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IN THIS ISSUE

| | |
|---|----|
| PLUMAGE VARIABILITY AND SOCIAL STATUS IN CAPTIVE MALE HOUSE SPARROWS, Gary Ritchison | 39 |
| THE SPRING MIGRATION OF 1985, Anne L. Stamm | 42 |
| THE 1985 BALD EAGLE COUNT IN KENTUCKY, James S. Durell and Anne L. Stamm | 48 |
| FIELD NOTES | 49 |
| NEWS AND VIEWS | 52 |

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THE KENTUCKY WARBLER

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OUR COVER

Our thanks go to Bert Powell for the excellent cover photograph of the Barn Owl (*Tyto alba*). See Field Notes.

PLUMAGE VARIABILITY AND SOCIAL STATUS IN CAPTIVE MALE HOUSE SPARROWS

GARY RITCHISON

Flocking is a widespread phenomenon among birds that winter in temperate regions. Such behavior may provide many benefits (Brown 1975, Bertram 1975, Bertram 1978); however, flocking may also impose certain costs, one of which is the promotion of intraspecific competition for essential resources. This competition may result in energetically costly fighting or may even lead to injury and death. The cost of such competition may be reduced by social systems that function to order individual priorities at resources and to regulate the frequency, form, and intensity of aggressive behavior (Balph 1977). Recently, it has been suggested that an individual's status within such social systems may be predetermined by inter-individual variation in various plumage characters. Rohwer (1975, 1977) and Rohwer and Ewald (1981) have noted that wintering birds may differ markedly in the degree to which they vary intraspecifically in appearance and indicated that flocking species tend to exhibit polymorphism in plumage coloration or patterns, whereas non-flocking species show monomorphism. Rohwer (1975:594) speculated that in flocking species "... plumage variability has evolved to signal the approximate social status of each individual." According to Rohwer, position in a dominance hierarchy within variably plumaged species is signaled by the degree to which each exhibits black, brightly colored, or contrastingly patterned plumage on the head or breast (i.e. "studliness"). Such status advertisement should be especially advantageous if flocks are large or unstable as it should enable both an incoming bird and establish flock members to assess the newcomer's proper social position without engaging in energetically costly fights (Rohwer 1975). After a series of tests, Rohwer concluded that such status signaling does occur in Harris' Sparrows (*Zonotrichia querula*). He also suggested, on the basis of qualitative observations of some other species, that this may be a widespread phenomenon.

Subsequent investigations (Shields 1977, Ketterson 1979b) have pointed out possible problems with Rohwer's hypothesis and, therefore, Balph *et al.* (1979) have stressed the need for information on the behavior of a variety of winter flocking birds before a satisfactory model of social status signaling can be formulated — if such a model is possible. A flocking species that exhibits much plumage variability and has not yet been examined with regard to the status signaling hypothesis in the House Sparrow (*Passer domesticus*). These birds are both dichromatic (adult males have gray crowns and first-year birds have brown crowns) and polymorphic (males show variation in the distribution of black plumage on their throats and breasts). The objective of the present study was to examine the possible relationships between plumage variability and social status in captive flocks of male House Sparrows.

METHODS

Male House Sparrows were captured in mist nets at Eastern Kentucky University's Stateland Dairy Center (Richmond, KY) on three occasions; 15 birds were captured on 8 November 1983, and 10 were captured on 6 September 1982 and 27 January 1983, respectively. All birds captured on one day made up one experimental flock. The age (adult or first-year bird)

and wing length of each sparrow were recorded and each bird was individually marked with color bands.

Each flock was placed in a flight cage (1.9 m³) made of wood and aluminum screening and was observed for six hours over a period of about two weeks. Dominance-subordination relationships among all members of each flock were ascertained through interactions at various resources in the cage (*i.e.*, water, food, and perches). Only active displacements involving obvious supplants, aggressive displays, or fighting were considered. The sparrows were starved for 1-2h prior to the observation periods and, therefore, nearly 90% of all interactions were noted at the feeder.

After observations were completed the sparrows were sacrificed and a tracing was made of each bird's throat patch. The area of each patch was then determined and each bird was assigned a plumage rank (105-109 mm² = 1, 100-104 mm² = 2, 95-99 mm² = 3, . . . , 35-39 mm² = 15). Plumage ranks were used instead of the actual areas in an attempt to ensure that small errors in the determination of the area would not influence the analysis.

RESULTS and DISCUSSION

In an attempt to determine whether or not plumage differences might serve a status-signaling function in House Sparrows, data were examined for possible associations between the area of a bird's throat patch and its social status. Analysis revealed that individuals with larger throat patches were dominant in 118 (64%) of the 185 two-bird combinations in which the two individuals differed in plumage rank, a result that differed significantly from the hypothesis of equal dominance ($X^2=7.03$, $df=1$, $P<0.05$). Thus, the area of the throat patch appears to be a predictor of social rank in male House Sparrows.

