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Little Owl *Athene noctua* survey in the area of Ulcinj (S Montenegro) in 2015

Popis čuka *Athene noctua* na območju Ulcinja (J. Črna gora) leta 2015

Ivan Kljun[1], Dejan Bordjan[2]

[1] DOPPS – Društvo za opazovanje in proučevanje ptic Slovenije, Tržaška cesta 2, SI-1000 Ljubljana, Slovenija, e-mail: ivan.kljun@dopps.si
[2] Oddelek za gozdarstvo in obnovljive gozdne vire, Biotehniška fakulteta, Univerza v Ljubljani, Večna pot 83, SI-1000 Ljubljana, e-mail: dejan.bordjan@gmail.com

Abstract

Between 29 Mar and 10 Apr, 2015, a Little Owl *Athene noctua* survey was carried out using the playback method in the southern part of Montenegro. The study area was situated between the town of Ulcinj and the Bojana River delta. A total of 55 calling males were registered at 26 survey points with a maximum of 4 calling males per survey point. Considering the low response rate of the Little Owl, its local population was estimated at be 55–110 calling males. This study presents the first systematic survey of the Little Owl in Montenegro.

1. Introduction

Little Owl *Athene noctua* is a transpalearctic species covering Central Europe, the Mediterranean, the Middle East and through Central Asia reaching China. A part of the species' range is located in Ethiopia and in the southern part of the Arabian Peninsula (BirdLife International 2017). In Central Europe, the species mainly occurs at low altitudes (up to 600 m a.s.l.). It is a species of open-country and avoids dense forests and other types of dense vegetation (Cramp 1985). It nests in tree cavities, rock crevices and buildings. One of the limiting factors for the expansion of Little Owls is the limited number of suitable nesting sites (Van Nieuwenhuyse *et al*. 2008). Perching spots for hunting and a spot for roosting during the day are also important. The availability of grassland and arable land is beneficial but not obligatory for its occurrence (Żmihorski *et al*. 2009).

Generally, the population of Little Owl is non-threatened (BirdLife International 2017), but some local European populations suffered great declines in the last 60 years (Cramp 1985; Van Nieuwenhuyse *et al*. 2008) and in some areas populations decreased substantially, with populations in Denmark, for example, on the brink of disappearance (Sunde *et al*. 2009). The species is a resident in Europe (BirdLife International 2017) and considered a regular breeder in Montenegro (Stumberger *et al*. 2008, Saveljić & Jovićević 2015). While ample data are at hand on the breeding, migrating and wintering waterbirds and raptors in the wider Bojana River delta area, including salt pans at Ulcinj Solana (Stumberger *et al*. 2008, Sackl *et al*. 2016), several other species of birds have not been included in systematic surveys of the area. There are 1-2 breeding pairs of Little Owls nesting in buildings at Solana (Stumberger *et al*. 2008), while the estimate for the wider Bojana delta is >18 breeding pairs (Schneider-Jacoby et al. 2006). The data leading to this first estimate was collected in the Bojana delta during systematic surveys of other species and area surveys of rare species, especially during the surveys within the Rapid Assessment of Birds in the Bojana-Buna Area in 2004 (Schneider-Jacoby et al. 2006). The majority of data were collected during daytime surveys of different species and sites within the Bojana delta, but some were also collected during night surveys of other species, specifically Scops Owl *Otus scops*, European Nightjar *Caprimulgus europaeus* and Baillon's Crake *Zapornia pussila*. No systematic survey of Little Owls was carried out in this area. Our aim was to survey the population of Little Owl between the town of Ulcinj and the mouth of the Bojana River (S Montenegro).

