

Semi-collared Flycatcher *Ficedula semitorquata* – a new breeding species in Serbia Istočna šarena muharica *Ficedula semitorquata* – nova gnezdarica Srbije

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*U periodu od 9. do 13. 5. 2011. ciljne šumske vrste ptica su tražene i njihovo prisustvo je mapirano u planinskim područjima na krajnjem jugu Srbije. Proučavana su njihova staništa i njihov značaj za zaštitu. Mužjaci pevačica su locirani dozivanjem preko MP3 magnetofona, a njihovo prisustvo nakon toga zabeleženo je GPS uređajem. Zabeležena je ukupno 21 gnezdeća teritorija istočne šarene muharice *Ficedula semitorquata*: jedna na severnim padinama Dukata (UTM FM19) i 20 na Kozjaku (unutar Predela izuzetnih odlika „Dolina Pčinje“, UTM EM78). Na površini od 24 ha pogodnog staništa na Kozjaku gustina gnežđenja bila je 3,75 pevajućih mužjaka/10 ha. Na ovom lokalitetu dana 12. 5. 2011. zabeleženo je i aktivno gnezdo u duplji na visini od 7 m u suvom starom stablu unutar bukove šume stare 200 godina. Ovo su prvi podaci o gnežđenju istočne šarene muharice u Srbiji. Vredne planinske bukove šume u kojima se ova vrsta gnezdi na posećenim lokalitetima intenzivno se koriste za eksploataciju drveta. Na Kozjaku, iznad manastira Sv. Prohor Pčinjski (unutar zaštićenog područja) zabeležene su čiste seče, fragmentacija pogodnih staništa i izgradnja šumskih puteva. Mapiranje i monitoring populacije istočne šarene muharice u Srbiji su neophodni, kao i hitne mere zaštite svih staništa na kojima se gnezdi.*

INTRODUCTION

The Semi-collared Flycatcher *Ficedula semitorquata* is a monotypic species that breeds from the Balkan Peninsula, through Turkey and the Caucasus to northeastern Iran (Matvejev 1976; Cramp & Perrins 1994; Georgiev & Iankov 2009). To date, breeding populations have been found in only nine European countries (IUCN 2011) and are poorly estimated to 15000–53000 pairs (BirdLife International 2004). The Bulgarian and Macedonian populations are considered stable though the key populations in Turkey and Russia have suffered a moderate decline (>10%) (BirdLife International 2004). Generally, the exact distribution of the species has been poorly documented and is deduced from observations of certain breeding pairs or pairs seen in suitable habitats during the breeding season (Georgiev & Iankov 2009). The Semi-collared Flycatcher is included in IUCN Red List in the category of Near Threatened, and its populations have been evaluated as declining (IUCN 2011).

The Semi-collared Flycatcher breeds in natural tree holes mostly made by woodpeckers, but also occupies artificial nest-boxes (Cramp & Perrins 1994).

The bird fauna of southern and southeastern Serbia has been poorly researched, with major studies conducted long ago (Matvejev 1950; Matvejev 1976; Vasić 1980; Vasić & Grubač 1983). The Pčinja River Valley and surrounding mountains were investigated from 2006 to 2009 (Radišić et al. 2009) and thanks to the data collected, this area was designated an Important Bird Area (Puzović et al. 2009).

METHODS

During the period 9–13 May 2011, a joint Serbian and Bulgarian research team from the Bird Protection and Study Society of Serbia (Novi Sad), HabiProt (Belgrade) and the Balkani Wildlife Society (Sofia) explored the far southeastern and southern part of Serbia. Rudina, Dukat, Besna Kobilja, Kozjak and Rujan Mountains were visited to map important habitat types and flora and fauna taxa. Special attention was placed on woodland bird species that inhabit or potentially inhabit those areas.

