bollinger 1995), relatively high cover of standing dead residual vegetation (Herkert 1998), tall, dense vegetation (Herkert 1991, 1994b), and generally low woody stem densities (Herkert 1994b). Henslow's Sparrow habitat is also characterized by a high percentage of grass cover and scattered forbs for singing perches (Herkert 1994a). Studies in Wisconsin and Illinois have found no apparent preference for native, warm-season vs introduced, cool-season grasses (Herkert 1994b, 1999). Henslow's Sparrows may use idle hayfields and Conservation Reserve Program lands (Herkert 1998). However, Birkenholz (1973 in Herkert 1999) found this species to be the most common in native grasses to avoid a nearby field of Kentucky bluegrass (*Poa pratensis*) at one site in Illinois. In Missouri, Henslow's Sparrows were not present in either tame or native fields (Herkert 1999).

According to Jim Herkert (pers. com.) in Illinois, Henslow's Sparrows do not inhabit grazed areas. They also generally avoid areas that are recently burned. They need unburned, ungrazed areas to maintain populations. This species will occupy mowed areas, although densities in mowed areas are very low. If at least one year has passed since last mowing, densities can be relatively high. It's an area sensitive species, preferring large open fields. Within fields, the Henslow's sparrow often exhibits spotty distribution, meaning that the species may only occur in parts of a field. For example, if the size of a field is 100 acres, this species may only occupy 10 acres of that particular field.

Studies have been inconclusive regarding the amount of woody vegetation that will be tolerated by Henslow's Sparrows, although it is generally accepted that encroachment by woody vegetation eventually precludes this species (Herkert 1999). Several studies have indicated that Henslow's Sparrows prefer areas with low density of woody vegetation (Herkert 1999). Densities of tall (>2m) shrubs/trees were 70% higher at unoccupied areas than at occupied areas at one site in northeastern Illinois (Herkert and Glass, 1999). However, a different Illinois study found no significant difference in the number of trees, shrubs, and bushes between areas used and not used by Henslow's Sparrows (Herkert 1999). In Wisconsin, a positive correlation was detected between Henslow's Sparrow abundance and woody cover <1m; however, despite this positive correlation, percent woody cover <1m at occupied sites was low (0.79%), as was total woody cover (1.69%), (Herkert 1999).

SPECIES DESCRIPTION:

The Henslow's Sparrow has an olive head that contrasts strongly with its brown back. The Henslow's Sparrow is a large-headed, short-tailed sparrow which often sings from low perches that are usually not visible.

LIFE HISTORY:

Henslow's Sparrows arrive on the breeding grounds in the Midwest in April. In Illinois, average spring arrival dates are in mid-April. Most spring migrants have passed through northern Illinois by May 5. Nesting begins in mid-May and extends into early August. Fall migration starts in September and by late October to early November the birds have left the breeding grounds (Herkert 1997).

Nests of Henslow's Sparrows are built on or near the ground, most frequently 2.5 to 7.6 cm above the ground in clumps of grass. Nests are built in 4 to 5 days. The species is probably double brooded. Henslow's Sparrows will abandon fields that are cut during the breeding season.

Large areas generally support more stable populations although small populations can be found in small areas. Small populations (< 6 pairs) appear to be very susceptible to local extinction (Jim Herkert pers. com.).

NATURAL AND HUMAN LAND USE THREATS:

Henslow's Sparrow declines are apparently related to loss of habitat due to encroaching urbanization, successional change to shrubland or forest, and use for row-crop agriculture. Habitat is ephemeral and also often not available due to heavy human use (not allowed to lie idle; Robbins et. al. 1986). The main threat is most likely the loss of breeding habitat as agricultural grasslands are developed or abandoned and reverted to shrublands and forests (Smith 1992). In the Midwest a switch in agricultural methods from hay production and grazing to intensive production of specialized crops (soybeans, corn, etc.) has been a major factor in habitat loss (Illinois Natural History Survey 1983). In the East, increasing urbanization and encroachment of woody species have been major factors. Fragmentation of suitable habitat into small widely scattered plots is another serious threat. Normal annual population fluctuations can be more dramatic on smaller preserves, reducing local populations to levels where random events could lead to extirpation.

Conflicts may occur between timing of nesting and cutting of hay (Bollinger 1995). Highly productive hayfields may attract sparrows (as well as other grassland species) to establish territories and start nesting early in the breeding season. When the hayfields are then cut, the losses of nests, eggs, and nestlings may lead to a decline in local productivity, creating a "sink" effect described for birds in agricultural landscapes (Best 1986, Temple 1990). Fire and grazing management with short-term rotations can be too frequent to allow for sufficient

litter to build up and a high density of standing dead vegetation (Herkert 1994b, Skinner 1975).