Factors such as age and body size have also been found to be predictors of social position in some species. For example, Ralph *et al.* (1979) reported that larger juncos (as estimated by wing length) were dominant in 78% of all interactions and, further, Ketterson (1974) noted that older juncos tended to dominate younger individuals. Male House Sparrows can easily be aged by examination of their crown since adults have gray crowns and juveniles have brown crowns (Watson 1970). Analysis revealed that adults were dominant in 70% (33 of 47) of the relationships involving adults and juveniles ($X^2=6.74$, $df=1$, $P<0.01$). Thus, crown color also appears to be a predictor of social rank in male House Sparrows. Watson (1970) also noted that adult House Sparrows tended to dominate juveniles. Surprisingly, larger individuals (as estimated by wing length) were not found to be consistently dominant over smaller individuals (only 88 of 181 relationships; $X^2=0.07$, $df=1$, NS). Cink (1977) suggested that there was a correlation between body size and dominance in House Sparrows but he further indicated that such a correlation existed only when food availability was low and the energetic needs of the birds were high, *i.e.*, on cold days (-5° C) with snow cover. Thus, it is perhaps not unexpected that no correlation was noted in the controlled environment of the laboratory.

The above results suggested a correlation between the size of the throat patch and social status and also between age (*i.e.*, crown color) and status. However, these two factors do not vary independently on one another in House Sparrows. Although there is variability within (and overlap between) age classes, adults generally tend to have larger throat patches than juveniles. The average plumage rank of 23 adults was 4.2 (SD=2.9)

while the average rank of 12 juveniles was 8.7 (SD=3.7). A question that arises therefore concerns the relative contributions of age and the size of the throat patch in signaling social status. If the size of the throat patch more accurately reflects social status than does age then associations between the size of the throat patch and status should be similar for sparrows of the same or different ages. However, it was found that individuals with larger throat patches were dominant in a significantly greater proportion of interage (adult vs. juvenile) than intra-age relationships (adult vs. adult or juvenile vs. juvenile; 74% as compared to 56%, $\chi^2=4.29$, $df=1$, $P<0.05$). In other words, the dominance of adults with larger throat patches over juveniles with smaller throat patches appeared to account for much of the signal value associated with the throat patch. Thus, it appears that age (*i.e.*, crown color) is a better, although imperfect, predictor of social status in male House Sparrows than is the size of an individual's throat patch. In this regard it seems that the social status signaling system of male House Sparrows is similar to that proposed for Dark-eyed Juncos by Balph *et al.* (1979). They indicated that in juncos associations between plumage attributes and social position appeared to be imperfect and depended primarily, but not solely, upon differences of age or sex. Ketterson (1979a:97) similarly noted that sex and age were "good predictors of dominance status" in Dark-eyed Juncos. Rohwer *et al.* (1981) reported similar results in Harris' Sparrows. That is, they found that first-year birds often possessed smaller "bibs" (*i.e.*, throat patches) than did adults and, therefore, age (*i.e.*, the dominance of adults with larger bibs over first-year birds with smaller bibs) contributed, at least in part, to the association between bib size and social status.

In summary, it appears that Rohwer's (1975) original hypothesis may have overestimated the association between certain plumage characteristics and social status. The results of the present study and those of Balph *et al.* (1979), Ketterson (1979a), and Rohwer *et al.* (1981) seem to suggest that although individuals may be attentive to plumage cues and such cues may play some role in determining social status, the imperfect association between plumage characters and status indicate that other factors (*e.g.*, age, sex, size and previous experience) are also important.

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- Department of Biological Sciences, Eastern Kentucky University, Richmond, Kentucky 40475

THE SPRING MIGRATION OF 1985

ANNE L. STAMM

It was an unusual spring with temperatures above normal for all three months. March was unusually warm. Precipitation was below normal for all three months, particularly in April. However, in early May the water was high in some areas in western Kentucky, especially along the Mississippi River.

The majority of observers felt that the spring was not exciting, one said: "migration was dull" and another felt that we "never had a good wave of migrants." Warbler migration was disappointing to some and their numbers were low. Some of the more unusual species were the White-fronted Geese, Cinnamon Teal, Mississippi Kite in central Kentucky, Laughing Gulls and Least Terns. There were also a few sightings of the rare Bachman's Sparrow.

A good number of nesting records were included in the reports, these will be used in the summer summary. Breeding data are essential in order to establish a more accurate evaluation of the present status of the breeding birds of the state. Therefore, observers are urged to include all breeding information in future reports.

Loons through Herons — One to four Common Loons were sighted between March 18 and May 1 at the following locations: Lake Pewee, Louisville, Fort Knox, Waitsboro Recreational area, Lexington and Greenbo Lake (m.ob.). Horned Grebes were scarce. A group of 100 Double-crested Cormorants at Lake #9, April 6 was the largest flock reported (BPB, R.

