

AVIAN BREEDING POPULATIONS IN VINEYARDS, ERIE LAKE PLAIN, CHAUTAUQUA COUNTY, NEW YORK

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Agricultural lands are often ignored by ornithologists studying avian populations. Although vineyards occupy considerable land area in portions of New York State, we could find no data regarding the breeding avifauna associated with vineyards. This study was undertaken to determine the species composition and density of breeding birds in vineyards and to compare the results with similar studies undertaken in other nearby plant communities.

Study Area

Vineyard census plots were located within the towns of Pomfret and Sheridan, Chautauqua County, New York. This area is suitable for grape-growing due to the delayed spring and prolonged summer season which is caused by the moderating effect of Lake Erie on local climatological conditions (Zenkert, *Flora of the Niagara Frontier*, 1954).

All of the census plots were planted in single rows of Concord variety grapes (*Vitis* sp.). The vines grow along single strung wires stretched between wooden poles which are set in rows approximately 3 meters apart. Vegetative growth of the grapes reaches a height of about 1.5 to 2 meters and reduces the distance between rows to about 1.5 meters at shoulder height. Herbaceous ground cover varied but consisted largely of common plantain (*Plantago major*), narrow-leaved plantain (*P. lanceolata*), dandelion (*Taraxacum officinale*), Italian rye grass (*Lolium multiflorum*), common timothy (*Phleum pratense*), quack grass (*Agropyron repens*), and bent grass (*Agrostis* sp.).

For each plot, distinctive characteristics that may influence avian utilization are listed in Table 1. Census plots are designated by a letter that indicates the town in which the plot was located, and by a number. Chemical treatment with herbicides and insecticides was common in the vineyards under study, but the effects of this spraying are not addressed in this paper.

Methods

During May and June of 1975 and 1976, breeding bird censuses were conducted using the suggested standards for the spot-mapping technique (Robbins, *Audubon Field Notes* 24: 723-726). During

1975 four plots (two at Pomfret, two at Sheridan) were censused. In 1976 one of the Pomfret plots (P-1) was recensused and two new plots were censused at Sheridan. Eight repetitions were made in each plot during each year.

Results

Table 2 presents the estimated densities (pairs/ha) for each species as calculated from each plot. Of the sixteen species, only the Field Sparrow (*Spizella pusilla*) was found in each plot. The highest breeding density in a single plot was noted for the Song Sparrow (*Melospiza melodia*) in plot P-1.

Table 3 presents the results of similar censuses conducted in open field and shrub plots. Indicated are the mean breeding density values and the density ranges for species that occurred in these plots as well as vineyards. These data are taken from censuses conducted by the authors and co-workers during 1975 and 1976 within the same towns.

Discussion

The Field Sparrow was found at similar densities within all vineyards; and these estimates are equivalent to the mean estimated density of this species in shrub communities. Thus vineyards would seem to offer suitable breeding habitat for the species.

There was considerable variation in density of Song Sparrows in the various census plots. Density values ranged from zero to 2.1 pairs/ha. The latter figure is higher than any density found for this species in either the open field or shrub community. The highest density values in both years were found in plot P-1 which was the least maintained of all census plots. This plot was irregularly shaped and divided into several parts by road cuts. This lack of maintenance and the large amount of shrub and open field border associated with the census area are probably the major factors contributing to high Song Sparrow utilization.

Values for the other species indicate generally lower densities in vineyards than in open field (e.g., Red-winged Blackbird, Savannah Sparrow, Grasshopper Sparrow) or shrub (e.g., American Robin and Red-winged Blackbird). The presence of several species may be due to some particular characteristic of an individual vineyard plot. Plots S-3 and S-4 contained rather rocky, barren substrate, a characteristic with which Vesper Sparrows are often associated. Killdeer and Horned Larks nested on edges of dirt roads cut through vineyards, while a House Wren nest was located in a cavity in a wooden post.

Nests of species such as the Chipping Sparrow, Eastern Kingbird, Indigo Bunting, and Upland Sandpiper were not located and may have been outside the plots. Territorial display of these birds indicated, however, that the vineyard plots constituted a significant proportion of their individual territories. These birds, as well as others, may take advantage of vineyard posts as conspicuous singing perches.