VIABILITY:

The overall goal is to maintain a viable population of Henslow's Sparrows. A viable population is defined as "a population that has the estimated numbers and distribution of reproductive individuals to ensure the continued existence of the species throughout its existing range within the planning area." This will be accomplished by providing special management as necessary to allow the continued existence of this species. The minimum viable population is the smallest size that can persist over a period of 100 years with a low extinction probability (less than 5%) (Soule 1980). Due to the rapidly changing environment and short duration of baseline data a 50 year window is probably more appropriate than a 100 year time period.

Based on population models described by Dennis et. al. (1991) and Morris et. al. (1999) and using census data from Joliet Army Ammunition Plant and Goose Lake Prairie State Park where recent census data exists, a minimum population of 65 pairs may be needed to sustain a viable population (less than 5% probability of extinction within 50 years) of Henslow's sparrows. Using 100 years results in a population size of 102 pairs.

MANAGEMENT:

Specific goals to ensure a viable population of this species include:

Maintain, increase and improve the current acreage of grasslands suitable to Henslow's Sparrows to a size capable of supporting a stable population of at least 65 pairs on an annual basis. Based on current conditions at least 518 acres of highly suitable habitat will be required to achieve this goal on a yearly basis. Because of the sensitive nature of Henslow's Sparrows to fire, three units of 518 acres will be necessary. Herkert and Glass (1999) found that it takes two years following a burn for the habitat to return to full utilization. This estimate is based on observed densities of 0.31 birds/ha in idle grasslands (the preferred habitat) at Joliet Army Ammunition Plant (Herkert 1999). Since suitability of different habitat types may vary, the habitat goal should be calculated using the habitat suitability index models developed for Henslow's Sparrows, such as in Herkert, 1997. Using the formula: habitat specific HSI * habitat acres summed for all habitat types give the acres required.

$$\Gamma \text{HSI} * \text{acres} = \text{XXXX.}$$

Besides the acreage requirements, the following management prescriptions are necessary to maintain the required acres in habitat suitable for Henslow's sparrows.

- a) Grasslands utilized for breeding should be managed to maintain litter depths greater than 3 cm in depth in late May (Herkert 1997). Mowing and periodic fire should not be performed during the nesting season, mid-April through mid-August based on Illinois

egg dates of May 20 to July 04 reported in Bohlen (1989). Only 1/3 of the potential habitat should be burned in any one year, for Henslow's Sparrows avoid areas that have been recently burned. This species is management sensitive: it needs unburned and ungrazed areas to maintain populations.

b) Grasslands utilized for breeding should be managed to provide nesting cover that is between 40-80 cm high in late May (Herkert 1997). Mowing or periodic fire should not be performed during the nesting season, mid-April through mid-August, based on Illinois egg dates of May 20 to July 04 reported in Bohlen (1989). Only 1/3 of the potential habitat should be burned in any one year, for Henslow's Sparrows avoid areas that have been recently burned. This species is management sensitive: it needs unburned and ungrazed areas to maintain populations.

c) Grasslands managed for Henslow's sparrows should contain moderate to high amounts of residual vegetation with optimal habitat containing between 50-80% cover of dead herbaceous vegetation (Herkert 1997). Periodic management, such as mowing and burning will be necessary to prevent woody encroachment and succession to shrubby habitats. According to Jim Herkert (pers. com.), in a burned system, Henslow's Sparrow densities peak at 3-4 years following a burn and then decline in subsequent years. Thus, prescribed burning should be conducted as rotational burn management with 3-5 year rotations on 20-30% annually. At least 520 acres of highly suitable Henslow's sparrow habitat should be left unburned designing burn rotation, it is important to consider that this species exhibits spotty distribution in fields (i.e. may only be in 10 acres of a 100 acre field). Additionally, once an area is burned, they will move from that area to another or be eliminated. Thus, one must know what areas they are using and devise suitable unburned units so that they are able to move around rather than simply assuming that the Henslow's Sparrows will automatically move into what appears to be suitable habitat. There must be known suitable habitat within each management unit.

d) Areas managed for Henslow's sparrows should be as large as possible. Preferably 600 ha (1482 acres) or more in size (Herkert 1997).

e) All Henslow's sparrow breeding areas should be located no closer than 50 m (164 feet) from a woody edge (Herkert 1997).

f) If the use of restorations is a consideration, managers should note that this species adapts more readily to restorations than some other grassland birds, like bobolinks and upland sandpipers (Jim Herkert pers.com.).

MONITORING:

Yearly monitoring of the Henslow's sparrow populations and habitat preference are critical. The point count techniques should be used. Continued monitoring is necessary to update census numbers used in the PVA and to monitor the impacts of management practices on Henslow's sparrows.

RESEARCH NEEDS:

None

REFERENCE LIST

Best, L.B. 1986. Conservation tillage: ecological traps for nesting birds? *Wildl. Soc. Bull.* 14:308-317.

Bohlen, H.D. 1989. *The birds of Illinois*. Indiana Univ. Press, Bloomington, IN.