Cicerello, B. Butler); one to five birds at Kentucky and Smithland Dams (BPB *et al.*), Falls of the Ohio (BS, DD, BPB) and a single bird near Richmond (DN). An American Bittern in west Lexington, March 23 was the only one reported (MF). Although the Great Blue Heron was not as commonly seen as usual, at least 28 were found in scattered areas in the bottoms of Fulton County on May 12 (S, FS) and numerous all over Ballard County on May 20 (CP). Great Egrets were not as numerous as last spring; single birds appeared as early as March 29 at Louisville (LR) and Shippingport Island (B. Anderson *vide* BPB); three to four at Clark Fish Hatchery (FB); two at Cox's Creek (PT); one at Mayfair Basins (DN); thirteen in the bottoms of Fulton County, May 12 (S, FS); six at the latter locations on May 26 and one at Ballard County on May 23 and 25 (BBC). Twelve adult Little Blue Herons were found in Mud Creek bottoms, Fulton County, April 6 (BPB *et al.*); a single at Clark Hatchery, April 15 (FB); two birds over the Falls of the Ohio on May 14 (BPB) and two adults along the Mississippi River, Fulton County, May 26 (BBC). Single Cattle Egrets arrived as early as April 20 in Anderson County (CP) and in Warren County on April 21 (DM); two below Barkley Dam, April 27 and five on Shippingport Island on May 10 were also reported (BPB). Fifty Black-crowned Night Herons had returned to Shippingport Island by March 29 (BPB); eight birds at Elizabethtown on April 4 (G. Elliott *vide* DN); a count of 156 on the Falls of the Ohio, May 4 (LR) and 185 there May 7 (BPB). A few more Yellow-crowned Night Herons were reported than usual: eight at Shippingport Island in early April where they remained throughout the period (BPB); several were back in Lexington on April 10 (MF); four near Shepherdsville, May 24 (KC); one at the Falls, May 25 (S) and one in Fulton County on May 26 (BBC).

Large numbers of Canada Geese passed over Lexington during the period (MF); a rather late flock of 32 on Long Run County Park Lake on May 27 and a single bird at Smith's Pond, Oldham County, May 31 (S, FS). There were three reports of White-fronted Geese: singles at Dix Dam, Mercer County in early March (W. Kemper *vide* FL), Honker Bay and on a lake on the Paradise Steam Plant, Muhlenberg County, April 14 (BPB, D. Ebel). A flock of 149 Blue-winged Teal was seen at Hays Kennedy Park, Louisville on April 6 (DN, LR); a few lingered until late May in Fulton County (BPB). An unusual find was the Cinnamon Teal on the Long Point Tract, Fulton County on April 30 (CP, F. Houser). Twenty-five American Widgeons were at Mayfair Basins, March 30 (S, FS). A single Greater Scaup was at Clark Hatchery (JEL) and Louisville (S, FS), March 24 and 30, respectively; and a flock of 16 on Kentucky Lake, April 14 (BPB, D. Ebel). The Common Merganser was present at Lexington Reservoir in early April (BA); no others reported. Red-breasted Mergansers were reported on the Lexington Reservoir, Ohio River at Louisville and Lake Pewee between March 24 and May 1, with a maximum of 16 at Louisville (BPB) and 20 at Lake Pewee (JH); a few lingered until May 16 (BS, DD, BPB). Ruddy Ducks were present at six locations with 61 as the maximum at Lake Pewee on March 20 (JH); a single straggler was at Petersburg, Boone County, May 18 (LMc).

Hawks — Ten to 15 Black and Turkey Vultures were seen along Kentucky River and at Raven Run Nature Sanctuary in early March (MF); also 15 Blacks at Clark Hatchery on March 24 (FB, JEL). Turkey Vulture migration was noted at Clark Hatchery on March 14 with 37 present, but 86 and 87 were there on March 16 and 24, respectively (FB); a total of

34 in Boone County while taking a spring bird count, May 11 (LMc). One to three Ospreys visited Clark Hatchery between March 25 and April 22 (FB); singles at Pulaski County Park (JEL), Falls of the Ohio (BPB), Kentucky Dam (BPB, B. Anderson) and two at a watershed Lake in Grayson County (BF), all in April; a fairly late straggler in Fayette County on May 2 (BA). A single Mississippi Kite was seen in Fulton, Fulton County on May 4 (BM); three at Columbus Belmont Park, May 11, eight there on May 13 and four along the levee, Fulton County, May 13 (S, FS); nine over Ballard County, two over Wickliffe and one at Columbus Belmont Park, May 25 (BBC); and one as far east as Otter Creek Park, Meade County, May 15 (DD). There were two unusual Bald Eagle records: an immature at First Creek Lake in the Mammoth Cave National Park area, April 21 (LMc, Wm. Jacoby, Tom Stephens); and two in northeast Jefferson County on May 7 (KC, Doris Mager, S. Pickitt). Northern Harriers, Sharp-shinned and Cooper's Hawks were present, but in low numbers. Red-shouldered Hawks continue to be scarce in some areas, but were reported in Jefferson, Hopkins and Edmonson Counties. The Broad-winged Hawk in Boyle County, March 8, was one day later than Kentucky's earliest record (Wm. Kemper *vide* FL). A Peregrine Falcon was reported for the Falls of the Ohio, May 16 (DD, BS).

Grouse through Cranes — Ruffed Grouse were seen at Greenbo Lake State Park on May 3 and 4 (MF). Single Wild Turkeys were present at Fort Knox on April 23 and May 12 (JG). The only Sora was reported from Frankfort Fish Hatchery (no date—MF). Single Common Moorhens were present on the Falls of the Ohio, April 24 (BPB) and at Clark Hatchery, May 18 (BPB, R. Cassell), while four birds were at the latter location on May 19 and 23 and two still there on June 1 (FB). A Maximum of 228 American Coots was observed on Lake Pewee, March 20 (JH); one was still present at Reelfoot NWR, May 26 (BBC). A few records of Sandhill Cranes moving northward included 10 over eastern Jefferson County; March 25 (BPB) and five over south Fayette County during the period (no date—B. Maxson *vide* MF).

