

## THE RETURN OF THE LESSER KESTREL *Falco naumanni* AS A BREEDING BIRD TO CROATIA

### Vrnitev južne postovke *Falco naumanni* kot gnezdilke na Hrvaško

KREŠIMIR MIKULIĆ<sup>1</sup>, IVAN BUDINSKI<sup>1</sup>, ANTICA  
ČULINA<sup>1</sup>, LUKA JURINOVIĆ<sup>1</sup> & VEDRAN LUCIĆ<sup>1</sup>  
Association BIOM, Biankinijeva 12b, HR–10000  
Zagreb, Croatia, e-mail: kresimir.mikulic@biom.hr

The Lesser Kestrel *Falco naumanni* is a small falcon distributed mainly in the Mediterranean, but its range continues north of the Black Sea encompassing parts of Central Asia (HAGEMEIJER & IANKOV 1997). It breeds colonially in cliffs or in walls and roofs of buildings and inhabits steppe-like and semi-desert habitats where it preys primarily on insects, especially crickets and grasshoppers. The Lesser Kestrel is a migratory species which winters in Africa south of Sahara, with some populations remaining in the Mediterranean Basin (CRAMP 1998). The species suffered a severe decline during the second half of the 20<sup>th</sup> century and went extinct in several European countries (BIRDLIFE INTERNATIONAL 2013).

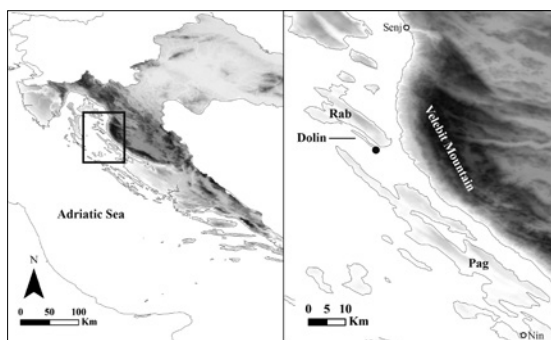
Until the first half of the 20<sup>th</sup> century, the Lesser Kestrel was a regular but rare breeder in the Mediterranean area of Croatia (KRALJ 1997). Its last breeding attempt was recorded in the 1960s in Istria (RUCNER 1998). In Europe, the Lesser Kestrel has recently increased in numbers in Portugal (CATRY *et al.* 2009) and shows a positive trend in Italy and France. On the other hand, large populations in Spain and Greece are stable or are decreasing, as is the case in Macedonia and Turkey (BIRDLIFE INTERNATIONAL 2004). As the overall population trend is considered to have been stable, the Lesser Kestrel was downlisted from vulnerable (VU) to least concern (LC) in the current Red List of IUCN (BIRDLIFE INTERNATIONAL 2013).

At the end of July in 2008 and 2009, flocks of eight and six Lesser Kestrels, respectively, were recorded in a mountain pasture within Northern Velebit National Park at 1,300 m a.s.l. close to the Croatian coast (S. LUPRET-OBRAĐOVIĆ *pers. comm.*). The consecutive observations of Lesser Kestrels at the locality of the Veliki Alan Mountain opened up the possibility of a post-fledging dispersion from a cryptic colony at the foothills of the Velebit Mountain chain.

During the assumed breeding season of the Lesser

Kestrel between May and July in 2010, we searched the surrounding area of the Veliki Alan Mountain covering the coastal area between the town of Senj in the north and the town of Nin in the south, as well as the islands of Pag and Rab that are situated opposite the Velebit Mountain chain (Figure 1). According to FILIPIĆ (1998), the study area has a temperate humid climate with hot summers (Köppen climate classification: Cfa). Large areas of the islands of Pag and Rab are covered by dry grasslands and extensive pastures for sheep, whereas the coastal foothills of the Velebit Mountain chain are mainly covered by garrigue. We surveyed several ruins, church towers, old buildings and natural cliffs for breeding colonies in the study area.

On 10 Jul 2010, we found one Lesser Kestrel colony consisting of 25 breeding pairs on the islet of Dolin that is adjacent to the island of Rab (Figure 1). Contrary to our expectations, the colony was made up of ground breeding birds that nested in crevices of limestone blocks and under rock (Figures 2, 3 & 4). We found three nests with four chicks in each, whose age was assessed to be about 10 days. The nests were situated at least 50 m apart from each other. By remote observations from the boat, we identified about 25 occupied nest-sites. We counted ca. 50 adult birds, which were flying frequently in and out of the colony towards the foraging area on the island of Rab. On Rab, we observed the adult birds hunting in dry pasture lands that were grazed by sheep, as well as in sparse juniper scrublands. The main identified foraging area lay within the radius of 3 km of the nesting colony, north of the Mišnjak ferry port. Some Lesser Kestrels, mostly immature ones, were recorded



**Figure 1:** Study area in Croatia searched for Lesser Kestrels *Falco naumanni*, where the black dot indicates location of the colony found

**Slika 1:** Preučevano območje na Hrvaškem; lokacija gnezdeče kolonije južne postovke *Falco naumanni* je označena s črno piko.



