nesting on Kharlov Island in the Barents Sea occasionally build nests on snow, although the majority of pairs wait until the snow has melted.

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Evidence of double brooding by American Kestrels in the Colorado high plains. —Double brooding, although considered uncommon in the Falconiformes, has been reported in the Harris Hawk (*Parabuteo unicinctus*) in southern Arizona (Mader, Living Bird 14: 59–85, 1975), Caracara (*Caracara cheriway*; Bent, U.S. Natl. Mus. Bull. 170, 1937), and the American Kestrel (*Falco sparverius*) in Florida (Howell, Florida Bird Life, Coward-McMann, New York, 1932). Captive American Kestrels have also produced second clutches after fledging the first brood (Porter and Wiemeyer, Condor 74:46–53, 1972). Observations at 2 nest boxes in southeastern Colorado during 1975 and 1976 breeding seasons suggest that double brooding also occurs in American Kestrels under natural conditions in a temperate climate.

The boxes, 2 of 25 attached to wooden H-frame towers of a 230 kV transmission line, were approximately 13 km SSE of Ellicott, El Paso County, Colorado. The terrain is rolling sandhills vegetated with yucca (*Yucca glauca*), sand sagebrush (*Artemesia filifolia*), and a variety of herbs and grasses. Insects (Orthoptera, Coleoptera), small lizards, and Horned Larks (*Eremophila alpestris*) were available and used as prey items.

An adult female American Kestrel was flushed from 5 eggs in Box A on 19 April 1975. She was brooding 3 recently hatched chicks on 14 May, and on 5 June, three 3½-week-old young were banded. Two infertile eggs were also removed. The empty box and its heavily muted top on 17 June suggested successful fledging; 1 kestrel was heard but not seen. On 8 August, 4 infertile eggs and a 2-week-old nestling were found in the box.

Four 2½-week-old young were banded on 25 May 1976 at Box B, 7 km northeast of Box A. On 24 June an ASY female, aged according to Parkes (Wilson Bull. 67:194–199, 1955), was captured on 5 warm eggs. A male escaped from the box while the female was being removed for banding. Another male and female were perched on the tower above Box B. The latter male aggressively defended the nest box suggesting that it was the mate of the incubating female. The other 2 kestrels were passive and less wary than the occupying adults, remaining perched throughout the nest visit. Young kestrels tend to remain in the breeding territory of their parents until fall migration (Balgooyen, Univ. Cal. Publ. Zool. 103, 1976). Since the nesting pair tolerated the extra kestrels in and near the nest, we believe that they were progeny of the first nesting attempt by the occupying pair. The 5 eggs were warm on 16 July but cool on 7 August and showed no development when opened. Handling the female during early incubation may have caused a temporary abandonment, killing the embryos, or all eggs may have been infertile.

We realize that our evidence is circumstantial. The 2 passive kestrels at Box B could have been members of an adjacent breeding pair. Nests of American Kestrels have been reported within 34 m of each other (Nagy, Wilson Bull. 75:93, 1963) and no territorial defense was observed between pairs nesting within 60 m (Smith et al., Southwestern Nat. 17:73–83, 1972). However, Balgooyen (op. cit.) found that Kestrels defended their territories from other Kestrels primarily by mutual avoidance rather than repeated defense

of borders. It is also possible that the 2 extra birds at Box B were nest helpers (Wegner, Wilson Bull. 88:670, 1976). However, nest helpers at Red-tailed Hawk (*Buteo jamaicensis*; Wiley, Condor 77:480–482, 1972) and Harris Hawk (Mader op. cit.) nests were as aggressive as the nesting pair. The combined evidence from the 2 breeding seasons suggests that double brooding may occur in American Kestrels in southeastern Colorado.

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Further comments on sexual size dimorphism in birds.—Ralls (Wilson Bull. 88:149–150, 1976) published a note on extremes of sexual size dimorphism among birds. We corresponded on the subject and this was useful to me as I was then writing on the selective basis for the "reversed" dimorphism that exists in birds of prey (Amadon, Raptor Research 9:1–11, 1975). I did not, however, see her manuscript and here offer a few additional comments on the subject. Ms. Ralls observed that Lack (Ecological Adaptations for Breeding in Birds, Methuen, London, 1964:161) quoted me (Amadon, Proc. Am. Phil. Soc. 103:531–536, 1959) as source that the Australian Brown Songlark *Cinclorhamphus cruralis* is an extreme example of sexual size dimorphism in passerine birds, while the hawk *Accipiter fasciatus vigilax* shows the extreme of size divergence among those birds in which the female is the larger size. She adds for both examples: "the figures Lack gives are not in the paper by Amadon he cites." Of the *Accipiter* this is literally true; they are from an earlier paper (Amadon, Wilson Bull. 55:164–177, 1943) and are for *weight*, not *wing length* as Lack has it. The measurements of *Cinclorhamphus* are in the 1959 paper but again are for weight not wing length!

This confusion does raise the question: What is the best general measure of difference in body size? In my 1959 paper, cited above, which is a review of the subject, I noted that in most species of birds and mammals males compete for females and are the larger sex; while in the few groups in which females compete for males (phalaropes, for example) females are larger. Furthermore, dimorphism is usually greater in polygamous or polygynous species in which a few males do most of the mating and individuals of that sex are hence to a degree, expendable. Competition for mates often consists largely of display and threats but actual physical conflict is always latent, and overall body size and prowess, of which gross weight is the best available measure, provide the basis for the selection.

Considering now the extremes of sexual size dimorphism in the Class Aves, in a few polygynous or promiscuous species such as the Capercaillie (*Tetrao urogallus*) the weight of males averages a trifle more than twice that of females. *Cinclorhamphus cruralis*, mentioned above, is uniquely dimorphic for a passerine bird (and perhaps for all birds).

Combining weights of several individuals from South Australia for which I am indebted to Dr. L. L. Short, with those I (1959:533) published earlier, we have the following: 6 ♂♂, 65–83 (69) g; 4 ♀♀, 28–32 (31) g; the males thus average 2.2 times heavier than the females. A few weights of the smaller and only other species of the genus, *C. mathewsi*, also supplied by Dr. Short, indicate that it is less strikingly dimorphic: 6 ♂♂ average 39 g and 3 ♀♀ 23.5 g; thus the males average 1.6 times heavier than the females. Dr. Short informs me that the flight displays of the large males of *Cinclorhamphus cruralis* cover a wide area and he thinks it highly likely that the species is polygynous.