

SHORT COMMUNICATIONS

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JUVENAL PLUMAGE CHARACTERISTICS OF MALE SOUTHEASTERN AMERICAN KESTRELS (*FALCO SPARVERIUS PAULUS*)

KARL E. MILLER

*Department of Wildlife Ecology and Conservation, University of Florida, P.O. Box 110430,
Gainesville, Florida 32611 U.S.A.*

JOHN A. SMALLWOOD

Department of Biology, Montclair State University, Upper Montclair, NJ 07043 U.S.A.

KEY WORDS: *American Kestrel*; *Falco sparverius*; *Florida*; aging; plumage pattern.

Determining ages of American Kestrels (*Falco sparverius*) can be problematic. The first prebasic molt in American Kestrels is incomplete; juvenal body plumage is replaced in the late summer or early fall of the hatching year, while juvenal remiges and rectrices are retained. However, some males retain a few too many juvenal body feathers through the first prebasic molt (Smallwood 1989). Retention of juvenal body feathers was common in male American Kestrels (*F. s. sparverius*) wintering in southern Florida; of 18 males known to be immature because of distinctive fault bar patterns (Hamerstrom 1967, Smallwood 1989), four retained their juvenal body plumage after the first prebasic molt was completed and four others were undergoing delayed body molt as late as November (J. Smallwood, unpubl. data). Thus, a substantial portion of immature male American Kestrels can be aged after the first prebasic molt.

Many sources have reported that heavy streaking on the breast and dark barring on the anterior dorsum are diagnostic characters of the juvenal plumage of male American Kestrels (Parkes 1955, Bird and Palmer 1988, Smallwood 1989, Wheeler and Clark 1995). In his key for age and sex determination of American Kestrels, Smallwood (1989) used the absence of bars on the "upper one-third to one-half of back" as a diagnostic character to distinguish males in basic plumage from hatching-year males.

Existing keys for aging American Kestrels are based on *F. s. sparverius*. Little has been published about the biology of the Southeastern American Kestrel (*F. s. paulus*), which breeds in Florida and the southern portions of South Carolina, Georgia, Alabama, Mississippi and Louisiana (Smallwood 1990). This nonmigratory race underwent a marked decline in recent decades (Hoffman and Collopy 1988) and is currently listed as threatened in Florida (Collopy 1996). The objective of this study was to

examine the plumage characteristics of male Southeastern American Kestrel nestlings in northcentral Florida and to compare them to those observed throughout the better studied portion of the species' range.

STUDY AREA AND METHODS

We examined the plumage characteristics of nestling male Southeastern American Kestrels in Levy County, Florida, during May–July 1994 and May 1995. Nestlings ranged in age from 14–27 d at the time of banding, but some nestlings younger than 17 d of age were not sufficiently feathered to include in our analysis. Therefore, we characterized the juvenal plumage of nestlings ≥ 17 -d old. We defined the "back" of the kestrel as the area extending from the rump to the nape, including the interscapular region (U.S. Fish and Wildlife Service 1980). Each nestling was classified as belonging to one of four categories based on a visual assessment of the extent of barring on its back: (1) barring restricted to the posterior third of the back, (2) barring extending beyond the lower one-third but not beyond the lower one-half of the back, (3) barring extending throughout the lower two-thirds of the back or (4) barring extending throughout the entire back or nearly so.

RESULTS AND DISCUSSION

We examined 33 male nestlings from 20 nest boxes. Mean age of the nestlings examined was 22.4 d. Fifteen (45%) of 33 male nestlings lacked the diagnostic barring on the anterior half of the dorsum. Several had no barring at all. Only nine males (27%) had barring throughout the entire dorsum as indicated in couplet 2A of the key (Smallwood 1989). Moreover, brood mates did not share the same barring pattern; of 11 nests containing at least two males, only four nests had brood mates belonging to the same dorsal plumage category.

Bloom (1973) stated that immature birds of either sex in southern California could not be distinguished from adults by feathering. However, most authors reported that juvenal males had heavy streaking on the breast and

dark barring on the anterior dorsum, whereas males in basic plumage had immaculate to lightly spotted upper breasts (Parkes 1955, Bird and Palmer 1988, Smallwood 1989, Wheeler and Clark 1995). We found that the amount of streaking on the breast was variable in male nestlings as has been observed in juvenal plumage of *F. s. sparverius*. In contrast, we found that nearly half of the male nestlings we examined in our study area lacked the dark barring on the anterior dorsum diagnostic in *F. s. sparverius*. We recommend both characters be assessed in determining age in *F. s. paulus*.

RESUMEN.—Nosotros comparamos los característicos del plumaje de pajaritos machos *Falco sparverius paulus* en el norte centro de Florida con esos observados durante todo el estudio de la especie pradera. 15 (45%) de 33 machos pequeños les faltaba la barra en el parte anterior de la espalda que ha estado reportando como diagnóstico para *F. s. sparverius*. Muchos no tenían barras. Nosotros recomendamos que una variada de plumaje este valorada en determinando edad en *F. s. paulus*.

[Traducción de Raúl De La Garza, Jr.]

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DOUBLE BROODING BY AMERICAN KESTRELS IN IDAHO

KAREN STEENHOF AND BRIT E. PETERSON

*Snake River Field Station, Forest and Rangeland Ecosystem Science Center, Biological Resources Division,
U.S. Geological Survey, 970 Lusk Street, Boise, ID 83706 U.S.A.*

KEY WORDS: *Falco sparverius*; American Kestrel; reneesting; Idaho; double brooding.

American Kestrels (*Falco sparverius*) sometimes raise two broods in a single nesting season in captivity (Porter and Wiemeyer 1970, 1972), and double brooding by wild kestrels has been recorded in Florida and Central Mis-

souri (Howell 1932, Toland 1985). Evidence for double brooding elsewhere, however, has been mainly circumstantial (Stahlecker and Giese 1977, Black 1979, Sutton 1979), and there have been no reports of double brooding by kestrels north of 40° latitude. During a long-term study of kestrel nest box occupancy, productivity and site fidelity, we confirmed that a pair of kestrels successfully



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