

**RECENT TRENDS IN HOUSE SPARROW
(*Passer domesticus*) DISTRIBUTION AND ABUNDANCE
IN GAINESVILLE, ALACHUA COUNTY, FLORIDA**

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House Sparrows are declining globally in their native and introduced ranges (e.g., Shaw et al. 2008). We have a clear understanding of the synanthropic nature of this species and their ability to inhabit a range of disturbed habitats, from agricultural lands to city centers, but their apparent absence in residential areas has not been documented (Anderson 2006).

Incidental observations conducted by the authors over the last several years suggest House Sparrows (*Passer domesticus*) rarely occur, or are absent in, residential areas of Gainesville, Florida. Based on these observations and communications with long-term Gainesville residents we conducted a study on House Sparrow occurrence in the city of Gainesville, Alachua County, Florida. There were two components to our study. The first component involved point counts conducted at randomly located points within the Gainesville city limits, with the objective of establishing an efficient survey protocol for House Sparrow occupancy in urban and residential areas, and to document the rarity of House Sparrows in residential areas of Gainesville. The second component involved point counts conducted at non-random locations in areas of Gainesville known to harbor House Sparrows with the objective of understanding occupancy of urban and residential areas by House Sparrows.

Component I. In the first component of the study we conducted ten-minute, unlimited radius point counts at 21 randomly chosen sites within the Gainesville city limits between 8 October 2013 to 16 December 2013. A minimum of 250 m among sampling sites was designated to minimize double observations of individuals (e.g., Bibby et al. 2000). We categorized each sampling site as either urban or residential, using the Site Level Categories of the Cooperative Land Cover Map (v. 2.3; FNAI 2012a; see Table 1 for classification scheme). We counted all House Sparrows seen or heard, including flyovers and flythroughs.

We observed House Sparrows at zero (of fourteen) residential sampling sites and observed House Sparrows at one (of seven) urban

Table 1. Habitat descriptions of areas delineated as 'urban' and 'residential' habitat in the Gainesville House Sparrow study. Categories are the Site Level codes classified by the Florida Natural Areas Inventory (2012b). Although other classifications are present within the Florida Natural Areas Inventory's scheme, they were not present within our sampling sites.

| Category | Study Classification | Name | Brief Description |
|----------|----------------------|---------------------------|---|
| 1820 | Urban | Urban | Cities, towns, etc.; developed areas; malls; shopping centers; land occupied by man-made structures |
| 1821 | Residential | Low Intensity Urban | < 2 dwelling units per acre (except farmsteads) |
| 1822 | Urban | High Intensity Urban | Medium/high density residential; commercial; industrial; roads; parking lots; other intensely developed areas |
| 18222 | Urban | Residential, High Density | > 5 dwelling units per acre |
| 18223 | Urban | Commercial and Services | Areas of product distribution and services |
| 18224 | Urban | Industrial | Manufacturing, assembly, processing of materials |
| 18225 | Urban | Institutional | Educational, religious, health and military facilities |

sampling sites. The only detection took place in a parking lot in downtown Gainesville, in an area surrounded by small, local businesses. All other urban sites (those with non-detections) are located in highly commercialized (non-retail) areas. All non-urban sites (all non-detections) are located in areas with single-family housing, or in wooded areas. Results from this component of the study indicate the lack of broad distribution of House Sparrows within the city of Gainesville (assuming perfect detectability), and provide further evidence for the rarity of House Sparrows in residential areas, given the conspicuous and sedentary nature of this species (e.g., Summers-Smith 1963).

Component II. In the second component of our study, we conducted 61 ten-minute, unlimited radius point counts at 16 sites in urban areas (Table 1) where House Sparrow colonies were previously observed by JLB, and according to eBird observations (eBird 2012). Point counts were conducted from 4 June 2013 to 19 January 2014. All sites are located in high-intensity urban habitat (Table 1; FNAI 2012b), near retail (primarily grocery) stores. We conducted between one and 11 independent point counts at each site. We visited 11 of the 16 sites more than once (Table 2).

We detected House Sparrows at 13 (of 16) sampling sites. The three sites with zero House Sparrow detections were sampled only once, and therefore is not sufficient data to confirm absence. The maximum number of House Sparrows counted at any given location during a single point count was 50. Of the 11 non-random sites we visited more than once, House Sparrows were detected between 25% and 100% of visits (Table 1), indicating either variability in the detectability of House Sparrows at sites or varied temporal use of sampling sites.

