

normal. However, to apply any parametric test that assumes normality, one's data should be reasonably symmetrically distributed about the mean. If the "rule-of-thumb" is conscientiously applied, many future errors in data-analysis can be avoided.—Jack P. Hailman, University of Maryland. (Present address: Department of Zoology, University of Wisconsin, Madison, Wisc. 53706.)

**An Observation of Midwinter Nocturnal Movement and Tower Mortality of Tree Sparrows.**—That hibernal population movements by various species of "northern finches" may be frequent and widespread has been inferred from observations of sudden midwinter changes in the numbers of birds occurring at census plots, banding stations and the like (e.g., Middleton, 1943; Fast, 1962; Shaub, 1963). To our knowledge, however, only Stoddard and Norris (1967) have actually shown, by continuous collecting at a TV "tower kill" site, that some nocturnal movement occurs throughout the winter months, most notably by various fringillids.

In the late evening (2100-2300 hours, CST) of 29 January 1969 three of us (Jackson, Niles, and Rohwer) independently noted Tree Sparrows (*Spizella arborea*) calling overhead at Lawrence, Douglas County, Kansas. On the following night, at 2130 hours, Niles again heard Tree Sparrows calling and, under a low overcast, saw a number of birds fluttering about in the cones of light illuminating two flag standards atop a classroom building on the campus of the University of Kansas at Lawrence. As many as eight individual birds were visible at one time during the 10 minutes in which he watched this activity. This observation prompted a visit on that night and the following day to four radio and microwave towers in the vicinity of Lawrence, where the remains of 21 Tree Sparrows were found, 19 (9♂♂, 6♀♀, 4 not sexed) around the 600-foot KANU radio tower on the west edge of Lawrence and 2 (both ♂♂) at an approximately 300-foot microwave tower about two miles north and six miles west of Lawrence.

All of these birds were embedded in a layer of thick ice resting atop approximately six inches of snow. The snow had fallen during the night of 26-27 January and was followed on the 27th and 28th by intermittent freezing rains which culminated in a major ice storm early in the morning of the 29th. It thus appears that the flights heard and seen on the evenings of the 29th and 30th had not contributed to the "tower kill", but that the mortality had resulted from an earlier movement, following the snowfall and during the period of freezing rains. Of the two possible nights, the evening of 27-28 January seems to have best offered weather conditions conducive to tower mortality. On this night there was heavy, local fog and persistent low cloud cover in eastern Kansas.

Baumgartner (1937, 1938), and Sargent (1959) have noted that midwinter wandering and population shifts by Tree Sparrows may often occur following heavy snows. The present movement seems similarly to have been nearly coincidental with a period of heavy snowfall (and greatly lowered temperatures) which covered much of the northern Great Plains by early in the fourth week of January, and had left the northern plains (including Kansas), and Great Lakes area generally, under several inches of snow by 27 January. Given this general pattern of extreme cold and snow-covered ground to the north of Lawrence, it seems probable that any directed movement of birds occurring at this time through the Lawrence area would have been proceeding southward. Examination of the resting site of the individual KANU-tower casualties, with relation to the tower and its lateral guy-wires, implies a southerly or south-easterly direction for the flight. Each of the four wires guying the KANU tower extends outward approximately 15° to the right of the cardinal compass directions, approximately dividing the area about the tower into a northeastern quarter, a southeastern quarter, etc. Of the 19 casualties discovered at this locality, eleven were scattered about the southeastern quarter, four were in the southwestern quarter, one in the northwestern (almost under the east-west guy-wire), and three were in the northeastern quarter. We have no information on wind conditions prevailing at Lawrence during the above period; approximately 100 miles to the west, however, an intermittently strong wind blew from the north through much of the late evening of 27 January, and the possible influence of winds on the "fall pattern" cannot be discounted. The two birds at the microwave tower were found a short distance south of a guy-wire running approximately 15° south of east from the tower.