Mature forest stands were visited during the day and searched for birds of prey, woodpeckers, and passerines. Among the target species were White-backed Woodpecker *Dendrocopos*

leucotos, Red-breasted Flycatcher *Ficedula parva* and Semi-collared Flycatcher. We used bird calls played from an MP3 to attract territorial pairs in suitable habitats. All findings were mapped using a GPS device and later stored in the Google Earth program. On Mt. Kozjak, we conducted a linear transect, 2.4 km long and 100 m wide, in an appropriate beech habitat for Semi-collared Flycatcher. We registered all singing males at 50 m from both sides of a forest road. Along the transect, MP3 imitation was performed every 200 m. The transect was not long enough to map the entire appropriate beech habitat on Mt. Kozjak but it was conducted with the aim of obtaining representative data on the population density of the species present.

RESULTS

A total of 21 singing males of Semi-collared Flycatcher were discovered during the expedition.

1. Mt. Dukat

One singing male was discovered on the northern slope of Mt. Dukat at an altitude of 1179 m on 10 May 2011 (UTM FM19, Figure 2, site 1). The habitat was a 120–140 year old Beech *Fagus sylvatica* forest with plenty of dead wood. The breeding site was situated on a steep bank, with an inclination of approx. 40%,



Figure 1. Male Semi-collared Flycatcher *Ficedula semitorquata* from Mt. Dukat. Photo: Miloš Popović
Slika 1: Mužjak istočne šarene muharice *Ficedula semitorquata* na planini Dukat

looking down to a relatively deep valley of a small river. This male responded to a playback call of a male song of its species, and later it was photographed (Figure 1). Around 200 meters from the flycatcher, a White-backed Woodpecker *Dendrocopos leucotos lilfordi*, characteristic of these types of forests, was discovered. No cutting of the forest had been conducted for many decades. The only anthropogenic element was an old, unused forest road.

2. Mt. Kozjak

On 12 May 2011, a total of nine singing males were registered in old Beech and Beech/Oak *Quercus* sp. forests with some Hornbeam *Carpinus betulus* trees at 850–1170 m on Mt. Kozjak (UTM EM78; Figure 2, site 2). A total of 24 ha of appropriate habitat of the species was surveyed there and the calculated population density was 3.75 singing males/10 ha (0.375 males/ha). The distance between singing males varied from 132 to 177 m, with an average of 148.7 m (n=7). The localities were on the northern, northwestern and western exposures, on the slopes of a deep forested valley. One occupied hole of the species was found at a height of 7 m in a dry old tree in a 200-year old beech forest. Both partners entered the hole. The male was singing actively at the entrance of the hole. The localities found in beech forests were near heavy clear cuttings of the forest which seem to expand rapidly towards the oldest habitats of Semi-collared Flycatchers on Mt. Kozjak.

On the same date, ten other singing males were registered in old Oak *Quercus* sp. forests at 725–825 m on the northern slope of Mt. Kozjak (Figure 2, site 3). The majority of males (n=6) was situated on the ridge on a steep forested slope, while others (n=4) occupied a small plateau with scattered old oak trees. Males were

singing from perches and old branches, defending territories and often chasing one another. They occupied the habitat of an old and open oak forest with plenty of dead wood and undergrowth. The distance between singing males varied from as little as 20 m up to 150 m. Singing males were very close to each other and it appeared that they had formed a cluster of breeding pairs. A singing male Red-breasted Flycatcher was observed and photographed near this site. No significant human impact such as intensive logging was recorded at this locality. Nevertheless, there were no traces of recent tree cutting or old stumps. This site was only occasionally visited by local herds of sheep and cattle.

A singing male was also seen in the village Gornji Starac (altitude 695 m) in an old orchard situated in a typical traditional farmland near an oak forest (Figure 2, site 4). Later that day, a female was observed in an oak forest on the steep slope of a small river valley on the rocky terrain, some 100 m from the previous location of the singing male.