Shorebirds — Comments on the shorebird migration were mixed. Flights were disappointing in Fayette County, while above average in Boone County and habitat was somewhat limited in western Kentucky in early May. A single Black-bellied Plover made its appearance below McAlpine Dam, May 1 (LR), two there on May 7 (BPB); four at Clark Hatchery, May 18 (BPB). Lesser Golden Plovers were scarce, although about 50 fed in the bottoms of Fulton County, April 6 (BPB *et al.*). Semipalmated Plovers were fairly widespread and present from April 28 at Louisville (LR) to May 27 at Clark Hatchery (FB), with high counts of 14 at the former location (LR) and 35 at the latter, May 18 (BPB); one to 12 at Lake #9 (BBC), Reelfoot NWR (S, FS), East Bend (LMc) and Frankfort Fish Hatchery (BPB, L. Andrews). Thirteen American Avocets were found below McAlpine Dam on April 27 (LR, *et al.*). A single Greater Yellowleg on a farm pond, March 29 (DN), approximately 100 in the bottoms of Fulton County, April 6 (BPB, *et al.*) and the one in Trigg County on April 19 were the only ones reported (CP). Lesser Yellowlegs were numerous in Fulton County with "hundreds" on April 6 (BPB *et al.*) and 66 at Clark Hatchery on April 27 (FB); scarce at the Falls of Ohio; nineteen at Mayfair Basins, April 29 (DN). Solitary Sandpipers were scarce with only one to four birds reported at each of six widespread loca-

tions. As usual, Spotted Sandpipers were late in arriving and numbers were low. A single Upland Plover was seen near Rich Pond, Warren County on April 21 (BPB, R. Cassell, Sherri and Mark Evans). The only Ruddy Turnstones reported were one to five at the Falls of the Ohio on May 7-21 (BPB) and one at Clark Hatchery, May 18 (BPB, R. Cassell). Remarkable Semipalmated Sandpiper concentrations included 85 at Falls of the Ohio, May 19 (BPB); 95 at Frankfort Fish Hatchery, May 20 (BPB, L. Andrews); 175-200 at Lake #9, May 26 (BBC)—27 (BPB, B. Anderson, J. MacGregor); 76 at Clark Hatchery, May 23 (FB) and 30 at Danville area, June 1 (FL). White-rumped Sandpipers were fairly well distributed and included 13 at the Falls of the Ohio, May 21-24 (BPB), two at Mayfair Basins, May 22 (DN), one at Frankfort Hatchery, May 20 (BPB, L. Andrews), five to 14 at Clark Hatchery, May 21 and 23 respectively (FB), 20 at Lake #9, May 26 (BBC) and 80 there May 30 (BPB *et al.*). Pectoral Sandpipers were seen all across the state, but only in numbers of one to two, except in the bottoms of Fulton County where "hundreds" were reported on April 6 (BPB, R. Cicerello, B. Butler). The only Dunlins reported were two at Clark Hatchery on April 27 and May 23 (FB) and one at the Falls of the Ohio May 8 (BPB) and 18 (LR, BPB). Although Short-billed Dowitchers are uncommon spring transients two were present at Mayfair Basins, May 12 and 16 (BPB) and at Clark Hatchery, May 18 (BPB) and 19 (FB). There were six dowitcher spp. on the Falls of the Ohio on May 21 (BPB, J. Molloy) and one at Clark Hatchery, May 18 (BPB, R. Cassell). Few Common Snipe were reported, but at least 33 were at Lentz's Pond, Louisville during the last week of March (DN). A single Wilson's Phalarope was seen at Reelfoot NWR on April 6 (BPB *et al.*).

Gulls and Terns — Bonaparte's Gulls returned to Cave Run Lake on March 24 with eight plus birds (JEl) and six at the Falls of the Ohio, March 30 (LR); numbers increased in April with 35 at Clark Hatchery (FB), some 35-40 at Frankfort Hatchery (MF) and 550 at Kentucky Lake, April 14 (BPB, D. Ebel); singles lingered until May 24 at the Falls of the Ohio (BPB) and May 27 at Kentucky Lake (BBC). Ring-billed Gull concentrations included 150+ at Clark Hatchery, March 5 (FB), about 200 at Green River State Park, March 3 (JEl) and 200 at Kentucky and Barkley Dams (BPB); four birds lingered at Louisville until May 25 (S, FS) and one still present in early June (BPB). One to seven Caspian Terns visited the Falls of the Ohio (BPB) and peaks of 12 to 20 at Barkley Lake above the Dam (BPB *et al.*). A single Common Tern was seen with two Forster's Terns at Hickman, May 12 (S, FS). Two Forster's Terns arrived at Pulaski County Park on April 18 (JEl); two at the Falls of the Ohio on April 19, 23 and 25 (BPB) and at Barkley and Kentucky Lakes above the dams, April 27 (BPB, B. Anderson, L. Andrews); and seven at Douglas Lake, Fort Knox, April 27 (JG). Also, a number of *Sterna* spp. were sighted at Smithland, Barkley and Kentucky Dams on May 22-23 (BPB, B. Anderson). Three Least Terns were seen along the Mississippi at Hickman on May 12 (S, FS); eight to 10 were at Smithland Dam, May 22-23 (BPB, B. Anderson); one at Chalk Bluff, Hickman County, May 25, two at Fulton County Pumping Station, May 26, ten along the levee and Lake #9 in Fulton County, May 26 (BBC) and again at Smithland Dam, May 31 (BPB). The only Black Terns reported were from Smithland Dam and Barkley Lake on May 22-23, with a high count of 30 birds at the former location (BPB, B. Anderson).