Observations made during July and August 1975 as part of another study indicate that the American Goldfinch (*Spinus tristis*) and the Cedar Waxwing (*Bombycilla cedrorum*) may also be common breeders within vineyard plots. Adult American Goldfinches were observed nearly as often as adult and immature Field Sparrows. Several nests of both Cedar Waxwings and American Goldfinches were noted in vineyards during July and August.

The majority of species that were found breeding in the vineyards would be expected to be associated with young shrub and open field areas. Vineyards, which typically have open space between vines, provide suitable habitat for both ground-nesting species, and shrub species that will utilize grape vines for nesting. Several ground-nesting species were associated with access road edges within the plots. Low avian densities within vineyards might be expected due to the low species and structural diversity of the vegetation and also due to the possible effects of human disturbance during spring cultivation.

Summary

Vineyard plots in western New York were censused for breeding birds during 1975 and 1976. Species that utilized vineyards were a mix of shrub and open field species. The Field Sparrow was the most abundant and evenly distributed species. However, incidental observations indicate that the Cedar Waxwing and American Goldfinch may be as common later in the season.

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TABLE 1
Description of Study Plots

<u>Plot</u>	<u>Size/Shape</u>	<u>Characteristics</u>
P-1	10 acres/irregular	Bordered 3 sides by shrub, remaining side by stream and pond. Divided into 4 sections by access roads. Outbuilding in center of plot. Poorly maintained, herbaceous growth up to 1 m in height.
P-2	25 acres/irregular	Bordered by old field (2 sides), roadway (1 side), and shrub and pine plantation (1 side). Divided by grassy drainage ditch and several access roads. Ground between rows tilled during census period.
S-1	15 acres/rectangular	Bordered by vineyard (2 sides), hay-field (1 side), and roadway (1 side). Access road surrounds plot. Well maintained, tilled and fertilized during census period.
S-2	8 acres/rectangular	Bordered by vineyard (3 sides), remaining side by open field. Access road along open field side. Well maintained, tilled during census period.
S-3	13 acres/rectangular	Bordered by shrub (3 sides), newly planted vineyard (1 side). Access roads on two shrub and vineyard side. Well maintained, partially tilled during census period. Portions with rocky and barren substrate.
S-4	9 acres/rectangular	Bordered equally by roadway, open field, woodlot, shrub, and new vineyard. Open field area previously stripped of topsoil, broomsedge and fire

cherry dominant plants.
Herbaceous vegetation scarce, bus-
strate rocky and barren.

TABLE 2
Estimated Densities of Breeding Birds in New York Vineyards

Species	Year Plot	1975				1976		
		P-1	P-2	S-1	S-2	P-1	S-3	S-4
Field Sparrow		0.5 (a)	0.3	0.3	0.3	0.4	0.4	0.1
Song Sparrow		1.2	0.6	0.2	0	2.1	0.3	0
American Robin		0.2	0.1	0.3	0	0.1	0	0
Red-winged Blackbird		0.1	0	0.2	0	0	0.3	0
Chipping Sparrow		0	0.2	0.3	0	0	0	0.1
Savannah Sparrow		0	0	0.1	0	0	0.3	0
Vesper Sparrow		0	0	0	0	0	0.1	0.3
Eastern Kingbird		0	0	0	0	0	0.2	0
Brown-headed Cowbird		0	0	0	0	0	0.2	0
Yellow Warbler		0	0	0	0	0.2	0	0
Grasshopper Sparrow		0	0	0	0	0	0.2	0
House Wren		0	0.1	0	0	0	0	0
Indigo Bunting		0.1	0	0	0	0	0	0
Killdeer		0	0.1	0	0	0	0	0
Upland Sandpiper		0	0	0.1	0	0	0	0
Horned Lark		0	0	0.1	0	0	0	0

a. Pairs per hectare.

TABLE 3
Estimated Density of Some Breeding Birds in Open Field
and Shrub Communities, New York (a) 1975-1976

Species	Estimated pairs/ha (Range)	
	Open Field	Shrub
Field Sparrow	0.1 (0-0.2)	0.4 (0.1-1.0)
Song Sparrow	0.1 (0-0.3)	0.9 (0.4-1.3)
American Robin	0	0.2 (0-0.7)
Red-winged Blackbird	0.8 (0-2.0)	0.4 (0.1-1.3)
Savannah Sparrow	0.6 (0.1-1.7)	0.1 (0-0.4)
Grasshopper Sparrow	0.3 (0-1.1)	0

a. Censuses conducted in towns of Pomfret and Sheridan, Chautauqua County, New York.