The survey of bird fauna of Jagodina region (Serbia)

Boban Stanković
Department of Environmental Protection, City of Jagodina, Serbia

Abstract

Bird fauna of Jagodina region was intensively studied from 1984 to 2015. The paper gives a list of bird species with faunistical status for each species: breeder (resident or migrant), passage migrant, winter visitor and vagrant. Also, for each species are given information about number: very rare, rare, scarce, uncommon, fairly common and common. Totally 185 bird species were registered and there are also previous data for other 4 species. The number of species by ordo: Passeriformes 90, Charadriiformes 24, Falconiformes 14, Ciconiiformes 12, Anseriformes 11, Piciformes 8, Gruiformes 6, Strigiformes 5, Coraciiformes 4, Galliformes 4, Columbiformes 3, Podicipediformes 3, Pelecaniformes 2, Cuculiformes 1, Caprimulgiformes 1, Apodiformes 1. From the total number, 99 considered to breed. Of these, 58 species are Passeriformes and 41 non-Passeriformes. Among breeders, 76 strictly protected species by low of Republic Serbia. The SPEC categories (Species of European Conservation Concern) have a 58 breeding species. The relatively high diversity of bird fauna caused by long-term research, various habitats and the Morava-Vardar migratory passway.

Keywords: survey, bird fauna, Jagodina.

Introduction

Bird fauna of Jagodina region was intensively studied in the period 1984-2015, first of all by the author of this paper (*Stanković* 2000, 2001, 2002a, 2002b, 2003, 2005, 2007, 2008a, 2008b, 2008c, 2009a, 2009b, 2010, 2012a, 2012b, 2012c, 2013/2014) and other researchers. In the faunistic list are generally entered and species from earlier research. Among the first researchers, this region studied *Reiser* (1904), *Gengler* (1920) and *Matvejev* (1950). The work was used the results of research projects on monitoring bird migration in Bagrdanski Tesnac in 1984 (*Puzović*, 1987) and research ornithofauna of Mt. Juhor (*Puzović* et al., 1988), especially when it comes to species that are not observed in other studies. Also, other studies (*Marinković*, 1979; *Milenković*, 1987; *Radaković*, 2009). They also used the unpublished research data by V. Milenković, S. Puzović, G. Sekulić, B. Grubač and B. Stanković.

Jagodina is located in the central part of Serbia. The researched area includes parts of Middle Pomoravlje and SE Šumadija: the middle Velika Morava valley, parts of Mt. Juhor, Mt. Crni Vrh and the Levač valley (UTM EP 07, 16, 17, 26, 27; 21° 06‘ - 21° 20‘ E, 43° 56‘ - 44° 03‘ N). It belongs to the Peripannonic region of Serbia. The greatest altitudes are at Mt. Juhor (773 m) and Mt. Crni Vrh (707 m), while the lowest altitude point is in the Velika Morava valley (106 m). The most prominent hydrographical objects are the mid flow of Velika Morava and its lesser tributaries, Lugomir and Belica. Along the Velika Morava River, there are many ponds overgrown with emersed vegetation and the marshes that are periodically flooded by Velika Morava and its tributaries. The most important are: Rit, Brzansko Moravište,

Predorske Bare and Laništanska Bara. At Dragocvet village, there is an artificial accumulation (Dragocvetačko Jezero), and to the north from Jagodina, a spacious flooded marsh surface.

There are three landscapes types (biomes) in study area: biome of submediterranean Oak woodlands, biome of South European deciduous montane woodlands and biome of South European deciduous woods in lowland and inundated areas (*Matvejev* & *Puncer*, 1989). The climate is moderately continental. According to data of Republic hydrometeorological service of Serbia for the region of Jagodina, period 1981-2010, the average annual air temperatures are between 11,2 and 11,7°C approximately. The warmest month is July, with a mean temperature of 22,2°C; the coldest is January with a mean temperature of 0,8°C; the mean annual precipitation is 658 mm (*Anonymous*, 2011).

The aim of this paper is to present the most impotrant information on the birds of Jagodina region: the list of recorded species with faunistical status and abundance for each species..

