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NESTSITE SITTING BY BREEDING HOUSE SPARROWS

BY RICHARD F. JOHNSTON

Recently, in the course of compiling a catalog of the breeding behavior of confined House Sparrows (*Passer domesticus*), it proved useful to determine the amounts of time that sparrows spend perched in various parts of their cages. It is known from field studies that both sexes spend much time at and around the entries to their nests (Summers-Smith, *The House Sparrow* (Collins, London), 1963:14; see also plate 4); as a consequence, the nest entry and its vicinity cannot help but compose an important part of the environmental background of House Sparrows, a background against which, for instance, potential visual predators have to locate individual sparrows, as least in the course of the breeding season. It seemed likely that, in association with the different roles of the sexes in reproduction, males and females have different behavior in sitting at the nest entry; the account below describes the extent of the differences observed under conditions of confinement.

The subjects were two pairs of House Sparrows in flight cages at the Zoological Research Laboratory of The University of Kansas. Pair No. 1 was from a lot trapped in September, 1963, in Austin, Texas, by Dr. R. K. Selander, and shipped to Kansas that month; pair No. 2 was from a lot trapped in Middlebury, Vermont, in February, 1964, by Dr. A. S. Gaunt, and shipped to Kansas in April, 1964. The birds were adjusted to conditions of confinement and showed breeding behavior qualitatively indistinguishable from that of free-living sparrows. The flight cages were 12 feet long, 8 feet wide, and 8 feet high; temperature was 78° to 80° F., and the photoperiod was a constant 18 hours; food, water, perches, dusting material, and nesting material were present in excess at all times. One nestbox was provided, oriented toward the observation window. Data were recorded by observers sitting in the dark behind a monkscloth screen. Ray Borth, Elsie L. Mayor, David H. Neighbor, and Jane Obermeyer, students in Zoology Course 177, compiled the raw material from which the present summary was drawn. A grand total of 100 hours was spent in watching the birds, nearly evenly distributed between the two pairs. Only those observations pertaining to the birds when perched are here reported.

Table 1 presents a summary of how the sexes spend their sitting time within and without the egg cycle. Note that the figures in the table are in each instance percentages, so that the entry "34.5" for male No. 1 at "Interphase" refers to the *part of the sample of interphase time* spent by that male sitting at and around the nest entry; some 65.5% of the sample time was spent by the male sitting someplace else, and so on for each such tabular figure.

Males and females prove to spend about the same amount of time sitting near the nestbox in those periods when no eggs are being incubated; both sexes average 31 per cent of interphase time at the nest entry. However, when eggs are laid the distribution of sitting time changes markedly; males double the amount of time they spend at the entry. Females probably do not increase the time they spend there; the present observations suggest that their sitting behavior remains about the same, although variation in the raw data demands that additional observations be made.

The general outline of perching behavior by House Sparrows in the flight

TABLE 1
RELATIVE AMOUNT OF TIME SPENT BY HOUSE SPARROWS AT AND AROUND
ENTRY TO NEST¹

| | Stage in the Reproductive Cycle ² | | | | Mean ³ |
|--------------------------------|--|-------|--------|------|-------------------|
| | Interphase | Early | Middle | Late | |
| Males: | | | | | |
| No. 1 (1,458 min) ⁴ | 34.5 ⁵ | 67.6 | 64.2 | 65.5 | 65.7 |
| No. 2 (1,452 min) | 26.9 | 55.6 | — | 61.3 | 58.4 |
| Mean | 30.7 | 61.6 | — | 63.4 | 62.5 |
| Females: | | | | | |
| No. 1 (1,346 min) | 32.7 | 19.8 | 19.8 | 58.9 | 32.9 |
| No. 2 (1,297 min) | 29.6 | 37.5 | — | 35.4 | 36.4 |
| Mean | 31.1 | 28.7 | — | 47.2 | 37.9 |

¹ Exclusive of time spent on eggs.

² Interphase: time between clutches; early: first four days of incubation; middle: second four days of incubation; late: last four or five days of incubation.

³ Average value for the time of incubation only.

⁴ Total time the birds were observed perched.

