

TECHNICAL NOTES

U.S. DEPARTMENT OF AGRICULTURE

WYOMING

SOIL CONSERVATION SERVICE

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Subject: FIELD SPARROW*

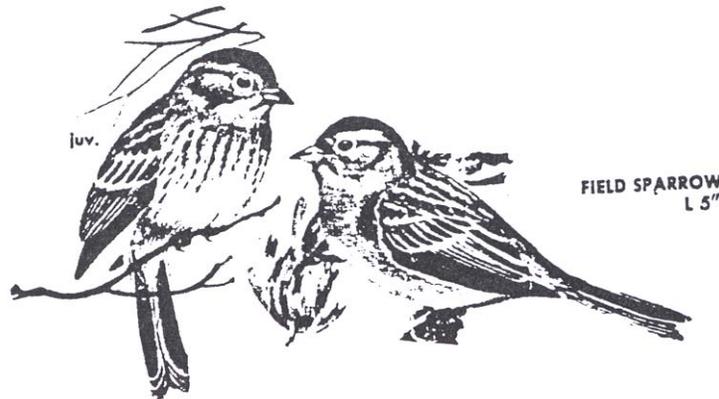
General

The preferred habitat of the field sparrow (*Spizella pusilla*) is old fields with scattered woody vegetation. Field sparrows are distributed primarily in the eastern United States, although they may breed as far west as Montana to eastern Texas. They are resident species in much of their range.

Food

Field sparrows feed on a variety of plant and animal foods and their food habits have been described as flexible. Food is not considered to be limiting during the breeding season.

Field sparrows typically forage on or near the ground, although flycatching has also been observed. Foraging perches, such as shrubs, brush piles, or barbed-wire fences, are often used to reach seeds. Seeds account for 80 percent to 90 percent of the fall and winter diet, although vegetative material accounts for only 45 percent and 49 percent of the spring and summer diet, respectively. The spring diet of adult field sparrows is varied and includes insects and other arthropods, grass and forb seeds, and other vegetative material.



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*Information taken from Ecoregion M3113 Handbook and Habitat Suitability Index Models, Wildlife Species Narratives (literature searches), U.S. Fish and Wildlife Service, various dates between 1978-1984.

The diet of nestlings is almost entirely insects (particularly larval forms of the order Lepidoptera, nymphal forms of the order Orthoptera, and adult forms of the order Homoptera) and spiders, although vegetative material and other animal forms have also been identified. Adult field sparrows in Illinois were opportunistic foragers for their young and shifted their foraging habitats from wooded areas adjacent to the breeding habitat early in the spring to more open sites with low vegetation later in the breeding season. The use of wooded areas for foraging was also reported in a Michigan study area.

Water

No information on drinking water requirements was found in the literature

Cover

Old fields with scattered woody vegetation and brushy fencerows provide the most suitable habitat for the field sparrow. Territories extend into grassland and forested cover types at times, but these habitats are less preferred. The field sparrow roosts in the dense foliage of small trees or bushes. Field sparrows winter in a variety of forested or shrubby habitats.

Characteristics of habitats occupied during the breeding season are discussed in the following section.

Reproduction

Breeding habitat preferred by the field sparrow has been variously described as a shrub-grassland community; brushy stands with little or no overstory; shrubby fields, forest borders, and roadsides; early successional stages; brushy fields or grasslands with a few larger trees; and hillsides with shrubby growth, grassy meadows, pastures, and weedy fencerows. The common habitat denominator in these studies is apparently the need for a mixture of shrubby and herbaceous vegetation. The field sparrow has also been considered a typical forest edge bird, and the presence of nearby wooded areas as an early spring foraging habitat may be an important factor in habitat suitability.

