A CASE OF POLYGAMY OR CO-OPERATIVE BREEDING IN THE COMMON KESTREL (*FALCO TINNUNCULUS*) IN ISRAEL

Motti Charter (e-mail address: charterm@post.tau.ac.il) and Yossi Leshem, the Dept. of Zoology, Tel Aviv Univ., Tel Aviv, 69978, Israel
Ido Izhaki, Department of Biology, University of Haifa at Oranim, 36910 Tivon, Israel
Shay Halevi, Moshav Ram-On Israel 19205

Polygamy although suspected in many raptors, has rarely been reported in them (Newton, 1979, Hiraldo et al. 1991, *Ethology* 89:253-257, Tellaet al. 1996, *Auk* 113:262-265.). The biology of the Common Kestrel (*Falco tinnunculus*) is well-known throughout most of Europe and they are typically monogamous (Village 1990, The Common Kestrel. T. & A.D, Poyser Ltd, London). Cases of polygamy have been recorded in the literature: an adult male pairing with two females at different nests (Korpimäki 1988, *Oecologia* 77: 278-285 and Village 1990); and two males and a female at one nest (Packham 1985, *Brit. Birds* 78:194). Two females and one adult male Common Kestrel where observed late in March usurping an active Hooded Crow (*Corvus cornix*) nest in a Tipu Tree (*Tipuana tipu*) located in the village Ram On, Israel (32°31'55"N, 35°15'25"E). The Hooded Crows built another nest in the same tree 2.5 meters from the first nest in mid-April and started incubating thereafter. Of the three Common Kestrels at the other nest, one female always remained at the nest while the other female and the male hunted, mainly in agricultural fields within 500 meters of the nest. Since no other kestrel nest in Israel was known to contain two females and a male, the nest was observed intensely to verify that it was indeed

occupied by two females and one male. Even though kestrels are not overly territorial in Israel, with some pairs nesting as close as 30 meters one from another, females do guard the immediate nest site and chase away any other females or males that approach within 5 meters (M. Charter pers. observ.). Since all three kestrels observed in this note were observed together at the nest multiple times, and later both females were observed feeding the nestlings together, there is no doubt that all three participated in raising the nestlings during the breeding period. The female that incubated and guarded the nest did not leave it until the second female and male returned, so there was always a female at the nest. Unlike the threesome reported in this note, in most other kestrel nests in Israel, eggs were frequently left unguarded for various periods throughout the day, when females would eat outside the nest and preen their feathers. Clutch size of the discussed nest was unknown because of the high location in the tree; however, with the use of a telescope two Common Kestrel nestlings were seen for the first time at 10 days old. Since incubation lasts 28 days (Cramp. and Simmons [EDS.], 1980, Handbook of the birds of Europe, the Middle East and North Africa. The birds of the Western Palearctic, Vol. 2. Oxford University Press, Oxford, New York.), the date of the laying of the first egg was estimated to be April 4. When prey were brought to the nest, both females would frequently feed the nestlings together. Since they were not color marked, however, it is uncertain how the nest duties were divided between them. Furthermore, it is unknown whether one or both the females laid in the nest. If both females had laid, this can be considered a case of polygamy; whereas if only one had laid, it would be co-operative breeding, an event found in many Falconidae, albeit rarely (Kimbull et al. 2003, *Auk* 120:717-729). The Hooded Crows abandoned their second nest on May 28th and shortly thereafter the Common Kestrel nestlings started moving around the tree, visiting both their and

the second abandoned crow nests. The two young fledged successfully in the second week of June. The extra food that a second hunting kestrel provides to the nest may be advantageous in an environment where there is a shortage of food. Forty-six regurgitated pellets collected below the nest were analyzed at Tel Aviv University and rodent remains were found in all pellets, with the main prey species being the Levant Vole (*Microtus socialis guentheri*) which accounted for 94% of the specimens by number. Local farmers informed us that fields around the village sustained great damage during 2006 due to large populations of Levant Voles. In addition, Long-Eared Owls (*Asio otus*) from the same village ate also mainly Levant Voles (M. Charter unpub. data) despite the availability of other prey (passerines, reptiles, and insects). Common kestrels probably preyed primarily on voles not due to a lack of alternate prey but rather due to the high abundance of voles. Since prey were not lacking and the kestrels raised only two nestlings, we believe that the females benefited only from increased protection against predation by the Hooded Crow in always having one female to protect the nest at all times. In addition to Levant voles the remains of one passerine *sp.*, the Starred Agama (*Laudakia stellio)*, and Coleoptera *sp*. were found in the pellets. This is the first report of polygamy or co-operative breeding in the Common Kestrel, where two females and one male bred or participated in the raising of young at the same nest and not at two different nests.

We would like to thank Anthony van Zyl for comments on this note.