Avocetta – vol. 49
doi: 10.30456/avo.28493

First breeding of lesser kestrel *Falco naumanni* in Campania

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Abstract

The Lesser Kestrel (*Falco naumanni*) is a small falcon whose Italian breeding range is currently expanding. Summer records from Campania have been considered to refer to wandering individuals from breeding colonies in nearby Puglia and Basilicata. This short communication describes the first documented breeding record in Campania, from a farmland area on the coastal plain of Caserta province. The pair nested successfully with at least one fledged juvenile; the date of fledging, at the end of July, is about one month later than typical fledging dates elsewhere in Italy.

Keywords: lesser kestrel, nesting, breeding, rural areas

The Lesser Kestrel (*Falco naumanni*) is a long-distance migrant that winters in sub-Saharan Africa and breeds in southern Europe and Central Asia (Christakis at al. 2023). It suffered a dramatic population decline in the second half of the twentieth century (Donazar et al 1993) with an estimated population loss of 95% in Europe (Tella & Forero 2000). Starting in the 1990s, European populations began to bounce back (Christakis et al. 2023). In Europe, the Lesser Kestrel has a predominantly Mediterranean distribution concentrated in Spain, Italy, and Greece. Historically, breeding sites in Italy were limited to Basilicata, Apulia, Sicily and Sardinia (Mascara e Sarà 2006). In recent years, its breeding range has expanded,

likely due to climate change (Morganti et al. 2017). The main breeding colony in Latium, in Tarquinia (VT), is expanding, as is the breeding population in the Po Plain, where Lesser Kestrels have been breeding in Emilia-Romagna for over twenty years (Roscelli & Ravasini 2009), and has recently expanded into Lombardy. Outside of its historical breeding range, the species has also recently nested in Calabria, northern Apulia, and Molise (La Gioia et al. 2017). Nearer to our study site – about 120 km to the northwest – in 2020 a pair nested successfully in southern Latium, in the municipality of Sezze in Latina province (Di Lieto 2021). In 2021, two pairs that had formed in the same site abandoned their nesting attempt, and more recently, in 2023 and 2024, the species was entirely absent from this site (Di Lieto, pers. com.).

The status of the Lesser Kestrel in Campania is somewhat uncertain due to identification difficulties and the risk of confusion with the much more abundant Common Kestrel (*Falco tinnunculus*). Scebba (1993) listed it as an uncommon but regular migrant in both spring and fall, with most records from the coast and islands. More recently, Fraissinet et al. (2015) broadly agreed with this assessment, listing it as rare but regular in April-May and July-September, with most records from coastal areas; inland records in summer are presumed to refer to wandering individuals from nearby regions, as evidence of nesting in Campania is lacking. Our own observations suggest that while the Lesser Kestrel's status as a fall migrant in the region remains clouded by identification issues and a lack of documentation, it is indeed quite regular in spring, when it often associates with flocks of migrating Red-footed Falcons (*Falco vespertinus*).

This brief article details our observation pertaining to the first known instance of successful breeding of Lesser Kestrel in Campania. Our observations took place between May and July 2024 at a site between the municipalities of Castel Volturno, Cancello e Arnone and Villa Literno in Caserta province. This is a predominantly agricultural area, with crops including tomatoes and other vegetables, corn, and grasses used for fodder and hay, in addition to fields left fallow.

A distinctive element of the landscape is the presence of numerous abandoned farmhouses build in the 1920s and 1930s by the Opera Nazionale Combattenti, a charitable organization that assisted World War I veterans. These are in various states of disrepair, often with collapsed walls and overtaken by vegetation, usually fig trees. These abandoned farmhouses function as tiny ecological islands, providing breeding habitat for Eurasian Tree Sparrow (*Passer montanus)*, Italian Sparrow (*Passer italiae)*, Eurasian Hoopoe (*Upupa epops)*, European Roller (*Coracias garrulus)*, Common Kestrel, and Little Owl (*Athene Noctua*).