⁵ Per cent of time of observation for a given stage in the cycle.

cages is thus as follows: when the pair has no eggs, both members sit around the nest entry nearly the same amount of time, which is slightly less than one-third the total of time spent sitting outside the nest cavity. When eggs appear, both male and female increase the amount of time spent at the nest. For the female, of course, this means much of her time is spent inside, incubating eggs; she still spends around one-third of her outside sitting time near the nest entry. Males, on the other hand, increase their attentiveness at the nest when eggs arrive, so that two-thirds of male outside perching time is actually spent around the nestbox entry. Males also spend time inside the nests, but, as for females, that part of their activity is not a concern of the present report.

We may conclude that in the breeding season House Sparrows spend the largest share of perching time at the nestbox, with or without eggs. No other perch is used with such frequency; this almost never falls below 20 per cent of observation time for either sex at any stage in the nesting cycle, and it may be three times that for males. Thus, the general environmental background of House Sparrows is dominated by the character of the nest entry. Studies on the adaptive nature of the pronounced color variation in the species would be more complete if the data on the nature of their background environment were to include reference to the nest entry.

Museum of Natural History and Department of Zoology, The University of Kansas, Lawrence, Kansas, 4 August, 1965.

Roadside Raptor Count Through Utah, Colorado, and Kansas.—Public awareness of the relative abundance of birds has increased as one consequence of the widespread use of contaminating and residual pesticides, since there has been postulated a link between their use and bird density. This relationship is often most dramatic in raptors, as they are at the end of food "chains" where poisonous materials tend to concentrate. A comparison between present and past densities of raptors frequently is informative, and effort should be extended to record fluctuations in raptor densities, as these may serve as bases for future comparison. Enderson (Wilson Bull., 77, 1965:82–83) has made one such count of raptors in Colorado which appears useful in assessing wintering populations.

On a 1,140-mile trip from Salt Lake City to Lawrence between 26–30 June, 1965, following essentially routes U.S. 40 and I-70, the following account was made of all raptors seen. Travel time was usually between 9:00 and 9:00 daily; thus, some

two hours of travel each evening (*ca.* 280 total miles) was accomplished after the birds' roosting time and will not be considered in the total analysis. I have tried to break the course traveled into sections that are somewhat similar in ecological cover-types, for comparative purposes.

In the 307 miles from Salt Lake City to the Colorado border, four Turkey Vultures (one per 77 miles), three Red-tailed Hawks (102), one unidentified buteo, one Golden Eagle, two Marsh Hawks (together), and seven Sparrow Hawks (44) were seen. The next section of highway, 206 miles from Skull Creek to Granby, Colorado, was most interesting, in that I saw five Turkey Vultures (all in one group), one Red-tailed Hawk, two Swainson Hawks, nine Golden Eagles (23), one Marsh Hawk, one falcon (soaring—most surely a peregrine), three Sparrow Hawks (68), and one Short-eared Owl. From Granby through the mountains to Denver no raptors were observed. One Swainson Hawk, one unidentified buteo, two Sparrow Hawks, three Burrowing Owls (54), and one Short-eared Owl were seen in the 163 miles from Denver to the Kansas border.

Western Kansas, roughly from the Colorado border to Hays, about 155 miles, was of note. South of the junction of I-70 and U.S. 83, in the face of an impending storm, 11 Turkey Vultures were seen soaring in a slightly dispersed group but more or less at the same elevation. Directly above the vultures, at a different level but obviously using the same air mass for soaring, was a Golden Eagle. The eagle was apparently an adult, lacking the white basal tail portion. Johnston (Univ. Kansas Mus. Nat. Hist. Misc. Publ. 23, 1960:18) gives 19 June as the latest date on which this eagle has been reported in Kansas; my sight record was on 28 June. A few miles east of Hays two Red-tailed Hawks were soaring together, one of which was a reddish-melanistic color. This color-phase is characteristic of the western subspecies *B. j. calurus*, and the locality of occurrence seems far east for this form at this season (see Johnston, Univ. Kansas Mus. Nat. Hist. Publ. 12, 1964:607-608). One Swainson Hawk, three Sparrow Hawks (53), and four Burrowing Owls (39) were also seen in this section of highway. On the remaining 240 miles of highway from Hays to Lawrence, two Swainson Hawks and three Sparrow Hawks (80) were seen.

