

THE BREEDING DISTRIBUTION AND MIGRATORY MOVEMENTS
OF THE RED-FOOTED FALCON (*FALCO VESPERTINUS*) IN PROVINCE
VOIVODINA (SOUTHERN PART OF CARPATHIAN BASIN)

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ABSTRACT

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Data on the ringing localities of young birds and on the ringed individuals recovered in the Province Voivodina were used to study the distribution of the breeding area and migratory movements of the Red-footed Falcon (*Falco vespertinus*). A total of 17 breeding localities were found: one in the years 1909 and 1913 (Aleksa Šantić), one in 1937 (Senta), and 15 in the period 1950-92. The Red-footed Falcon nested in individual pairs at 7 localities in the area between the rivers Danube and the Tisa (Bačka), and it nested mostly in colonies in 10 localities in the area east of the Tisa (Banat). The Danube proved to be the natural border of the breeding area of the Red-footed Falcon in the southern part of the Carpathian basin. Out of a total of 8 recoveries of ringed birds 5 were significant for throwing light on migrational movements of the species.

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Key words: Red-footed Falcon, *Falco vespertinus*, Voivodina, breeding distribution, migratory movements

INTRODUCTION

The Red-footed Falcon is a long distance, trans-equatorial migrant. Its breeding range in the Palearctic extends across the broad band of steppe, forest – steppe and cultivated north temperate areas (Cade 1982). Data on the distribution and migration of European populations were provided by Keve and Szijj (1957), Lohmann (1962), Glutz *et al.* (1971) and Cramp and Simmons (1980). According to Lohmann (1962), the western border of the breeding area coincides with the northern and western borders of Hungary, extends south-east along the river Drava and the Danube, and stretches along a line somewhat to the south of the Danube delta as far as the western coast of the Black Sea.

Little is known about the breeding localities and the migration of populations of the Red-footed Falcon in the southern part of the Carpathian basin (areas belonging mostly to the Province Voivodina), although rich ornithofauna of these areas were studied in detail (Antal *et al.* 1971, Pelle *et al.* 1977). In the Voivodina area this species is considered mostly as a relatively rare nesting bird and a rather numerous passing bird during the autumn migration (Dimitrijević 1980).

In this paper, data on the ringing and recoveries of the Red-footed Falcons ringed in the Province Voivodina are gathered and discussed with the aim to contribute to the knowledge about the distribution and migratory movements of this population.

STUDY AREA AND METHODS

Voivodina is a predominantly flat region, occupying the southern part of the Carpathian basin. It is divided by the rivers Danube, Tisa and Sava into three regions: Bačka is a wide plain bounded by the Danube, the Tisa and the Hungarian border; Banat is bounded by the Tisa, the Danube and the Romanian and Hungarian border, while Srem is the area lying between the Danube and the Sava (Fig. 1.). In Voivodina there are four loessial plateaus (Banatska, Tamiška, Titelska and Telečka), two sandy desert areas (Deliblatska and Subotička) and two mountains (Fruška gora – 539 m, in Srem, and Vršacke planine – 641 m, in south-eastern Banat).

Considering the fact that all data on ringing indicate breeding status of the bird and include the site and the date of the breeding of the species, data on the ringing of young birds in the nest in the period from 1909 to 1992 were used to investigate the breeding area and the migration of the Red-footed Falcon in the Province Voivodina.