DISCUSSION AND CONCLUSIONS

The Semi-collared Flycatcher was not considered to be a member of the Serbian fauna (Matvejević 1950, Matvejević 1976, Matvejević & Vasić 1973, Puzović et al. 2003, Vasić 1995). This species was not found in Serbia until 2011 and therefore is not mentioned in the IBA inventory (Puzović et al. 2009) or EMERALD network (Sekulić & Šinžar-Sekulić 2010). Fortunately (without any published data on the presence of this species in Serbia), it is protected as a strictly protected species by the Rulebook on proclamation and protection of strictly protected and protected wild species of plants, animals and fungi (Official Gazette of the Republic of Serbia 5/10).



Figure 2: Registered breeding sites of Semi-collared Flycatcher *Ficedula semitorquata* in SE Serbia: 1) Mt. Dukat (UTM FM19), 2) and 3) Mt. Kozjak (UTM EM78), 4) Gornji Starac (UTM EM78).

Slika 2. Zabeleženi lokaliteti gnežđenja istočne šarene muharice *Ficedula semitorquata* u jugoistočnoj Srbiji: 1) Dukat (UTM FM19), 2) i 3) Kozjak (UTM EM78), 4) Gornji Starac (UTM EM78)

Throughout its breeding range, the Semi-collared Flycatcher has a patchy distribution as it occupies only suitable breeding habitats that are now highly fragmented (Georgiev & Iankov 2009). According to Lundberg (1997), the Semi-collared Flycatcher breeds in only two European countries: Bulgaria and Greece, though it was recently reported as a breeding species in eight or even nine countries (Birdlife International 2004, IUCN 2011) – Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Macedonia, Russia and Turkey. According to the data reported in the present paper, Serbia should also be included on that list.

There is no exact data on the northern and western limits of Semi-collared Flycatcher distribution in the Balkan Peninsula. Recently, the species was reported as a breeding species from the southern slopes of Mt. Kozjak in the northern parts of Macedonia (Škorpikova et al. 2010), just 3 km SE from Locality 4 (Figure 1). Also, a small population roughly estimated at 0–20 pairs is present in the Osogovo IBA in NE Macedonia (Veleviski et al. 2010). Our finding of a breeding population in SE Serbia casts new light on the northwestern part of the species range. In Bulgaria, the species was found as far west as the borders with Serbia in two areas – on the western part of Mt. Stara Planina at Belogradchik, Chuprene and Berkovitsa (Donchev 1970; Iankov 2007; Shurulinkov unpublished) and on Mt. Zemenska at Zemen (Pateff 1950). The last locality is the closest Bulgarian finding of the species to Mt. Dukat (27.6 km towards) and Mt. Kozjak (69 km towards ENE).



Figure 3: Habitat of Semi-collared Flycatcher *Ficedula semitorquata* on Mt. Kozjak. Photo: Andrey Ralev
Slika 3: Stanište istočne šarene muharice *Ficedula semitorquata* na planini Kozjak

In Bulgaria, Semi-collared Flycatcher primarily breeds in old, natural temperate broad-leaved forests of *Quercus* spp, *Fagus sylvatica* and *F. orientalis* and temperate riverine and swamp forests of *Fraxinus oxycarpa*. It is comparatively rare in old or abandoned

orchards, groves and tree plantations, urban parks and large gardens, or forested peripheral parts of towns, villages and industrial sites (Iankov 2007). In Greece, Semi-collared Flycatcher has been found nesting in mature broad-leaved forests of Beech and mixed Beech and Pine *Pinus* sp. forests, and in old riparian stands of Plane *Platanus orientalis* at lower altitudes (Handrinos & Akriotis 1997). In Turkey, the population breeds mainly in broad-leaved woodland, plantations, groves, riverine forests and orchards (Kirwan et al. 2008).

The Caucasus population inhabits old broad-leaved Oak *Quercus* spp. and Beech *Fagus* spp. forest, and also forest of Spruce *Picea* sp. in Russia, Georgia and Armenia. In Armenia, it breeds in broad-leaved or mixed forests and fruit orchards, with a preference for tall, older trees with little undergrowth (Adamian & Klem 1999). In Azerbaijan, Semi-collared Flycatcher breeds on Mt. Talish in a natural or slightly modified Caspian broad-leaf forests of Chestnut-leaf Oak *Quercus castaneifolia* and Ironwood *Parrotia persica*, with many endemic or tertiary relict species such as *Gleditsia caspica*, *Albizia julibrissin*, *Buxus hyrcana*, *Ruscus hyrcana* and *Acer hyrcanum* (Heiss 2010).

