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Programma e Abstract

A cura di: Daniela Campobello, Paolo Pedrini, Marco Ciolli, Claudio Carere, Dan Chamberlain, Lorenzo Serra

Con la collaborazione di: Aaron Iemma, Francesca Rossi

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Effects of microclimate on nest site selection and breeding success of lesser kestrel *Falco naumanni* in the Gela Plain (Sicily)

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Nest site selection is critical for maintenance of bird populations and it might be influenced by several factors, such as the proximity to food resources or the risk of nest predation. Moreover, specific microclimates within the nest (i.e. temperature and humidity) are important requirements for nest site selection and might influence breeding success. Nevertheless, not all birds build their own nests. Secondary-cavity nesters are particularly limited by nest site availability, and they have to select existing nest structures that minimize predation pressures while protecting eggs and chicks against climatic variations. Such species may optimize microclimate by selecting optimal nest sites characterized by specific exposures associated with desirable thermal characteristics. Several studies have in fact demonstrated the importance of nest placement and orientation with regard to solar radiation. Nest microclimate can have important influences on parental reproduction and offspring development in secondary cavity nesting birds. Nonetheless, little is known about the effects of thermal characteristics of nest sites on nest success in raptors. The lesser kestrel *Falco naumanni* is a small raptor breeding in colonies of variable size as well as solitarily in typical pseudo-steppe habitats. It chooses its hole-nests in cliffs, under roof tiles or wall crevices of rural buildings. Like other species of the genus *Falco*, the lesser kestrel does not build a nest but lays its eggs directly on the cavity floor after scraping its substrate. It is a vulnerable species that only recently has changed its conservation status to “least concern”, due to effective conservation actions in part of its range. In this work, we studied 45 potential nest sites in five lesser kestrel colonies nesting on the Gela Plain (Sicily). We measured nest microclimate by setting thermologgers, so that temperature and relative humidity were recorded every hour from laying to fledging inside both occupied and unoccupied cavities. Our results revealed an effect of building side and nest type (tiles or wall holes) on the relative humidity with the highest values in nests under tiles placed in cold sides, while the temperature was higher in hole nests than in tile nests. Temperature and humidity were also different between used and unused nests. The interaction between colony side and nest type thus forms a specific microclimate, which in turn seems to influence the reproductive outcome. Accordingly, temperature seems to be the most important factor that predicts nestling survival. In particular, a nest under tiles in a dry building side would have a higher hatching success, while a nest in a hole in a wet side would have a higher chance of producing more fledglings. Humidity seems secondary, being balanced between nest type characteristics and colony exposure. Further investigations are necessary to address the questions of whether and to which extent the increase of global air temperature could affect lesser kestrel survival and breeding parameters. Funding was provided by the Italian Ministry of Education, University and Research (PRIN 2010-2011, 20108 TZKHC).