Most human disturbance consists of agricultural activities, which are often carried out adjacent to these abandoned farmhouses. Finally, nest robbery is a major problem, particularly for European Roller nestlings. In the

recent past, this was identified as a leading cause of the low reproductive success of Common Buzzards (*Buteo buteo*) and Common Kestrels (Cairone 1982). Finally, photographers getting too close to local nests of Eurasian Hoopoes and European Rollers have also caused problems. For these reasons, while conducting our observations we tried to avoid attracting the attention of potentially dangerous individuals.

The first observation of the Lesser Kestrel pair dates back to the afternoon of May 9, when an unidentified female kestrel was seen flushing from the nest site, while a male Lesser Kestrel remained perched atop the abandoned farmhouse. The next sighting was on the afternoon of May 22, when both birds were perched on the farmhouse walls (the roof had previously collapsed). Mating was observed on this occasion, with the male flying off a few minutes thereafter. Subsequent to this observation, we attempted to monitor the nest site as regularly as possible: our observations are detailed in Figure 1, with the date and duration (in minutes) indicated. From May 22nd, the site has been monitored on average every 2.5 days, with a standard deviation of 1.9 days.

During our monitoring efforts, we also explored nearby areas to ascertain whether any of the other abandoned farmhouses in the vicinity were also occupied by Lesser Kestrels, without finding any. The pair of Lesser Kestrels we monitored thus appears to be the only one in the area; within a radius of 2 km of their nest site, at least two pairs of Common Kestrel, three pairs of Little Owl, and 3–4 pairs of European Roller also nested.

According to Assandri et al. (2023), Lesser Kestrels generally hunt within a radius of 4.6 km of their nest site, which area we were only able to explore in two directions. Nevertheless, we never managed to

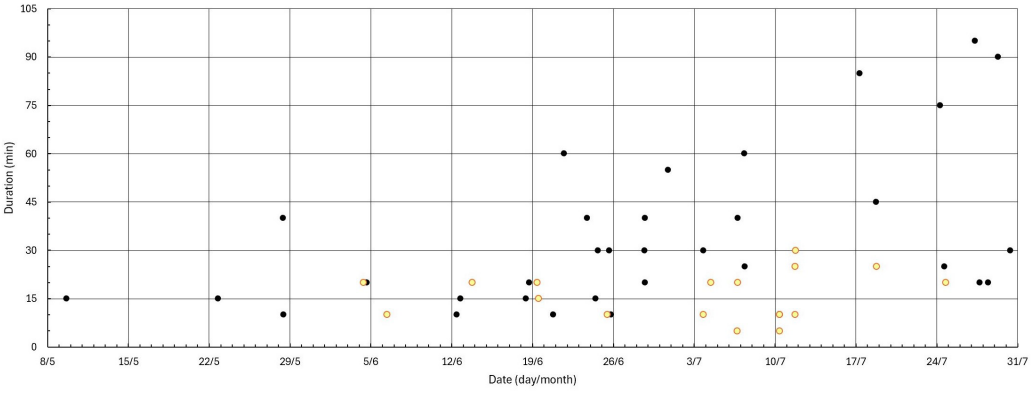

Figure 1. Seasonal distribution of field sampling events and their duration. Black filled dots indicate instances when Lesser kestrels were observed, while yellow empty dots depict instances when Lesser kestrels were not found.

find hunting Lesser Kestrels at any significant distance from the nest site. In the immediate vicinity of the nest site, the Lesser Kestrels hunted over an area comprising a large fallow field, a field planted with cantaloupes, one planted with tomatoes, and a corn field with rapidly growing stalks in June. While we cannot attribute any statistical significance to our observations, they seem to align with the findings of Berlusconi et al. (2022): Lesser Kestrels preferred to hunt over fallow fields rather than irrigated corn fields, where the local female Common Kestrel, on the other hand, frequently hunted. Finally, most of the prey items we saw were orthopterans, as evidenced by Christakis et al. (2023).