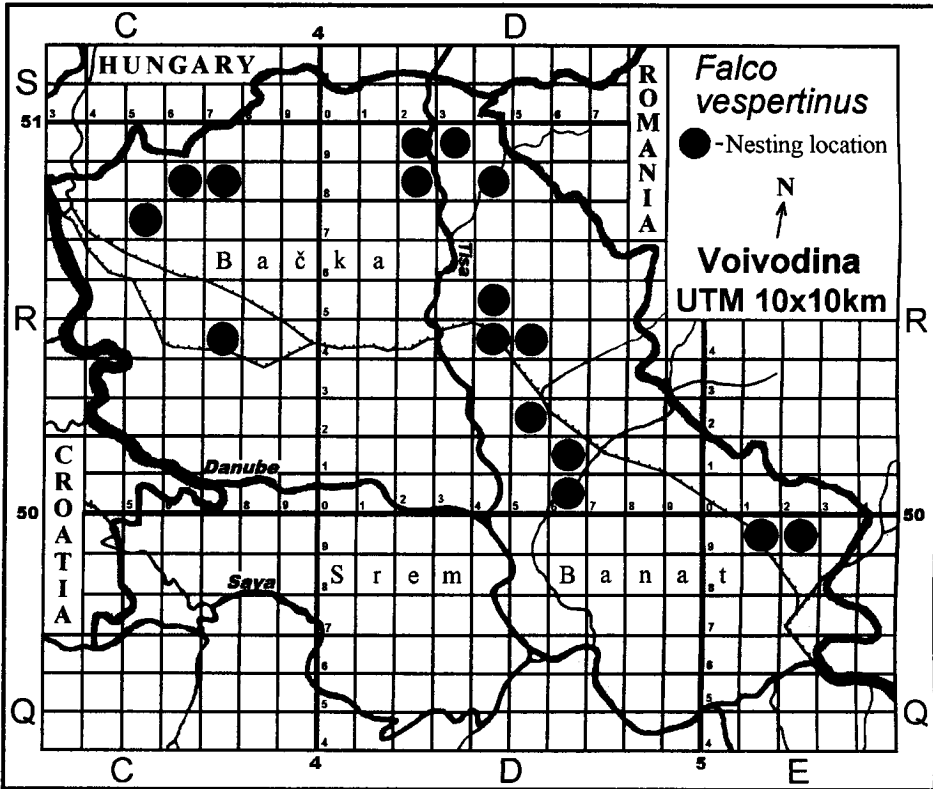


Fig. 1. The breeding distribution of the Red-footed Falcon in Voivodina based on bird ringing data for the years 1909, 1913, and in the period 1950-1992.

The birds were ringed by the Hungarian Ornithological Centre in Budapest (1909-44) and by the Ornithological Institute of the Croatian Academy of Arts and Sciences in Zagreb (as it is called today) (1930-92). The data on the site and date of ringing of the Red-footed Falcon were taken mainly from the "Bird-Ringing Archives" of these institutions and from ringer volunteers, while the data on the number of ringed individuals came from the published annual reports.

Data on ringing localities

The period 1909-1944

First individuals of the Red-footed Falcon were ringed in Voivodina in 1909. Ringing was organized by the Hungarian Ornithological Centre in Budapest (Schenk 1909) and it was carried out by Mrs. Fernbach in 1909 and 1913 in the Babapuszta locality, more precisely on the estate of the Fernbach family about 5 km south of the village Aleksa Šantić, (Schenk 1911, 1916). At that time Red-footed Falcons bred regularly in the park of the estate, as reported in papers by Csörgy (1909) and Fernbach (1912).

A total of 259 individuals were ringed in the period 1909-32 (Keve and Szijj 1957, Schenk 1935). The data on the localities of these ringings, which were also breeding sites for this species are not available because the files containing this information burned down in 1945 (Keve 1954, Keve and Szijj 1957). Keve and Szijj (1957) estimated that 450 individuals of the Red-footed Falcon were ringed on the territory of what was then Hungary in the period from 1933 to 1945.

In 1932, Richard Csornai (= Čornai) joined the work of ringing the Red-footed Falcon (Schenk 1935). In his paper entitled "The Nomenclature of Birds in Voivodina" (Čornai 1952) he wrote that the Red-footed Falcon was "one of the special features of the bird life of Voivodina" and that he personally ringed many hundreds of young birds. This is confirmed by Matvejev (1938), who wrote that Csornai had, the year before (most likely 1937), ringed over 100 Red-footed Falcons in Bačka. In their reports on bird ringing, Keve (1954) and Pátkai (1960) thanked Csornai for sending again his data on ringed birds for the period 1933-44 which had been lost in the fire, but unfortunately we were unable to find these data in the files of the Hungarian Ringing Centre in Budapest. That is why evidence of Csornai's ringing of Red-footed Falcons exists only in three recoveries published in reports on bird ringing (Keve 1954, Maštrović 1940, Matvejev 1938, Mikuska and Mužinić 1989, Pátkai 1960). All three birds were ringed in Senta in 1937.

The period 1930-1992

Bird ringing was organized by the Ornithological Institute of the Croatian Academy of Arts and Sciences in Zagreb. In this period, a total of 441 individuals of the Red-footed Falcon were ringed in Voivodina (Table 1). No data on ringing were found in the files of

the Ornithological Institute of the Croatian Academy of Sciences and Arts for one bird in 1930, so nesting localities in the period 1950-92 are listed in Table 2.

