218, 1965). If differential prey vulnerability is analogous to differential prey abundance, the Cattle Egret behavior conforms nicely to Crook's model. When prey is highly vulnerable locally (around cattle) a solitary (antisocial) system emerges from the group feeding socially in the absence of cattle on homogeneously vulnerable prey.

I thank E. H. Burtt, J. J. Dinsmore, J. F. Downhower, and W. M. Shields for commenting on an earlier draft. G. C. White provided analytic computer programs. This study was conducted during a period of research funded by the Edward John Noble Foundation.—THOMAS C. GRUBB, JR., *Dept. of Zoology, Ohio State Univ., Columbus 43210.* *Accepted 30 Jan. 1975.*

Wood Duck incubates eggless clutch.—While checking Wood Duck (*Aix sponsa*) nest boxes on the Great Meadows National Wildlife Refuge (Concord, Massachusetts) on 21 May 1970, we found a box in which down was mixed in with the box shavings but no eggs were present. Normally down is not added to a Wood Duck clutch until 5 or more eggs are laid. The box was rechecked on 28 May and a large depression was noted in the down and shavings mixture. On 4 June, the condition was the same except that duck fecal matter was present in the box. There was no further use of the box that year.

On 21 May 1971, the same box was again discovered to have a mixture of down and shavings but no eggs. When checked 3 June, a hen was incubating. The hen was left undisturbed until 22 June when it was captured on the nest. There were no eggs in the box but there was a large quantity of down. The hen had been previously trapped and banded as an immature female at Great Meadows in September 1966. The bird was returned to the box and not checked again that year.

On 28 April 1972, the same box was found to contain a large amount of down but no eggs. It was in the same condition 1 May when we added 4 hollow plastic eggs. On 6 May, there was no evidence of change and the plastic eggs were replaced with 7 Wood Duck eggs gathered from an abandoned nest.

By 9 May a hen was observed incubating in the box. The hen was captured 17 May and proved to be the same hen handled in 1971. She had not added any eggs to the clutch. The 7 eggs were replaced with 14 fresh game-farm Wood Duck eggs. The hen was returned to the box and left undisturbed until 8 June when the eggs were checked for signs of hatch. Thirteen of the eggs hatched 12 June and 10 ducklings were web-tagged.

One of the web-tagged ducklings was captured later that summer indicating at least partial brood survival. The hen was not found in later years.

We do not know the reason for this hen's peculiar behavior. Dane (Reproductive Endocrinology—Discussion: 195, *in* Breeding Biology of Birds, D. S. Farner, ed., Natl. Acad. Sci., Wash. D. C., 1973) suggests that among indeterminate layers, some stimulus such as number of eggs or surface area of eggs leads to specific clutch size. Welty (The Life of Birds, W. B. Saunders Co., Philadelphia, 1962) adds that the feel of enough eggs against the bird's belly may stimulate the pituitary gland to suppress ovulation and initiate incubation behavior. In the case of this hen, however, no eggs were present to cause such stimulation. Other factors must have initiated the incubation response.—H. W. HEUSMANN AND PETER R. PEKKALA, *Massachusetts Division of Fisheries and Game, Westboro 01581.* *Accepted 7 Feb. 1975.*

Extremes of sexual dimorphism in size in birds.—Current theories relating sexual dimorphism, breeding system, and ecological factors are based largely on avian data. As part of an attempt to assess the extent to which these theories account for the degree and distribution of sexual dimorphism in mammals, I became interested in comparing the range of sexual dimorphism in size in birds with that in mammals.

For birds, I at first used the extreme cases given by Lack (Ecological Adaptations for Breeding in Birds, Methuen, London, 1968:161). The biggest difference between the sexes in birds, he says, occurs in an Australian passerine, *Cincloramphus cruralis*, the Brown Song-lark. He gives the Australian Goshawk, *Accipiter fasciatus*, as an extreme case of sexual dimorphism in which the female is larger than the male. In both cases he sites Amadon (Proc. Am. Phil. Soc. 103:531–536, 1959) as his source of data. Lack's figures (Table 1) yield a female/male ratio of about .45 for the Brown Song-lark and 1.77 for the Australian Goshawk. If they were correct, and if wing length is a fair measure of size in birds, there would be more extreme cases of sexual dimorphism in birds favoring both males and females than in mammals. The range of sexual dimorphism in size would thus be much greater in birds than in mammals.

However, the figures Lack gives are not in the paper by Amadon which he cites. Furthermore, the figures given in Serventy and Whittell (Birds of Western Australia, Paterson Brokensha, Perth, 1951) for the Brown Song-lark suggest that it is not nearly as sexually dimorphic as Lack states. They give the total length of males as 9¾ to 10½ in (248–267 mm) and of females as 7½ in (191 mm) and the weight of males as 2½ to 3 oz (71–85 g) and of females as 1 oz (28 g). If the mid-points of the male ranges are used as average male values, the female/male ratio is .74 by total length and .71 by the cube root of weight.

Because of the conflict between the 2 sets of figures, I measured 7 females and 7 of the largest males (all in breeding plumage) of the Brown Song-lark at the American Museum of Natural History. Dr. D. W. Snow kindly measured the 4 females and 7 males at the British Museum of Natural History for me. My measurements on wings (Table 1) yield a female/male ratio of .74; Snow's one of .78. Since Serventy and Whittell give no data on wings, I also measured total length. The mean total length of males was 241 mm, of females 176, yielding a female/male ratio of .73. All of these estimates of the degree of sexual dimorphism are in line with those based on Serventy and Whittell's figures. Lack's figures are incorrect.

The Brown Song-lark is an extreme case of sexual dimorphism in size favoring males in birds, but it is of the same order of magnitude as other extreme cases such as the Capercaillie, *Tetrao urogallus*. In this species the average female/male ratio is .77 by the length of the 10th primary (Helminen, Papers on Game Research, Helsinki, No. 23:1–124, 1963) and .78 by the cube root of weight (Koskimies, Ornis Fenn. 35:1–18, 1958).

Lack's figures for the Australian Goshawk are also incorrect. According to the figures in Wattel (Publ. Nuttall Ornithol. Club No. 13:1–231, 1973) (Table 1), the female/male wing length ratio of this species is only 1.15 rather than the 1.77 indi-