Material and Methods

This paper summarizes the results of research already mentioned. The paper presents list of bird species recorded by the group of authors in the period from 1900-2015 years. The year has been divided into four phenological periods as follows: the spring migration, the breeding season, the autumn migration and the winter season.

All species is determined faunistical status in the study area (*Stanković*, 2000, 2005), as follows:

- *breeder* (resident or migrant) – Species observed during the breeding season in the appropriate habitats, and expressed some of the typical breeding behaviors (singing, territoriality, advertising, wearing materials, etc.); *resident* – The species may be found throughout the year; *migrant* – Observed during the breeding season. They come in the spring and leave in the autumn;
- *passage migrant* – The species is seen during migration (spring and/or autumn passage migrant);
- *winter visitor* – The species is seen mostly during the winter season;
- *vagrant* – Very rarely seen species, no nesting.

For each species are given information about abundance - occuring or breeding categories, as follows:

- *very rare* – occuring or breeding at intervals of least 10 years;
- *rare* – occuring or breeding less than annually (the species is not recorded every year);
- *scarce* – less than 10 birds occuring or pairs breeding annually;
- *uncommon* – between 10 and 99 birds occuring or pairs breeding annually;
- *fairly common* – between 100 and 999 birds occuring or pairs breeding annually;
- *common* – between 1.000 and 9.999 birds occuring or pairs breeding annually.

Results

Table 1. List of bird fauna of Jagodina region with faunistical status, abundance and data source.

№	Species	Status	Abundance	Source
1.	*Tachybaptus ruficollis*	R	s	Stanković 2000
2.	*Podiceps cristatus*	P	vr	Stanković 2000
3.	*Podiceps nigicollis*	V	vr	Milenković 1987, Stanković 2000
4.	*Phalacrocorax carbo*	PW	fc	Stanković 2000, 2003
5.	*Phalacrocorax pygmaeus*	W	r	Puzović 1987; Stanković 2003
6.	*Botaurus stellaris*	V	r	Stanković, unpublish data
7.	*Ixobrychus minutus**	M	s	Stanković 2000
8.	*Nycticorax nycticorax**	M	uc	Stanković 2000, 2009a, unpublish data
9.	*Ardeola ralloides*	V	vr	Stanković 2003, 2005
10.	*Egretta garzetta*	P	uc	Stanković 2000, 2013/2014
11.	*Casmerodius albus*	PW	uc	Stanković 2000, 2003, unpublish data
12.	*Ardea cinerea*	R	uc	Stanković 2000, 2003, unpublish data
13.	*Ardea purpurea*	P	r	Puzović 1987; Stanković, unpublish data
14.	*Ciconia nigra*	V	vr	Puzović 1987; Stanković 2000, 2003
15.	*Ciconia ciconia**	M	s	Stanković 2000, 2001
16.	*Plegadis falcinellus*	V	vr	Matvejev 1950; Stanković 2010
17.	*Platalea leucorodia*	V	vr	Stanković, unpublish data
18.	*Cygnus olor*	W	r	Stanković 2000, 2003
19.	*Anser fabalis*	W	vr	Stanković 2000
20.	*Anser albifrons*	W	uc	Stanković 2000, 2003, 2012b
21.	*Anas penelope*	P	r	Milenković 1987, Stanković 2000, 2008c
22.	*Anas crecca*	PW	uc-fc	Stanković 2000, 2013/2014
23.	*Anas platyrhynchos*	R	uc	Stanković 2000, 2008c, 2013/2014
24.	*Anas acuta*	PW	r	Stanković 2000, 2010
25.	*Anas querquedula*	PM	s	Stanković 2003, 2005, 2008c, 2013/2014
26.	*Anas clypeata*	P	s-uc	Stanković 2000, 2008c, 2010
27.	*Aythya ferina*	PW	uc	Milenković 1987; Stanković 2000, 2008c
28.	*Aythya nyroca*	P	r	Stanković 2000, 2008c
29.	*Pernis apivorus*	n	vr	Puzović et al. 1988
30.	*Circaetus gallicus*	P	vr	Puzović 1987
31.	*Circus aeruginosus*	P	r	Puzović 1987; Stanković 2000
32.	*Circus cyaneus*	W	s	Puzović 1987; Stanković 2000
33.	*Accipiter gentilis*	R	s	Marinković 1979; Stanković 2000
34.	*Accipiter nisus*	W,R?	uc	Puzović et al. 1988; Stanković 2000