The altitude at which the species breeds varies from 0 and 1500 m (e.g. Bulgaria 0–1500 m, Greece 0–1400 m) according to the availability of suitable habitats.

The Semi-collared Flycatcher is a habitat specialist depending on mature broad-leaved forests with the significant presence of hollow trees. In most of its range, forestry practices are not favourable to its habitat, because: 1) forest management is production oriented and 2) deadwood is systematically extracted. The species is likely not directly affected by fragmentation, as demonstrated by its presence in open woodland. Despite this, large woods have greater occupancy of less-common woodland-dependent species, whilst enhanced connectivity increases the persistence of widespread generalist species (Georgiev & Iankov 2009). Heiss (2010) states that Semi-collared Flycatcher has a strongly negative response to forest degradation.

In Table 1, the breeding density of the Semi-collared Flycatcher on Mt. Kozjak is compared with the densities calculated for other locations. The population density registered on Mt. Kozjak was higher than the values obtained from two Bulgarian sites, but lower than the value from the population in northern Greece. It should be taken in account that the data in Greece was collected about 60 years ago, which could have a considerable influence on such a comparison.

New IBAs should be designated or the existing network in Serbia should be revised in order to ensure the conservation of Semi-collared Flycatcher. These sites would have to support at least 20 breeding pairs of Semi-collared Flycatcher (Veleviski et al. 2010), and based on the gathered data and general knowledge

Table 1: Comparison of breeding densities of Semi-collared Flycatcher *Ficedula semitorquata* in three Balkan countries
Tabela 1: Poređenje gustina gnežđenja istočne šarene muharice *Ficedula semitorquata* u tri države na Balkanskom poluostrvu

Locality Lokalitet	Habitat Stanište	Breeding density Gustina gnežđenja	Source Izvor
Central Macedonia, Greece	Beech forest	0.6–0.7 pairs/ha	Curio (1959)
Mt. Eminska, E Bulgaria	?	0.12 pairs/ha	Georgiev & Iankov (2009)
Mt. Belasitsa, SW Bulgaria	Beech, Oak and Plane forests	0.486 ind./ ha	Nikolov et al. (2011)
Mt. Kozjak, S Serbia	Beech forest	0.375 pairs/ha	This paper

about its favourable habitats, the IBA Pčinja Valley is known to support at least that many. Further research is needed in adequate forest habitats along the Serbian-Macedonian and Serbian-Bulgarian borders where there might be more nesting localities.

We recommend the inclusion of concrete measures for the preservation of old forests inhabited by the Semi-collared Flycatcher in spatial plans, forest management plans and other forestry activities on Mts. Kozjak and Dukat. Extraction of deadwood from Semi-collared Flycatcher habitats should be restricted. Fragmentation and thinning out of old forest massifs on those mountains could negatively affect a very high proportion of the Serbian population of this globally threatened species.

ACKNOWLEDGEMENTS

Part of this research was supported through the project "Wings across the Balkans" funded by the European Commission, contract number 226298 implemented by the BirdLife International, Society for Protection and Study of Birds in Slovenia (DOPPS, BirdLife Slovenia), Croatian Ornithological Society, Association for Biological Research-BIOM (Croatia), Naše ptice (Bosnia and Herzegovina), Centre for the Protection and Research of Birds in Montenegro, League for Ornithological Action of Serbia, Bird Protection and Study Society of Serbia, and Macedonian Ecological Society. We are grateful to the Serbian Orthodox Eparchy of Vranje and brotherhood of St. Prohor Pčinjski Monastery for their kind assistance and accommodation. We wish to express our gratitude to Miroslav Milenković for guiding us during this field study.

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