Table 1

Data on the number of young Red-footed Falcons ringed in Voivodina in the period 1930-1992

Years	No. of birds	Author
1930	1	Plančić 1932
1950	10	Kroneisl 1952
1958	8	Kroneisl-Rucner 1960
1959	20	Rucner-Kroneisl 1962
1964	2	Štromar 1967
1965	3	Štromar 1968
1983-1985	7	Kletečki 1988
1986-1987	10	Radović and Sušić 1989
1988-1989	141	Radović 1990
1990	122	Radović 1991
1991-1992	117	Radović <i>et al.</i> 1993
Total	441	

Data on recoveries

Table 3 contains data on the recoveries of 8 ringed individuals of the Red-footed Falcon. Two local recoveries 16 and 12 days after ringing in Senta and Jazovo are nonsignificant with respect to the migratory movements of the species. Neither is the recovery for which there was no data on the circumstances and site of ringing (Table 3).

RESULTS AND DISCUSSION

On the basis of the data on the ringing sites found in the ringing records, and on the basis of recoveries of birds ringed in the period from 1909 to 1992, it may be said with certainty that in the Province Voivodina this species bred in 17 localities, including one near Babapuszta (Aleksa Šantić) (1909 and 1913) and one in Senta (Fig. 1 – UTM CR78, UTM DR28, resp.). In Bačka, all the localities (Kruščić, Milčić, Sombor, Svetozar Miletić, Kapetanski rit, Aleksa Šantić, Senta) were located in the western part of the loessial plateau of Telečka and somewhat to the west and southwest of this plateau, as well as in the area between the rivers Tisa and the eastern edge of Telečka. A total of 17 individuals were ringed in Bačka, which shows that the Red-footed Falcon is neither frequent nor numerous breeding bird between the Danube and the Tisa. Since no more than 4 birds were ringed at the same locality, it may be presumed that this was an individual nesting,

Table 2

Data on the ringing of young Red-footed Falcons in the period 1950-1992. UTM – system of localisation of the site within 10 x 10 km squares (see Fig. 1).

Locality	UTM	Date	No. of indiv.	Ringer
Idvor	DR60	17.07.1958	2	Dević M.
		13.07.1959	3	Dević M.
		25.07.1959	17	Dević M.
		08.07.1964	2	Dević M.
		05.07.1965	3	Dević M.
		31.05.1989	3	Dević M.
Jazovo	DR48	02.07.1986	8	Gergely J.
		06.07.1988	2	Gergely J.
		14.07.1988	32	Gergely J.
		16.07.1988	41	Gergely J.
		17.06.1989	24	Gergely J.
		18.06.1989	4	Gergely J.
		01.07.1990	45	Gergely J.
		03.07.1990	23	Purger J.J.
		04.07.1990	7	Purger J.J.
		13.07.1990	3	Purger J.J.
28.06.1992	38	DE "Richárd Csornai"		
Kapetanski rit	DR29	15.06.1988	3	Gergely J.
		02.07.1992	1	DE "Richárd Csornai"
Kruščić	CR74	30.06.1985	4	Varga P., Zsulyevits A.
Melenci	DR44	02.07.1989	25	Ham I.
		22.07.1989	4	Ham I.
		01.07.1990	19	Purger J. J.
		18.07.1990	4	Ham I.
		10.07.1991	5	Purger J. J.
		15.07.1991	1	Purger J. J.
		16.07.1991	10	Purger J. J.
		17.07.1991	6	Purger J. J.
		19.07.1991	3	Purger J. J.
		21.07.1991	10	Purger J. J.
22.07.1991	6	Purger J. J.		
Milčić	CR57	14.07.1990	2	Varga P., Zsulyevits A.
Orlovat	DR61	09.06.1958	6	Pelle I.
Sanad	DR39	14.07.1950	10	Pelle I.
Slano Kopovo	DR45	20.07.1991	3	Purger J. J.