Tree Sparrows remaining in the area of heavy snow (and ice) cover probably suffered depleted energy reserves. This is indicated by a comparison of the fat

stores (evaluated after McCabe, 1943) of the tower casualties with those of Tree Sparrows shot near Lawrence on the evenings of 3 and 4 February 1969 (fat scores were noted as the birds were prepared as museum skins). Tree Sparrows were unusually scarce around Lawrence at this time. Those present had presumably been foraging over virtually continuous snow cover for a week or more, and their fat values were significantly lower ( $p < .005$ ) than were the fat values obtained from the tower sample (samples compared via a Mann-Whitney U-test, see Siegel, 1956). Only one of the nine 3-4 February birds was termed "very fat"; three were called "moderate fat", and five were classed as "light fat". By contrast, 15 of 19 tower birds were "fat" or "very fat". The fat values from these 19 birds, converted to the numerical categories of Helms and Drury (1960), averaged 3.05. This figure closely approximates the average fat values obtained by these authors from afternoon-taken, winter-resident Tree Sparrows obtained in the last half of January in Massachusetts. Our observations suggest that, in addition to their functions in hibernal cold-acclimatization and adaptation, such winter fat deposits may, at least occasionally, be called upon to underwrite the energetic demands of migration-like movements.

To summarize, direct observation of nocturnal movement coupled with the discovery of 21 tower-killed Tree Sparrows in late January at Lawrence, Kansas, substantiates the long-suspected occurrence of occasional mass mid-winter movement in at least one "northern finch." This movement apparently was a response to extensive snowfall which covered much of the northern plains and Great Lakes region. Tree Sparrows were unusually scarce around Lawrence a week after these snows, and 9 birds taken then had significantly less fat than the sample of tower-killed birds. Fat values from the tower-killed birds appeared similar to those recorded from late January winter-resident Tree Sparrows.

## LITERATURE CITED

- BAUMGARTNER, A. M. 1937. Enemies and survival ratio of the Tree Sparrow. *Bird-Banding* 8: 45-52.  
1938. Experiments in feather marking eastern Tree Sparrows for territory studies. *Bird-Banding* 9: 124-135.
- FAST, A. H. 1962. The Evening Grosbeaks in northern Virginia. *Bird-Banding* 33: 181-191.
- HELMS, C. W., and W. H. DRURY, JR. 1960. Winter and migratory weight and fat field studies on some North American buntings. *Bird-Banding* 31: 1-40.
- MCCABE, T. T. 1943. An aspect of collector's technique. *Auk* 60: 550-558.
- MIDDLETON, R. J. 1943. Winter returns of Eastern Tree Sparrow (*Spizella arborea arborea*) at Norristown, Pennsylvania. *Bird-Banding* 14: 64-67.
- SARGENT, T. D. 1959. Winter studies on the Tree Sparrow, *Spizella arborea*. *Bird-Banding* 30: 27-37.
- SHAUB, M. S. 1963. Evening Grosbeak winter incursions—1958-59, 1959-60, 1960-61. *Bird-Banding* 34: 1-22.
- SIEGEL, S. 1956. Nonparametric Statistics. McGraw-Hill Book Co., New York. 312 pp.
- STODDARD, H. L. and R. A. NORRIS. 1967. Bird casualties at a Leon County, Florida TV tower: an eleven-year study. *Bull. Tall Timbers Res. Sta.*, Number 8: 1-104.
- DAVID M. NILES, SIEVERT A. ROHWER, JEROME A. JACKSON, and JEROME D. ROBINS, Museum of Natural History, The University of Kansas, Lawrence, Kansas 66044.

**Red-bellied Woodpecker Taking Bird's Eggs.**—Late in April 1969 I casually noticed a pair of House Sparrows (*Passer domesticus*) entering an old woodpecker hole high in a dead oak near my home. On 4 May at 17:07 loud rapping disclosed a male Red-bellied Woodpecker (*Centurus carolinus*) excavating a few inches below and to one side of that hole. Shortly he leaned far inward and pulled out a mass of apparent dead grass. He dropped that, leaned in again, and withdrew holding between the tips of his mandibles an egg, with which he flew away. At 17:10 he returned, tapped lightly a few times below the sparrow's entrance, then went to his own opening and carried away a second egg. Except for