Cuckoos through Woodpeckers — A number of observers felt that Yellow-billed Cuckoos were scarce. Single Black-billed Cuckoos were seen at four locations: Lexington Cemetery, Greenbo Lake State Park, Greenup County (R. Morris *vide* MF), east Louisville and Falls of the Ohio (BPB). Common Nighthawks were late in arriving and first reported in Estill County, April 20 (BA); a high count of 42 in Louisville, May 19 (DN). The Chuck-will's-widow was first heard at Mammoth Cave National Park and at Madisonville, April 20 and 22 (KOS, JH, respectively); present also at Buckley Hills Nature Sanctuary, Raven Run Sanctuary and Boggs Farm, near Lexington (MF). There were fair numbers of Ruby-throated Hummingbirds at Big Pond Sanctuary, Grayson County (KC). Little comment was made on the Yellow-bellied Sapsucker, but few were noted this spring in the Lexington area (MF).

Flycatchers — Olive-sided Flycatchers were reported from six locations: Cave Hill Cemetery (LR), Shippingport Island (BPB), Bernheim Forest, Otter Creek Park (BS, DD), Lexington Cemetery (MF) and Daniel Boone National Forest in Lee County (MF). Yellow-bellied Flycatchers were seen at Lexington Cemetery, May 12 (BA) and at the Falls of the Ohio, May 12 and 15 (BPB). The Alder Flycatcher, an uncommon spring transient, was seen and heard at Ballard Waterfowl Management Area, May 25 and at the Falls of the Ohio, May 12, 14 and 28 (BPB). There were more reports of the Willow Flycatcher than usual: one rather early bird at Clark Hatchery, May 7, but three there from May 19-27 (FB); one at Petersburg on May 11 and remained throughout the period (LMc); at the Falls of Ohio on May 10, numerous at Shippingport Island in late May (BPB) and one in east Louisville, May 12 (DN). Least Flycatchers were reported at Independence (EG), the Falls of the Ohio (BPB) and Big Black Mountain, where six birds were heard calling on May 27 (DN).

Swallows through Wrens — Purple Martins arrived later than usual and fewer were seen at nesting boxes. Tree Swallows were first noted at Lexington and Cave Run Lake on March 24 (BA, JEl, respectively), with a count of 95 birds at Clark Hatchery, April 7 (FB). Bank Swallows were probably the most numerous: "hundreds" below Smithland Dam, May 22-23 and a small colony near Laketon, May 30 (BPB *et al.*); also at the Falls of the Ohio with a peak of 25 birds, May 24 (BPB). Cliff Swallows appeared to be in low numbers: 25 at Barkley Dam, May 11 were the only ones reported (S, FS). The Carolina Wren seemed to have survived the severe winter in the Bluegrass area (MF), while it showed some decrease in northern Kentucky (LMc). The only Bewick's Wrens were reported from Calloway County at two locations on April 28 and May 10 (CP). No House Wrens were found at Fort Knox where they have been common for the past four years (JG). Winter Wrens were still present at Raven Run Nature Sanctuary and Madisonville, April 3 and 9 (BA, JH, respectively). The only Sedge Wren was reported at Fort Knox, May 5 (JG) and a Marsh Wren near Union, May 11 (LMc).

Kinglets through Shrikes — Ruby-crowned Kinglets were fewer than usual while Golden-crowned were in good numbers, especially at Lexington in March (MF). A Ruby-crowned Kinglet was still present at Greenbo Lake State Park, May 4 (BA). Reports on thrushes were mixed, but the majority of observers felt that numbers were low, especially Gray-checked. Swainson's Thrushes were common on mulberry bushes at Clark Park, Louisville

from May 6-25 (BS). The Cedar Waxwing migration was late and flocks did not appear until May 16-27 (DN, S, BPB). Few Loggerhead Shrikes were reported: only four sightings.