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Table 2. continued

Locality	UTM	Date	No. of indiv.	Ringer
Sombor	CR57	15.07.1990	3	Varga P., Zsulyevits A.
		22.07.1991	1	Zsulyevits A.
		05.08.1991	1	Zsulyevits A.
Svetozar Miletić	CR68	23.07.1986	2	Varga P. Zsulyevits A.
Torda	DR54	01.07.1990	4	Purger J. J.
		08.07.1990	8	Purger J. J.
		19.07.1991	8	Purger J. J.
Vlajkovac	EQ19	07.07.1991	1	Purger J. J.
		18.07.1991	23	Purger J. J.
Vršac	EQ29	05.08.1990	4	Rašajski J.
Zrenjanin	DR52	10.07.1984	3	Pelle I.
		22.06.1988	3	Pelle I.
Total			440	

Table 3

Data on ringing and recoveries of 8 Red-footed Falcons ringed as young in the nest in Voivodina (Keve 1954 Maštrović 1940, Matvejev 1938, Mikuska and Mužinić 1989, Pátkai 1960, Purger 1991/92, Schenk 1911, 1916, files of Institute of Ornithology, CASA, Zagreb and files of Hungarian Ringing Center, Budapest).

Ringing			Recovery			
Date	Locality	Coord.	Date	Locality	Coord.	Distance
05.07.1909	Babapuszta (Aleksa Šantić)	45°55'N 19°20'E	20.05.1911	Beodra (Novo Miloševo)	45°43'N 20°19'E	75 km
22.07.1913	Babapuszta (Aleksa Šantić)	45°55'N 19°20'E	30.05.1915	Alsóroglatic puszta (Bajša)	45°45'N 19°35'E	25 km
15.07.1937	Zenta (Senta)	45°55'N 20°05'E	31.07.1937	<i>Loco</i>		
29.06.1937	Zenta (Senta)	45°55'N2 0°05'E	11.09.1938	Pirev (Kragujevac)	44°03'N 20°55'E	220 km
07.07.1937	Zenta (Senta)	45°55'N 20°05'E	1941-43	Kachowka, Dnjepr, Ukraina	46°45'N 33°30'E	1000 km
?	?	?	?06.1954	Kishegyes (Mali Idjoš)	45°42'N 19°40'E	
01.07.1990	Jazovo	45°54'N 20°13'E	13.07.1990	<i>Loco</i>		
? 07.1991	Banat (probably Vlajkovac)	45°04'N 21°10'E	23.07.1992	10 km SE Värnamo (Småland, Sweden)	57°07'N 14°10'E	1500 km

although it is possible that small colonies existed as presumed by Antal *et al.* (1971). If Csornai's reports on ringing were present, we would certainly have a more complete picture of the breeding area (Čornai 1952, Matvejev 1938).

The youngs were ringed mainly in June and July, and, on only one occasion, on 31 May. The latest ringing date was 5 August. Almost 80% of young birds were ringed in the period from 1 to 25 July (Table 2).

Breeding localities in Banat that are suitable for this species are located mostly along the left bank of the Tisa and at the foothills of the Vršачke mountains. A relatively large number of young birds (30, 227 and 93) were ringed in two or three successive years in three localities (Idvor, Jazovo and Melenci), which indicates the existence of colonies (Table 2).

There are no data on ringing in the southern part of the Carpathian basin in the areas west and south of the Danube. This might indicate that the Danube may be considered as the natural border of the breeding area of the Red-footed Falcon in the investigated region. We may thus confirm that, regardless of the fact that he had insufficient data, Lohmann's (1962) description of this part of the border of the breeding area was correct and is still valid.

Out of 8 birds recovered (Table 3), 6 were killed, one (ringed in Jazovo) died of injuries after falling out of the nest, and only one was observed alive (in Sweden).

Findings of two birds ringed on the locality of Babapuszta (Aleksa Šantić) were recorded two years later in Novo Miloševo, i.e. about 75 km to the east, and in Bajša, about 25 km to the south-east of the ringing site. Out of two birds ringed near Senta, one was recovered a year after ringing, 220 km to the south of the ringing site, near the village of Pirev in the vicinity of Kragujevac, probably during the autumn migration. The second bird was recovered near Kachowka in the Ukraine, about 1000 km to the east of the ringing site. The bird recovered in Sweden was one of 25 individuals marked with standard rings and green-coloured rings during 1991 (Purger 1991/92). One such bird, about a year old, was recovered about 1500 km to the north of the ringing site. Since the observer did not record on which leg the bird had a green ring, the ringing locality cannot be established with certainty. The bird probably originated from Vlajkovac, where green rings were placed on the left leg of 24 individuals. It is less probable that the bird originated from Torda, where only one bird was marked by a green ring on the right leg.

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