Bollinger, E. K. 1995. Successional changes and habitat selection in hayfield bird communities. *Auk* 112:720-730.

Dennis, B., P.L. Munholland, J.M. Scott. 1991. Estimation of growth and extinction parameters for endangered species. *Ecological Monographs* 61:115-143.

Herkert, J.R. 1991. An ecological study of the breeding birds of grassland habitats within Illinois. Ph.D. dissertation. University of Illinois, Urbana, Illinois, 112 pages.

Herkert, J.R. 1994a. The effects of habitat fragmentation on midwestern grassland bird communities. *Ecological Applications* 4:461-471.

Herkert, J.R. 1994b. Status and habitat selection of the Henslow's sparrow. *Wilson Bulletin* 106:35-45.

Herkert, J.R. 1997. Midewin National Tallgrass Prairie Habitat Suitability Index Models: Henslow's Sparrow (*Ammodramus henslowii*). Report submitted to the U.S. Fish and Wildlife Service, Barrington, IL.

Herkert, J.R. 1999. Effects of management practices on grassland birds: Henslow's Sparrow. Northern Prairie Wildlife Research Center, Jamestown, ND. Jamestown, ND: Northern Prairie Wildlife Research Center Home Page.

[Http://www.npwr.usgs.gov/resource/literatr/grasbird/henslows/henslows.htm](http://www.npwr.usgs.gov/resource/literatr/grasbird/henslows/henslows.htm) (Version 02JUL99).

Herkert, J.R., and W.D. Glass 1999. Henslow's Sparrow response to prescribed fire in an Illinois prairie remnant. In J. Herkert and P. Vickery, eds. *Ecology and conservation of grassland birds in the western hemisphere*. Studies in Avian Biology.

Herkert, J.R., R.E. Szafoni, V.M. Kleen, and J.E. Schwegman. 1993. Habitat establishment, enhancement, and management for forest and grassland birds in Illinois. Illinois Department of Conservation, Division of Natural Heritage, Natural Heritage Technical Publication 1, Springfield, Illinois. 20 pages.

Illinois Natural History Survey. 1983. The declining grassland birds. Illinois Nat. Hist. Surv. Rep. 227:1-2.

Illinois Natural Heritage Database. 1999. An electronic database housed in the Illinois Department of Natural Resources, Springfield, IL.

Keys, Jr., J.; Carpenter, C.; Hooks, S.; Koenig, F.; McNab, W.H.; Russell, W.; Smith, M.L. 1995. Ecological units of the eastern United States - first approximation (map and booklet of map unit tables), Atlanta, GA: U.S. Department of Agriculture, Forest Service.

Morris, W., D. Doak, M. Groom, P. Kareiva, J. Fieberg, L. Gerber, P. Murphy, and D. Thompson. 1999. A practical handbook for population viability analysis. The Nature Conservancy

Pruitt, L. 1996. Henslow's Sparrow: Status Assessment. U.S. Fish and Wildlife Service, Bloomington, IN.

Robins, C.S., D. Bystrak, and P.H. Geissler. 1986. The Breeding Bird Survey: its first fifteen years. U.S. Fish and Wildlife Serv. Resource Publ. 157.

Root, T. 1988. Atlas of wintering North American birds. An analysis of Christmas Bird Count data. Univ. Chicago Press, Chicago, IL.

Schwegman, J.E., G.D. Fell, J. Hutchinson, G. Paulson, W.M. Shepard, and J. White. 1973. Comprehensive plan for the Illinois Nature Preserves Commission. Part II - The natural divisions of Illinois. Illinois Nature Preserves Commission. Springfield, IL.

Skinner, R.M. 1975. Grassland use patterns and prairie bird populations in Missouri. Pages 171-180 in M.K. Wali (ed.). Prairie: a multiple view. Univ. of North Dakota Press, Grand Forks, ND.

Smith, C.R. 1992. Henslow's Sparrow *Ammodramus henslowii*. Pages 315-330 in K.J. Schneider and D.M. Pence, editors. Migratory nongame birds of management concern in the Northeast. U.S. Fish and Wildlife Service, Newton Corner, MA.

Soule, M.E. 1980 Thresholds for survival: maintaining fitness and evolutionary potential. Pages 111-124 in Conservation Biology: an Evolutionary Perspective (M.E. Soule & B.A. Wilcox, eds) Sinauer, Sunderland, MA.

The Nature Conservancy. 1999. Natural Heritage Central Databases. An electronic database on plants and animals. Arlington, VA.

Temple, S.A. 1990. Sources and sinks for regional bird populations. Passenger Pigeon 52:35-37.

Wiens, J.A. 1969. An approach to the study of ecological relationships among grassland birds. Ornithol. Monogr. No. 8.

FIGURES

Figure 1. North American Breeding Range For Henslow's Sparrow *Ammodramus henslowii*

Figure 2. Illinois Distribution of Henslow's Sparrow by County