TABLE 1
NUMBER OF RAPTORS SEEN, AND THEIR FREQUENCY IN TERMS OF
TOTAL MILES TRAVELED (*ca.* 860) DURING DAYLIGHT HOURS.

| Species | Total seen | Miles traveled per individual sighted |
|---|------------|---------------------------------------|
| Turkey Vulture (<i>Cathartes aura</i>) | 20 | 43 |
| Red-tailed Hawk (<i>Buteo jamaicensis</i>) | 6 | 143 |
| Unidentified buteos | 2 | — |
| Swainson Hawk (<i>Buteo swainsoni</i>) | 6 | 143 |
| Marsh Hawk (<i>Circus cyaneus</i>) | 3 | 278 |
| Golden Eagle (<i>Aquila chrysaetos</i>) | 11 | 78 |
| Peregrine Falcon? (<i>Falco peregrinus</i>) | 1 | 860 |
| Sparrow Hawk (<i>Falco sparverius</i>) | 18 | 48 |
| Burrowing Owl (<i>Speotyto cunicularia</i>) | 7 | 123 |
| Short-eared Owl (<i>Asio flammeus</i>) | 2 | 430 |

A summary of the raptors observed on the trip is provided in Table 1. Wind and time of day affect counts like mine because fewer birds are seen during the mid-day hours and might pass unnoticed. Western Kansas had winds averaging about 15 miles per hour with gusts estimated at 30 miles per hour. Noteworthy is the rather large number of eagles, as compared to buteos and Sparrow Hawks.—CLAYTON M. WHITE, *Museum of Natural History, The University of Kansas, Lawrence, Kansas, 6 August, 1965.*

NOTES AND NEWS

Dr. A. J. Meyerriecks, University of South Florida, Tampa, Florida, is engaged in a study of dispersal of herons from colonies in central and southern Florida. Birds are banded and a part of their plumage dyed a bright color. If you see an unusually colored heron of any species, please send suitable information to the address below. Matters of interest necessarily include, *date, place seen, species* (if known), *how colored* (e.g., which side, wings or belly, etc.), *your name*, and *address*. Write: Heron Project, Encephalitis Research Center, 4001 Tampa Bay Blvd., Tampa, Florida.

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Your Editor leaves on September 2 for additional studies of sparrows in the field. This trip will require nearly a year's residence in Europe; Mr. James D. Rising, newly-appointed Associate Editor, will assume all editorial duties as of September 2. It is to be hoped that members of the KOS will rally round the *Bulletin* and *Newsletter*—both of our publications are in short supply of manuscripts at present—in the forthcoming year, to make Mr. Rising's tour of duty a pleasant and relaxed one.

Ornithology at KU will proceed apace under the eagle eye of Mr. Clayton White, whose first note as a Kansan appears in this number of the *Bulletin*. The raptorial reference above to Mr. White is not wholly irresponsible; he has specialized from an early age in studies of hawks and owls, and his major research at present concerns the noblest falcon of them all. On occasion some of us here call him Peregrine White, but this does verge on being seriously irresponsible. Mr. White hails from Utah and he has traveled widely in North and South America; he looks forward to learning more about the scene in Kansas.

* * * * *

Well, the Bureau of Reclamation is at it again, with a new proposal to build large dams at two points on the Colorado River, in Arizona. The Bureau wants to put in a dam in Bridge Canyon, below the Grand Canyon National Monument and Park, and another at Marble Gorge, only 13 miles upstream from Grand Canyon National Park. All of this proposed dam activity is, of course, merely a little upstream from Hoover Dam and Lake Meade; the net effect of all these dams would be to reduce the status of the Colorado River to a linear pool. Bills to authorize the "Lower Colorado Basin Project" with one or both dams are now before the Senate and House committees on Interior and Insular Affairs, and hearings will start soon. Members of KOS who are interested in keeping the Grand Canyon free of massive meddling by man are urged to write the committees, giving their views on the matter. Addresses are: Henry M. Jackson, Chairman, Senate Committee on Interior and Insular Affairs, Senate Office Building, Washington, D.C.; Wayne N. Aspinall, Chairman, House Committee on Interior and Insular Affairs, House Office Building, Washington, D.C. Kansans will also want to write Rep. Joseph Skubitz, a member of the House committee, same address. It is of the utmost importance for citizens to let their elected representative know their opinions; this is the essence of the American Way, which, I am afraid, has been too much talked about and too little exercised.—R.F.J.

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