Vireos through Warblers — A pair of Bell's Vireos was seen on the West Kentucky Wildlife Management Area, May 26 (BBC). A Solitary Vireo on Cumberland Gap was early on March 24 (BA); six were present on Big Black Mountain on May 27 (DN). Yellow-throated Vireos were seen or heard on at least six locations in Mammoth Cave National Park, April 19-20 (DN, KOS). The only Philadelphia Vireo was reported at Lexington Cemetery, May 12 (BA). The warbler migration was disappointing to many observers; some thought it "dull" and others "very poor." In Danville, however, only the Tennessee and Cape May Warblers seemed "up to, or over, average numbers" (FL). A Tennessee Warbler was still heard singing on June 1 in the Danville area (FL). There were fair numbers of Northern Parula Warblers in western Kentucky in Fulton and Hickman Counties on April 6 (BPB *et al.*). Eleven Yellow Warblers were heard singing at Shippingport Island on May 7 (DN). The Cape May Warbler was reported from eight locations (m. ob.) and 12 were in one group at Bernheim Forest, April 27 (BM, BBC). A single female Black-throated Blue Warbler was observed at the Falls of the Ohio, May 12 (BPB) and at least 20 on Black Mountain, but only on the highest points, May 27 (DN). The Yellow-rumped (Myrtle) Warbler was most common on April 19 at Madisonville (JH) and at Clark Park, April 22 (BS). A Blackburnian Warbler lingered at the Falls of the Ohio on May 25 (S) and at Burlington, May 28 (LMc). A Pine Warbler was seen in McCreary County, March 17 (JEL). At least 10 Palm Warblers were present at Bowling Green on April 19 (BF). Blackpoll Warblers arrived at Madisonville and Bowling Green, April 19 (JH, BF, respectively). Good numbers of Prothonotary Warblers were found along the Salt River (JG). A Louisiana Waterthrush was seen at Greenbo Lake State Park, May 4 (BA); one on Clear Creek, Bell County, May 26-27 (DN). Connecticut Warblers were observed on the U. of K. Farm, as in past years, May 20-28 (MF); two at Shippingport Island, May 15 and one May 24 (BPB). The Mourning Warbler was seen on several occasions at the Falls of the Ohio, May 12-24 (BPB) and a male in Bell County, May 26 (DN). At least seven Canada Warblers were on Big Black Mountain, May 27, where they are known to nest (DN).

Tanagers through Finches — There were few reports on the tanager migration, although Scarlet Tanagers were in good numbers in the Fort Knox area (JG). Rose-breasted Grosbeaks were scarce in many areas and Blue Grosbeaks were reported as far east as Mercer and Fayette Counties. Dickcissels were common in southern Fulton County May 11-13 (S, FS). A Henslow's Sparrow on April 27 near Middle Creek, Boone County, remained throughout the period (LMc); no others reported. Two Bachman's Sparrows were interesting finds near Hamlin, Calloway County, May 13 (CP) and one heard near New Concord, Calloway County, May 26 (BBC). Both the Vesper and Savannah Sparrows were recorded at Clark Hatchery from April 1-7 (FB). Bobolinks were common at Masterson Station, Lexington with an estimated 50 pair in late May (MF); one heard singing near Harrodsburg, June 1 may be a potential nester (FL); one male along the trace in Land Between the Lakes, May 13 was unusual there (S, FS). A flock of 100 Rusty Blackbirds, near the Lexington Reser-

voir, April 1, was the only concentration reported (BA); a single male in the Louisville area, May 12 established a late date (DN). Northern (Baltimore) Orioles were quite common in Boyle, Meade and Hickman Counties and in usual numbers in Woodford, Jessamine, Mercer and Fayette Counties. There was a noticeable increase in the House Finch in northern Kentucky (LMc), also flocks of 70 noted at various feeders in the Bluegrass area (MF). Small numbers of Pine Siskins fed at feeders in March and early April in Louisville, Madisonville, Fort Knox and Fern Creek; eight to ten were still present at the latter location on May 27 and 31 (S). Thirty American Goldfinches fed at two feeders in the Fern Creek area on March 17, but numbers tapered off after that time.

Contributors — Brad Andres (BA), Kathryn Clay (KC), Don Devitt (DD), Jackie Elmore (JEl), Blaine Ferrell (BF), Michael Flynn (MF), John Getgood (JG), Ed Groneman (EG), James W. Hancock (JH), Frederick Loetscher (FL), Lee McNeely (LMc), Donald Mott (DM), Burt L. Monroe, Jr. (BM), Doxie Noonan (DN), Brainard Palmer-Ball, Jr. (BPB), Clell Peterson (CP), Lene Rauth (LR), Bernice Shannon (BS), Anne L. Stamm (S), Frederick W. Stamm (FS), Donald Summerfield (DS), Phyllis Theiss (PT). Other abbreviations—Beckham Bird Club (BBC), many observers (m. ob.), Reelfoot National Wildlife Refuge (Reelfoot NWR).

— 9101 Spokane Way, Louisville 40222.

THE 1985 BALD EAGLE COUNT IN KENTUCKY

JAMES S. DURELL AND ANNE L. STAMM

The 1985 statewide Bald Eagle count was conducted in cooperation with the National Wildlife Federation Raptor Information Center and in conjunction with the U. S. Fish and Wildlife Service Waterfowl census. The census period was January 2-16, 1985, with the target date in Kentucky as January 4.

The weather during the entire census period was unfavorable. One to three inches of snow was on the ground in some areas while freezing rain occurred in some sections of the east. Food supply in most locations appeared to be ample.

There was a census total of 143 Bald Eagles: 94 adults and 49 immatures. An adult Golden Eagle was also reported in the Land Between the Lakes area. The Bald Eagle figures represent a 35.3% decrease from 1984, and 5.9% increase over 1983. Of the 35.3% decrease, 29% (64 eagles) occurred in areas with inflated numbers last year that resulted from the freeze-up of Reelfoot Lake. This forced a large concentration of the Reelfoot eagles to move into Kentucky for open water.

New counters in two very productive areas in 1984 reported no eagles this year. These were Obion and Mayfield creek and lakes in the Barlow Bottoms, all near the confluence of the Ohio and Mississippi Rivers.