We can break our observations down into several periods characterized by the patterns of activity of the Lesser Kestrel pair, which at times caused uncertainty over how the nesting attempt was proceeding:

a. Until around June 20, the Lesser Kestrels were difficult to observe. Even when we managed to find them, they were generally in view for no more than a few minutes, always one individual at a time, and with only very brief stops made at the abandoned farmhouse. To us, this suggested that the pair was incubating eggs. Unfortunately, the putative nest was not visible from outside, and the Lesser Kestrels flew into the farmhouse from above, through the collapsed roof.

b. Starting on June 21, we noted a significant increase in activity, with numerous instances of the birds – especially the male – bringing prey to the nest. On June 21 we observed the male arrive with prey three times over the course of 40 minutes. Before flying into the farmhouse, it would stop on the outer walls to remove the wings from its orthopteran prey. This suggested that the eggs had hatched; as mating was observed on May 22, this was compatible with the four-week incubation period typical of the species. This activity pattern continued for about a week.

c. From June 28 to early July, we noted a reduction in the frequency of prey being brought to the nest, while the female started spending significant amounts of time (several tens of minutes) atop the farmhouse at sunset.

d. We witnessed a different behavior on July 6 and 7. The Lesser Kestrels never perched on the farmhouse; instead, on a very few occasions they went in and out at such speed that it was impossible to determine whether they were carrying prey. We never saw the two individuals together at the farmhouse, which seemed to be devoid of either the male or the female for significant amounts of time.

e. On July 10 and 11 we failed to detect any Lesser Kestrels, and the nest site appeared to have been abandoned. A female Common Kestrel was briefly seen on the farmhouse on July 10, while at least one Little Owl seemed to be permanently present during this period.

f. Between July 17 and 24 the male was once again seen several times, but we never saw the female. The male brought a great many prey items inside the farmhouse, which were able to identify on those occasions when it perched on the walls first: nearly all the identifiable prey were mole crickets.

g. Finally, on July 27 we once again saw the female on the farmhouse, along with the male hunting nearby. Soon thereafter, a nearly fully-fledged juvenile hopped up onto the roof (Fig. 2). On July 29 we observed the fledged juvenile for the first time, initially as it took a brief flight over the farmhouse itself, and later as it flew with more confidence and for longer distances in the general vicinity.

The first nesting record of Lesser Kestel in Campania fits within a broader pattern of range expansion in this species in Italy (Morganti 2022). In fact, there are striking parallels between the areas recently colonized by the Lesser Kestrel in Italy – especially the Po Plain and Latina province – and our study site. All are in areas dominated by intensive agroecosystems that have created a steppe-like landscape. In both the Po Plain and in Caserta province, these ecosystems are mostly dedicated

Figure 2. Lesser kestrel female with her juvenile on July 27th.

to the production of world-renowned cheeses, Parmigiano-Reggiano in the former case and buffalo's milk mozzarella in the latter. Much as in the Po Plain, there are opportunities to use the Lesser Kestrel and other charismatic birds that have benefited from agricultural practices associated with the production of buffalo's milk mozzarella – European Roller in particular – to serve as flagship species for potential market-based conservation solutions (Assandri et al 2023).

Acknowledgments

We would like to thank Bianca Stefancu for information on the behavior of her local colony of Lesser Kestrel, and express our deep gratitude to Angelo Meschini, who supported us from afar and helped us interpret what was happening in spite of his heavy workload, helping us get over our initial disappointment during the first ten days of July. Antonino Caccioppoli, Raimondo Finati and Savanah Fergusson also helped us with our monitoring efforts.

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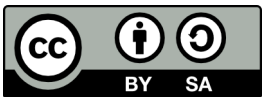

Received: 18 November 2024
First Response: 24 November 2024
Final acceptance: 28 November 2024
Published online: 01 December 2024
Associate editor: Davide Dominoni