The availability of suitable perches (e.g., shrubs, trees, and fences) has been suggested as a habitat factor that can limit field sparrow populations. Factors related to habitat patchiness may also be limiting. Primary habitat factors in Missouri were identified canopy height and stem density of woody vegetation less than 2.5 cm (1 inch) dbh. Habitats with canopy height ranging from 2 to 8 m (6.6 to 26.2 ft) were occupied, although the preferred range was 2 to 4 m (6.6 to 13.1 ft). Optimum density of small diameter stems was reported as 350 to 700 stems/ha (142 to 283 stems/acre), although the range in occupied habitats was 25 to 1,050 stems/ha (10 to 425 stems/acre). Secondary habitat characteristics were stem density greater than 2.5 cm (1 inch) dbh and the percent vegetative ground cover. Optimum ranges for these variables were 25 to 50 stems/ha (10 to 20 stems/acre) and 95 to 100 percent ground cover. Ranges of the secondary variables in occupied habitat were 25 to 500 stems/ha (10 to 202 stems/acre) and 85 to 100 percent, respectively. Field sparrow populations in regenerating

hardwood stands in Virginia decreased as canopy height of the stand exceeded 4.5 m (14.8 ft). Field sparrows were common on grasslands with shrubs following a transmission line corridor cut in Tennessee, but were expected to decrease as shrub density increased.

Field sparrows nest on the ground, in low herbaceous vegetation, or in low shrubs. Only 1 of 145 field sparrow nests in a Pennsylvania study area was placed greater than 0.9 m (3 ft) above the ground. Ten nests in a Scotch pine (Pinus sylvestris) Christmas tree plantation in Minnesota averaged 0.44 ± 0.07 m (1.4 ± 0.23 ft) above ground in trees that averaged 1.42 ± 0.08 m (4.66 ± 0.26 ft) tall. Six of nine nests in an Iowa study area were located in shrubs, two were in evergreen trees, and one was in forb cover. Approximately 42 percent of 129 field sparrow nests in Illinois were located in standing grass Jitter, 19 percent were in forbs, and 39 percent were in trees and shrubs. However, a significant shift in nest placement from herbaceous to woody vegetation occurred through the breeding season. The average nest height increased from a low of 26 cm (10.2 inches) in May to 48 cm (18.9 inches) in August. A similar shift in nest placement through the nesting season has also been documented in Michigan, Iowa, and Indiana. Although this shift in nest placement has been considered to be correlated with leaf-out of woody vegetation, one study suggested that the shift results from unknown factors and not in response to leaf-out. Another study found a shift from ground nesting to tree and shrub nesting as plant succession progressed on an old field in Michigan. Fifty-six percent of all nests were located in junipers (Juniperus communis) even though junipers made up only a small portion of the potential nest sites, indicating a preference for this tree species as a nest site by field sparrows. Nests in junipers were significantly more successful than nests in other sites. Nest height alone was found to be an insignificant factor in nesting success in Illinois.

Interspersion Requirements

Field sparrows are territorial during the breeding season. Reported territory sizes range from a low of 0.30 ha (0.75 acre) in Iowa to a high of 2.4 ha (6 acres) in Michigan. Mean territory sizes typically less than 0.8 ha (2 acres). Average territory sizes in a Michigan study area decreased from 0.63 ha (1.56 acres) in 1956 to 0.36 ha (0.89 acre) in 1975, apparently in response to an increase in the number of junipers. Territories in a grassland type in Illinois were significantly larger than in nongrassland types (primarily the preferred shrub-grassland type). The difference in territory size may have resulted from the low food potential of the grassland or from the opportunity to expand territories outward because the grassland type was on the periphery of the preferred shrub-grassland cover type. Field sparrows in western Virginia were infrequently found in areas of regeneration following clearcutting that were less than 2 ha (4.9 acres).

Special Considerations

Suitable breeding habitat for the field sparrow may be created by activities such as fire, cutting, or scarification following clearcutting. Fire can be used to maintain suitable shrub-grassland and edge conditions. However, too frequent burning may eliminate desirable woody vegetation, and infrequent burning may result in the closure of the woody canopy. The length of time that habitat is suitable for field sparrows following clearcutting depends on the growth rate of woody regeneration. Habitats on fast growing sites may remain suitable for only 3 to 5 years, while those on slow growing sites may remain suitable for 10 to 15 years. The field sparrow does not tolerate habitat disturbance well, particularly the removal of woody vegetation. An increase in the patchiness of shrubby vegetation will likely result in an increase in field sparrow populations.