Eagle numbers increased on the Ohio River, Carrsville to Cincinnati, on Green River Lake, and Laurel Lake. Lake Cumberland reported fewer eagles, probably due to poor visibility.

Table I is the summary of the 1985 census and includes a three-year (1983-1985) comparison of the Bald Eagle counts.

Other hawks recorded in connection with the census included three Ospreys (two at Taylorsville Lake, one at Dale Hollow, no details), five Northern Harriers, one Sharp-shinned, three Cooper's, two Red-shouldered, 76 Red-tailed, one Rough-legged and two unidentified hawks, as well as, 105 American Kestrels.

TABLE 1—Summary: Kentucky Eagle Census, January 2-16, 1985 and Comparison with Previous Censuses.

| LOCATION | BALD EAGLES | | | | |
|--|-------------|-----------|------------|------------|------------|
| | Ad. | Imm. | Total | 1984 Total | 1983 Total |
| Mississippi River | 13 | 8 | 21 | 72 | 15 |
| Land Between the Lakes* | 26 | 13 | 39 | 54 | 41 |
| Ohio River, Wickliffe to Carrsville (N. Livingston) | 22 | 12 | 34 | 47 | 25 |
| Ohio River, Carrsville to Owensboro | 4 | 3 | 7 | 3 | 5 |
| Ohio River, Owensboro to Meldahl Dam | 4 | 2 | 6 | 4 | 9 |
| Green River Lake | 5 | 1 | 6 | 3 | 3 |
| Kentucky River—Bluegrass Ordinance | — | 1 | 1 | 1 | — |
| Dale Hollow | 7 | 2 | 9 | 8 | 12 |
| Cave Run and Grayson Lakes | 2 | 2 | 4 | 7 | 1 |
| Lake Cumberland, Big South Fork | 4 | 2 | 6 | 16 | 18 |
| Dewey Lake | — | 1 | 1 | — | — |
| Laurel Lake | 7 | 2 | 9 | 6 | 6 |
| TOTALS | 94 | 49 | 143 | 221 | 135 |

*One adult Golden Eagle was observed at this census site in 1985.

There were 47 parties in the field and 82 participants. Groups participating included the Kentucky Ornithological Society, biologists from the federal and state Fish and Wildlife agencies, TVA and U. S. Forest Service personnel, and a few interested individuals from other organizations.

The writers wish to thank all participants and to request their continued support next year.

— Kentucky Department of Fish and Wildlife Service, Frankfort 40601 and 9101 Spokane Way, Louisville 40222.

FIELD NOTES

BLACK VULTURES NESTING IN AN ABANDONED BUILDING

The Black Vulture (*Coragyps atratus*) is fairly common but local permanent resident in Kentucky, nesting locally through the western two-thirds of the state. Documented nestings of the species in the state are few (Mengel, The Birds of Kentucky, A.O.U. Monogr. 3, 1965) and nest sites published range from caves in rock cliffs to hollow trees. Bent (Life Histories of North American Birds of Prey, Vol. I, U.S. Nat. Mus. Bull. 167:1-409, 1937) also mentions similar nesting locations in caves, hollow trees and on the ground under vegetation, but does not include the utilization of abandoned buildings. Unlike its close relative, the Turkey Vulture (*Cathartes aura*), the Black Vulture apparently nests in abandoned buildings only rarely.

Brown reported nesting of Black Vultures in an abandoned farm house in Henry County, Kentucky in June of 1983 (Stamm, Ky. Warbler 59(4): 50-60, 1983). The following account describes the successful but rarely documented utilization of an abandoned building by Black Vultures for nesting.

On 3 June 1984 we were walking on the University of Louisville's Horner Wildlife Sanctuary 2 km west of Brownsboro, Oldham County, when we discovered an adult Black Vulture in a small, abandoned building. The bird was sitting in a corner and made a repeated hissing noise interspersed with a low growling sound. We withdrew from the building and then re-entered a few minutes later. This time the bird rose onto its feet, revealing two eggs which it had been incubating. The eggs were pale gray-green in color with a scattering of dark brownish spots at the larger end.

After one-two minutes of hissing and growling, without effect upon us, the adult vulture suddenly extended its neck, lowered its head and discharged a line of viscous, dark vomit at the edge of the "nest" area closest to us. The odor from the vomit was powerful and led us to exit the building.

The building in which the nesting bird was found had apparently been a workshop located adjacent to the main farmhouse. The roof of the farmhouse had collapsed, but the workshop was relatively intact. The farm buildings on the sanctuary had been abandoned for at least 15 years. The buildings are located in an overgrown area of mixed mature and medium-sized trees on the edge of a steep, west-facing hillside overlooking a valley running north-south. The workshop building was a wooden frame structure 5.5 x 3.1 meters with a poured concrete floor and was partitioned into two rooms. The front room had two windows, one of which was broken out entirely, and an outside door. The door was ajar, and remained that way throughout the summer. There was also a 40-cm-square hole in the otherwise intact roof of the building. This hole resulted from the collapse of a brick chimney and was located over the partition which separated the building into two rooms. The vulture and its eggs were found in the back room of the building and in the corner formed by the north wall of the building and the dividing partition.

The two eggs were found resting directly on the concrete floor. Although there was a thin layer of rotten wood, dirt, bits of cloth, and other trash scattered over the floor, the whole area around the eggs appeared to have been cleared of all debris.