2. Study area and methods

2.1. Study area

The study was conducted in the southern part of Montenegro, between the town of Ulcinj and the

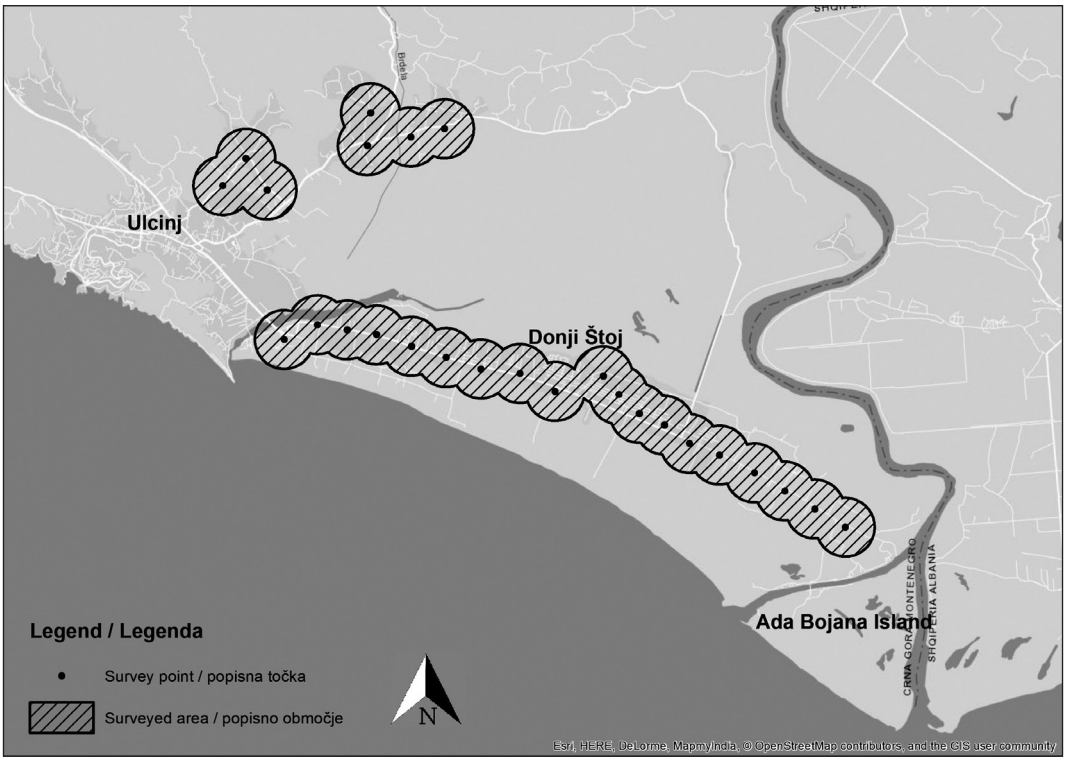

Figure 1: Map of the study area between Ulcinj and the Bojana River delta. The survey points are presented as black spots, while the surveyed area is marked as a hatched polygon.

Slika 1: Karta raziskovanega območja med Ulcinjem in delto reke Bojane. Popisne točke so označene s črnimi pikami, popisano območje je označeno kot šrafiran poligon.

Bojana River delta (UTM CM53, CM54, CM63 and CM64; 41°54.5'N 19°17'E). The survey points were located in the area of Štoj and suburbs of Ulcinj. Štoj is approximately 10-km long stretch of hinterland beyond the Velika plaža (Long Beach), a 12 km long stretch of sandy beach. It also includes a 7 km long tourist village Donji Štoj and a smaller Gornji Štoj. The beach of Velika plaža is heavily visited in the summer months. The size of the surveyed area was 15.4 km^2 and calculated as the surface covered by the 500 m detection radius around the survey points (Johnson *et al*. 2007). The surveyed area is a mosaic of settlements, wet and moist meadows, salina, swamps, small-scale agriculture, scattered orchard and vineyard plantations and mostly fragmented stands of Willow *Salix* sp., Poplar *Populus* sp. and Alder *Alnus* sp. forests (Schwartz 2010).

2.2. Methods

We used the playback method as described by Johnson *et al*. (2007). Initially, we determined 26 survey points which were more than 500 m apart, with two exceptions that were 400 and 491 m apart. The Little Owl in the Mediterranean region has its peak in vocal activity at the end of March and the beginning of April (Johnson *et al*. 2007). Therefore, we decided to conduct the fieldwork in the nights of 29th March, 2nd and 10th April 2015. We chose calm and clear nights with no or little wind, as weather conditions could affect the vocal activity of the owls (Zubergoitia & Campos 1998). The surveys started at sunset and finished around 23:00. For every Little Owl we recorded the approximate direction in order to minimize count replications.