**Figure 2:** Lesser Kestrel *Falco naumanni* nest-site in the colony on Dolin islet (position of nest entrance marked) (photo: I. Budinski)

**Slika 2:** Gnezdeća kolonija južne postovke *Falco naumanni* na otočku Dolin (z označenim vhomom v eno izmed gnezd) (foto: I. Budinski)

as far as 10 km away in Velebit Mountain pastures and in suitable habitats over the whole island of Rab.

This breeding record of the Lesser Kestrel is the first for Croatia after more than 40 years of the species' absence (RUCNER 1998). The breeding colony on the islet of Dolin emerged on the site for which there is no historic evidence of former breeding. The ground nesting of the Croatian Lesser Kestrel population is rather unusual, but has also been recorded in France (BRUN & PILLARD 1999) and Greece (VLACHOS *et al.* 2004), where this nesting behaviour was induced by the competition with Jackdaws *Corvus monedula* and nest site demolition, respectively. In the present case, we assume that ground nesting on Dolin emerged due to nest site availability in crevices combined with the absence of terrestrial predators and no pronounced disturbance, although the adjacent island of Rab is a popular tourist summer destination. In addition, we have observed ground nesting of other typical cliff breeding bird species on other islets in Croatia, such as the Peregrine Falcon *Falco peregrinus*, Eleonora's Falcon *F. eleonorae* and Rock Dove *Columba livia*. This breeding behaviour may partially be explained by the high number of islands, islets and rocks (in total 1,246) in Croatia (DUPLANČIĆ LEDER *et al.* 2004), of which only 47 are inhabited by people (CROATIAN BUREAU OF STATISTICS 2005).

We can only speculate whether the Croatian population originated from the Balkan Peninsula or from Italy. The Balkan Lesser Kestrel populations are stable, such as in Greece, or decreasing, such as

in Macedonia and Turkey (BIRDLIFE INTERNATIONAL 2004), which reduces the probability of range expansion. However, population estimates from those areas are less accurate (IÑIGO & BAROV 2010). Recent observations concern large roosting flocks of several thousand Lesser Kestrels in Albania (MINIAS *et al.* 2009). On the Balkan Peninsula, the nearest Lesser Kestrel population breeds in Macedonia some 600 km from the Croatian colony (VELEVSKI *et al.* 2010). On the other hand, the Italian Lesser Kestrel population is increasing (IÑIGO & BAROV 2010) and is geographically the nearest, between 300 to 400 km, to the Croatian one. It has been documented that one female which hatched in southern Italy bred in the subsequent year in northern Italy, dispersing more



**Figure 3:** Nest entrance (marked, above; photo: K. Mikulić) and nest with ca. 10 day-old chicks (below; photo: I. Budinski) of Lesser Kestrel *Falco naumanni* in the colony on Dolin islet

**Slika 3:** Vhod v gnezdo (označen, zgoraj; foto: K. Mikulić) in gnezdo s približno 10 dni starimi mladiči (spodaj; foto: I. Budinski) južne postovke *Falco naumanni* v koloniji na otočku Dolin

than 700 km off the natal colony (GUSTIN *et al.* 2011). Moreover, pre-migration movements by the assumed south-Italian Lesser Kestrels were observed foraging on grasshoppers in northern Italy during August and September (PREMUDA *et al.* 2008).

NEGRO *et al.* (1997) showed a high degree of philopatry among Lesser Kestrels in Spain, but natal dispersal increased with population density. In addition, OLEA (2001) found post-fledging movements of juvenile Lesser Kestrels in Spain up to several hundred km northwards from their native colonies. This is explained by birds creating navigation targets or mental maps, which are crucial for long distance migrants. An additional driving force for post-fledging movements could be the avoidance of competition between adult and young birds after leaving the nest and the identification of new potential breeding sites in favourable areas (MORTON *et al.* 1991, BAKER 1993).

Overall, we assume that the broad post-fledging movements could have triggered and facilitated the range expansion of Lesser Kestrels towards Croatia, which lies several hundred km north of the largest Italian and Balkan populations. It confirms the population recovery of the Lesser Kestrel in part of its Mediterranean range. However, detailed studies on population genetics and migration movements are necessary to clarify the status of the emerged Croatian Lesser Kestrel population with respect to other populations in southern Europe. In addition, the discovered Lesser Kestrel population needs to be suitably managed in order to facilitate further range expansions in the Adriatic region.

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## Povzetek

Avtorji prispevka poročajo o uspešnem gnezdenju južne postovke *Falco naumanni* na Hrvaškem, kjer so jo kot gnezdilko pogrešali več kot 40 let. Gnezdečo kolonijo 25 parov so odkrili na otočku Dolin v severnem Jadranu. Južne postovke so gnezdile na tleh v votlinicah ali razpokah apnenca in pod skalami, lovile pa so na suhih pašnikih bližnjega otoka Raba. Avtorji

domnevajo, da južne postovke izvirajo iz Italije, kjer se njene populacije povečujejo, ne pa z Balkana, kjer ostajajo stabilne ali pa se celo zmanjšujejo.

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