Visits to the area were continued over the summer of 1984 and the following supplementary notes were made:

- June 17 — again found one adult bird sitting on two eggs in same location. Much hissing and growling again, but no vomiting.
- June 23 — Found the adult birds in usual location. However, when it arose two down-covered chicks were revealed. These birds were of a rich tan or buff color.
- July 8 — Chicks a little larger, adult was absent when we arrived. Chicks hissed and growled at us. They also huddled together, spread their wings and lowered their heads toward the ground in our direction.
- July 22 — Chicks still down-covered and rather small. First noticed a powerful odor typical of poultry farms in the building.

- July 28 — As we approached the building an adult vulture flew up from the open doorway and perched for a few seconds on one of the two standing chimneys of the farmhouse before finally flying off. Chicks still rather small.
- August 4 — Chicks growing some — smell now noticeable even outside of the building. No adults seen.
- August 25 — Chicks larger now with some dark primary feathers coming in. No adults seen.
- September 6 — Some tan down still visible on lower body, but young birds mostly black now. No adults seen.
- September 9 — Young birds large now, almost all black. For the first time they were up off the floor, perched on crossbars in the wall about 1.2 meters above the floor. No adults seen.
- September 16 — Found both young birds perched on the roof of the farmhouse, 12 meters from the workshop building. One of them flapped rather clumsily from a collapsed portion of the roof to the top of one of the standing chimneys, No adults seen.
- September 23 — As we arrived, two adult Black Vultures which had been perched in a large dead tree 40 meters east of the farmhouse took wing and flew off. We found the two young vultures (tuft of tan down still visible on top of head at base of beak) perched on top of the farmhouse. They watched us carefully but made no attempt to fly off.
- September 30 — Found both young vultures and one adult bird perched in same dead tree as above. Adult flew off immediately, one of the young birds also flew off after 30 seconds. Second young bird remained in the tree for 1-2 minutes and then flew-off.

In summary, this account fully documents one of the few cases of the utilization of an abandoned building by Black Vultures for nesting. While not uncommonly found nesting along cliffs and in hollow dead trees in the state, nesting in abandoned buildings is apparently rarely practiced by Black Vultures. However, the Turkey Vulture has been reported nesting in abandoned buildings on many occasions. — WILLIAM and JUANELLE PEARSON, Biology Department, University of Louisville, Louisville, Ky. 40292.

OBSERVATIONS OF NESTING BARN OWLS (*Tyto alba*)

On 10 March 1985, grackles and bluejays were making quite a fuss over something in a tall hemlock tree which stands within four feet of my home in Stanley, Kentucky. I soon found the cause of their concern. An adult Barn Owl was perched 20 feet up the tree. It stayed there all day but did not return the next. On 7 April 1985, grackles and bluejays again alerted me to the presence of a Barn Owl.

On Sunday, 30 June at 7:00 a.m., I noticed a young Barn Owl perched in the top of a shrub at eye level just six feet from my drive. At one point, the young owl became a little excited and flew to the ground. After many pictures were taken (see front cover), I put the owl back on the shrub. As soon as darkness came, the owl flew up into a maple tree in my neighbor's yard. I judged the young owl to be about eight weeks old at that time.

On 1 July 1985, I found two young Barn Owls in the maple tree in my neighbor's yard. One owl was in the nest cavity, the other was perched on a limb about eight feet above the nest cavity. On 4 July 1985, I went upstairs in my neighbor's home. By looking out an upstairs window, I got a much better view of the nest cavity and there were two adults and one immature owl looking at me. The other immature owl was perched on a limb nearby. This maple tree was about 20 feet from the window and the nest cavity was about 18 feet above ground and faced the house. I believe that Barn Owls have been nesting in this tree for several years. In 1984, I observed an adult Barn Owl in the hemlock and a large hackberry tree in my lawn on at least a dozen occasions. However, I never saw its mate or young. After a severe windstorm in April 1983, my neighbor had this maple tree trimmed. The tree trimmers reported that two large owls flew out as they were trimming but they could not identify them.

Pellets can be found under most trees in my and my neighbor's yard, as well as, on the roof of my house. There is a feed mill about 100 yards down the street which I believe is the source of most of their food (mice). I have, however, found the heads of several female Red-winged Blackbirds and the heads of two very small rabbits. — THOMAS E. STEVENSON, P.O. Box 7, Stanley, Ky. 42375.

NEWS AND VIEWS.

K.O.S. FALL MEETING

The 1985 fall meeting will be held at Pine Mountain State Resort Park on September 20, 21 and 22. Please plan to attend; Fred has planned a good hawk migration for the Pinnacle, Cumberland Gap National Historical Park. Also, Barry Howard will speak on the "Natural History of Pine Mountain." Anyone who would like to make a presentation at the Friday evening meeting should contact Fred M. Busroe, Program Chairman, UPO 1352, Morehead State University, Morehead, Ky. 40351. Phone (606) 783-2951.

MOVING?

Please inform the K.O.S. of address changes promptly. Journals returned to the K.O.S. with no address change made by members prior to publication will be remailed only after payment of return and remail costs.

CORRECTION

Due to the editor's oversight, the sighting of an Osprey at Mammoth Cave National Park during the Spring Meeting was omitted from the official count list.