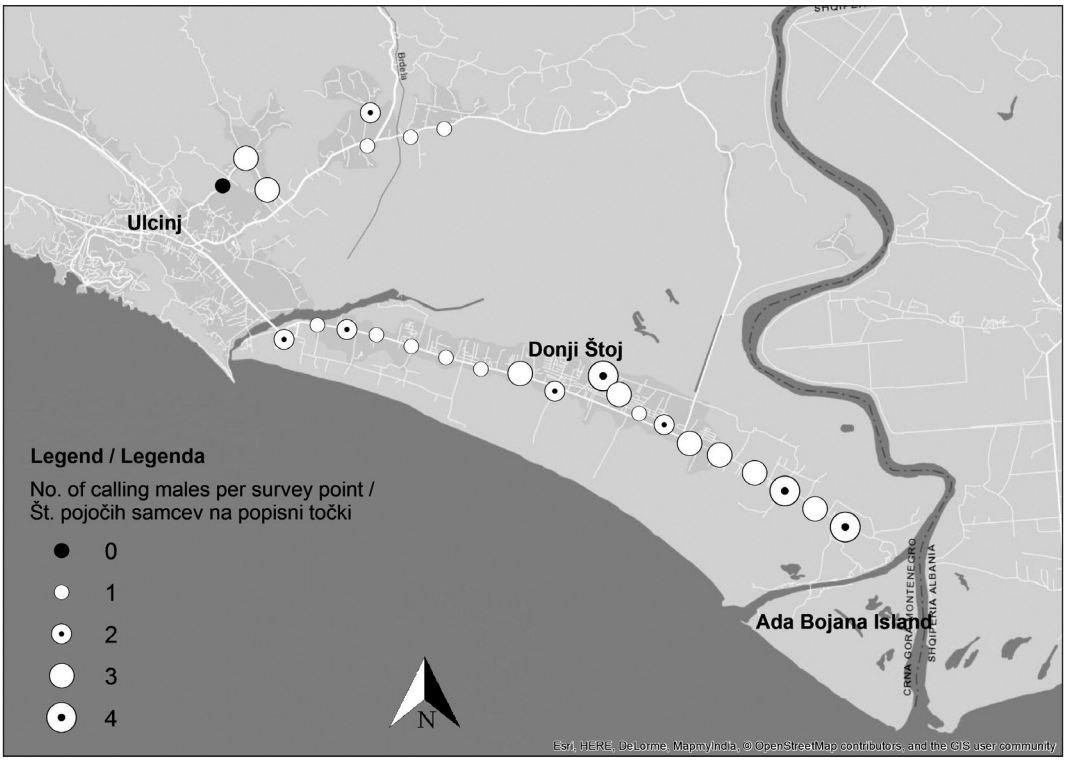

Figure 2: Map of the study area with symbols indicating the number of calling males of Little Owl *Athene noctua* per survey point

Slika 2: Karta raziskanega območja z označenim številom pojočih samcev čuka *Athene noctua* na popisnih točkah

The method by Johnson et al. (2007) suggests at least 3 visits to every survey point to be made to determine non-occupancy owing to the low response rate of the species. Nonetheless, due to time limitations and high response by the owls we visited every survey point only once. In the areas of high density, however, the owls responded more readily (Zubergoitia & Campos 1998), so we concluded that repeating surveys would not increase our results substantially. Maps were created using ArcGIS software by Esri.

3. Results and discussion

We recorded 55 calling males at the 26 survey points. The density of calling males in the surveyed area was 3.57 per km^2. Only one survey point was without a response. On average, we registered 2 calling males per survey point, with the highest number of 4, which occurred three times.

Centini (2001) concluded that the response rate by the Little Owl to playback was 49.6 %. Considering this and the fact that the response rate is higher in the areas more densely populated by Little Owls (Zubergoitia & Campos 1998), we assume that we registered considerably more than half of the local population. We estimate the local population to be 55-110 calling males.

A comparison of breeding densities from around Europe shows that the Ulcinj area has high local density of breeding Little Owls. Furthermore, it is mostly higher than those in Central and Western Europe (Exo 1992, Vogrin 1997, Ille *et al*. 2001, Berce & Kmecl 2008) and comparable to other studies from the Mediterranean (Hof 2007, Tomé *et al*. 2008).