Relative to other parts of their range and other regions of the United States, the House Sparrow is seemingly rare and less dense in Gainesville, Florida (pers. obs.; eBird 2012). Our studies indicate this species no longer occurs in very large groups as was once observed (A. Kratter and S. K. Robinson, pers. comm.), and suggest the limited distribution of House Sparrows across the city of Gainesville. Possible explanations for the restricted distribution of House Sparrows across the urban-suburban gradient include presence of more aggressive, urban exploiter species (*Corvus* spp., *Larus delawarensis*, *Quiscalus* spp.), consequential attacks of territoriality in gardens (Woodall 1996), socioeconomic effects on the landscape (i.e., as neighborhood income increases House Sparrows decrease; Shaw et al. 2008) and long-term changes to habitats in residential areas in this city (MPM, pers. obs.). Although our results and communications with long-term residents of Gainesville suggest patterns of House Sparrow absence in residential areas and a limited distribution in highly urbanized habitat, more rigorous studies are necessary to confirm these findings.

Table 2. Information regarding point counts conducted at each site (N=37) during study components I and II. Random sites refer to sites sampled during study component I and Non-Random to study component II.

| Site | Site Type | Habitat | # Counts Performed at Site | Max # Sparrows in a Single Point Count | Detected | % Point Counts with Detections | Latitude | Longitude |
|------|------------|-----------|----------------------------|--|----------|--------------------------------|-----------|------------|
| 1 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.706762 | -82.345680 |
| 2 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.657578 | -82.386006 |
| 3 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.705502 | -82.383006 |
| 4 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.620910 | -82.416034 |
| 5 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.679956 | -82.364497 |
| 6 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.632721 | -82.344214 |
| 7 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.667101 | -82.316248 |
| 8 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.725967 | -82.398968 |
| 9 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.636389 | -82.360791 |
| 10 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.693767 | -82.373977 |
| 11 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.643881 | -82.393124 |
| 12 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.712257 | -82.385785 |
| 13 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.683382 | -82.375150 |
| 14 | Random | Non-urban | 1 | 0 | 0 | 0% | 29.639667 | -82.318658 |
| 15 | Random | Urban | 1 | 0 | 0 | 0% | 29.677322 | -82.294763 |
| 16 | Random | Urban | 1 | 0 | 0 | 0% | 29.651302 | -82.331482 |
| 17 | Random | Urban | 1 | 0 | 0 | 0% | 29.686054 | -82.325999 |
| 18 | Random | Urban | 1 | 0 | 0 | 0% | 29.702599 | -82.345319 |
| 19 | Random | Urban | 1 | 0 | 0 | 0% | 29.686840 | -82.318223 |
| 20 | Random | Urban | 1 | 0 | 0 | 0% | 29.681900 | -82.339269 |
| 21 | Random | Urban | 1 | 2 | 2 | 100% | 29.649484 | -82.322020 |
| 22 | Non-Random | Urban | 1 | 0 | 0 | 0% | 29.652192 | -82.341630 |
| 23 | Non-Random | Urban | 1 | 0 | 0 | 0% | 29.605100 | -82.372283 |
| 24 | Non-Random | Urban | 1 | 0 | 0 | 0% | 29.663595 | -82.300751 |
| 25 | Non-Random | Urban | 4 | 9 | 9 | 25% | 29.623133 | -82.379400 |

Table 2. (Continued) Information regarding point counts conducted at each site (N=37) during study components I and II. Random sites refer to sites sampled during study component I and Non-Random to study component II.

| Site | Site Type | Habitat | # Counts Performed at Site | Max # Sparrows Detected in a Single Point Count | % Point Counts with Detections | Latitude | Longitude |
|------|------------|---------|----------------------------|---|--------------------------------|-----------|------------|
| 26 | Non-Random | Urban | 4 | 6 | 25% | 29.625517 | -82.373717 |
| 27 | Non-Random | Urban | 6 | 20 | 50% | 29.624350 | -82.378917 |
| 28 | Non-Random | Urban | 2 | 10 | 50% | 29.605100 | -82.372283 |
| 29 | Non-Random | Urban | 3 | 16 | 67% | 29.675400 | -82.338933 |
| 30 | Non-Random | Urban | 11 | 50 | 73% | 29.627050 | -82.375433 |
| 31 | Non-Random | Urban | 4 | 10 | 75% | 29.621017 | -82.383417 |
| 32 | Non-Random | Urban | 5 | 13 | 80% | 29.621550 | -82.382183 |
| 33 | Non-Random | Urban | 11 | 40 | 82% | 29.650667 | -82.370950 |
| 34 | Non-Random | Urban | 1 | 6 | 100% | 29.672233 | -82.387567 |
| 35 | Non-Random | Urban | 3 | 15 | 100% | 29.623133 | -82.379400 |
| 36 | Non-Random | Urban | 3 | 25 | 100% | 29.652200 | -82.344750 |
| 37 | Non-Random | Urban | 1 | 12 | 100% | 29.673500 | -82.330005 |

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