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FROM MAGRO- TO MICRO-CLIMATE? 3D ANALYSIS OF LESSER KESTREL *FALCO NAUMANNI* NEST ATTENDANCE

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Biparental care, where both parents are involved in egg incubation and chick rearing, occurs in 75–90% of all bird species despite its time and energetic costs. In species adopting this strategy, a trade-off between costs and benefits is expected and parents have to partition their time budget between breeding and other activities. Parental care is easily quantifiable as the amount of time parents spend inside or in close proximity to their nest. Nest attendance is related to incubation, nestling and mate provisioning, and nest vigilance. Efforts in increasing each of these activities promote reproductive success. Nest attendance may, however, be influenced by both intrinsic (e.g., body conditions of parents) and extrinsic (e.g., climate) factors. Efforts allocated to incubation and chick provisioning are affected by local climate, whereas little is known about the effects of microclimate (e.g., air temperature inside the nest) and macroclimate (e.g., North Atlantic Oscillation Index, NAOi) on nest attendance. Accordingly, we studied the largest population of the lesser kestrel (*Falco naumanni*) in Sicily to test whether nest attendance of both parents was affected by climate variables recorded at three spatial scales: globally (N=2), locally (N=3) and on the nest microhabitat level (N=7). The lesser kestrel is a small raptor breeding solitary as well as in colonies of variable size in a typical pseudo-steppe habitat. It is a secondary-cavity nester that finds its nest holes in cliffs or wall crevices and under roof tiles of rural buildings. To accomplish our aim, we conducted systematic observations (focal sampling method) in five colonies to quantify nest attendance (i.e. percentage of time each parent spent at the nest) for each pair member in 20 nests, from incubation to nestling fledging. We related nest attendance measures to a large-scale climatic indicator such as monthly NAOi, as well as to medium-scale climatic measures with local temperature and humidity obtained from the closest weather station. Microclimate was recorded by dataloggers placed inside nests. Results of a GLMM (Generalized Linear Mixed Model) analysis revealed no significant difference in nest attendance between parents. Monthly NAOi and temperature during focal sampling (FST) showed significant effects on parental nest attendance. At a global level a drier climate seemed to enhance nest attendance but at the colony scale FST was the best predictor of time at the nest. Finally, at the microhabitat level, parents were more likely to spend time at the nest as the minimum daily temperatures decreased. We discuss our findings on environmental conditions in light of an integrated analysis at different spatial scales. Our results show that not only macro- but also micro-habitats may be potential extrinsic factors able to enhance or prevent optimal behavioural activities that would, in turn, allow birds to capitalize on reproduction.