Table 1: Published average Little Owl densities with data on the country, area, unit and reference for the research

Tabela 1: Objavljene povprečne gostote čuka s podatki o državi, območju, enoti in referencah za raziskovanje vrste

Country	Area	Singing males/ km^2	Pairs/ km^2	Reference
Italy	Tolfa Mountains, Lazio		0.55	Centili 1995
1Italy	Pavi	1.1		Cesaris 1988
[2]Slovak republic	Michalovce district		1	Danko *et al.* 1994
[1,2]Poland	Mazowsze lowland		1.4	Dobrowski *et al.* 1991
[2]Austria	Burgenland		1.5	Dvorak *et al.* 1993
[1]Italy	Po plain		9,3–11	Estoppey 1992
[1]Germany		1,2–1,7		Exo 1983
[2]Poland	South Podlasie		0.4	Fronczak *et al.* 1991
[1]The Netherlands	Betuwe		2.1	Fuchs 1986
[3]France	10 areas	0.21		Génot 1996
[3]Austria	5 areas		0.08	Ille *et al.* 2001
[1]Germany			Up to 5,6	Illner *et al.* 1989
[1,2]Poland	Kampinos National Park		0.6	Kowalski *et al.* 1991
Italy	Plain of Bergamo, Lombardia		0.69	Mastrorilli 1997
Italy	Plain of Pavia, Lombardia		0.4	Pirovano & Galeotti 1999
Czech Republic	Southern Bohemia		0.024	Pykal *et al.* 1994
[1]Germany	East-Germany	0.1		Schönn 1986
[3]Czech Republic	27 areas		0.12	Schröpfer 2000
Denmark	Jutland		0,04–0,06	Sunde *et al.* 2009
Hungary	Hortobagy	0.501		Šalek *et al.* 2013
Italy	Castel Porziano, Lazio		3.14–4.62	Tomassi *et al.* 1999
Portugal	Cabeça da Serra		7	Tomé *et al.* 2008
Portugal	S. Marcos da Atabueir		2.5	Tomé *et al.* 2008
Portugal	Quinta da Rocha	6.44		Hof 2007
Slovenia	Dravsko polje		Up to 0,48	Vogrin 1997
Montenegro	Ulcinj	3.57		This research

1 summary and references by Génot (1996)
2 summary and references by Vogrin (1997)
3 summary and references by Hof (2007)

Little Owls prefer habitats with more build-up areas and less forested areas (Żmihorski *et al.* 2009). The high density of Little Owls in the surveyed area seems supportive of this finding. Also, many buildings at Donji Štoj are empty during most of the year, since they are occupied only during the summer holidays, meaning lower human disturbance. Additionally, the abundance of meadows and pastures with very low vegetation height in the survey area offer suitable feeding

places for Little Owls which require areas of low vegetation height or bare ground to spot the prey (Grzywaczewski 2009, Framis 2011). Surveys in the floodplain of the Bojana River delta (250 km^2), which includes the towns of Ulcinj and Štoj, revealed high numbers of other conservationally important insectivorous species such as Scops Owl (*Otus scops*) >89 bp (breeding pairs), Nightjar (*Caprimulgus europaeus*) 111-500 bp, Roller (*Coracias garrulus*) 9-15 bp, Hoopoe (*Upupa epops*) >51 bp and Bee-eater (*Merops apiaster*) >261 bp (Schneider-Jacoby *et al*. 2006). The relatively high density of Little Owls in the study area corroborates the high biodiversity and conservation value of the Bojana River delta.

Povzetek

Med 29. 3. in 10. 4. 2015 smo opravili popis čuka Athene noctua z metodo predvajanja posnetka v južni Črni gori. Preučevano območje je bilo med mestom Ulcinj in delto reke Bojane. Skupno smo zabeležili 55 kličočih samcev na 26 točkah, maksimum za eno točko so bili štirje samci. Upoštevajoč slabo odzivnost vrste na posnetek lokalno populacijo ocenjujemo na 55–110 kličočih samcev. Raziskava je prvi sistematični popis čuka v Črni gori.

Key words: Little Owl, *Athene noctua*, playback survey method, S Montenegro
Ključne besede: čuk, *Athene noctua*, metoda predvajanja posnetka, J Črna gora

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