..continued on the next page

35.	*Buteo buteo**	R	uc	Marinković 1979; Puzović et al. 1988; Stanković 2000
36.	*Buteo lagopus*	ex	-	Matvejev 1950
37.	*Aquila pomarina*	n	vr	Marinković 1979; Puzović et al. 1988
38.	*Aquila heliaca*	ex	-	Marinković 1979
39.	*Falco tinnunculus**	R	uc	Stanković 2000, 2003
40.	*Falco vespertinus*	P	vr	Stanković 2000, 2010
41.	*Falco subbuteo**	M	s	Marinković 1979; Puzović et al. 1988; Stanković 2000
42.	*Falco cherrug* or *F.peregrinus*	V	vr	Puzović 1987
43.	*Bonasia bonasia*	n	n	Puzović et al. 1988
44.	*Perdix perdix*	R	uc	Stanković 2000
45.	*Coturnix coturnix*	M	fc	Stanković 2000
46.	*Phasianus colchicus*	R	c	Stanković 2000
47.	*Rallus aquaticus*	P	vr	Milenković 1987
48.	*Porzana porzana*	P	r	Stanković 2009b
49.	*Porzana parva*	P	r	Stanković 2000
50.	*Gallinula chloropus*	M	uc	Stanković 2000, 2008c, 2010, unpublish data
51.	*Fulica atra*	R	uc	Stanković 2000, 2008c, 2010, 2013/2014, unpub.data
52.	*Grus grus*	W	r	Puzović et al. 1988; Stanković 2008c
53.	*Himantopus himantopus*	P	vr-r	Stanković 2000, 2010
54.	*Recurvirostra avosseta*	P	vr	Stanković 2010
55.	*Charadrius dubius**	M	uc	Stanković 2000, 2002, 2010, unpub.data
56.	*Charadrius hiaticula*	P	vr-r	Stanković 2005
57.	*Vanellus vanellus**	M	uc	Stanković 2000, 2003, 2010, 2012b, 2013/2014
58.	*Philomachus pugnax*	P	r	Stanković 2000, 2003, 2012b
59.	*Lymnocryptes minimus*	P	r	Stanković 2012b, 2013/2014
60.	*Gallinago gallinago*	PW	uc-fc	Stanković 2000, 2012b, 2013/2014
61.	*Scolopax rusticola*	P	uc	Puzović 1992; Stanković 2003
62.	*Limosa limosa*	PW	r	Stanković 2008c, 2013/2014
63.	*Tringa erithropus*	P	vr	Stanković 2008c, 2013/2014
64.	*Tringa totanus*	P	uc	Stanković 2000, 2012b, 2013/2014
65.	*Tringa nebularia*	P	r	Stanković 2010, 2013/2014
66.	*Tringa ochropus*	P	s-uc	Stanković 2000, 2008c, 2012b, 2013/2014
67.	*Tringa glareola*	P	s-uc	Stanković 2013/2014
68.	*Actitis hypoleucos*	PW	uc-fc	Stanković 2000, 2003, 2008c, 2013/2014
69.	*Larus minutus*	V	vr	Stanković 2000, 2013/2014
70.	*Larus ridibundus*	PW	uc	Stanković 2000, 2003, 2013/2014
71.	*Larus canus*	V	vr	Stanković 2000, 2013/2014
72.	*Larus cachinnans*	V	vr	Stanković 2000, 2013/2014
73.	*Sterna hirundo**	M	s	Stanković 2000, 2005, unpub.data; Radaković 2009
74.	*Sterna albifrons*	P	vr	Stanković 2003, 2005
75.	*Chlidonias niger*	P	r	Stanković 2000, 2003, 2013/2014

..continued on the next page

76.	*Chlidonias leucopterus*	P	vr	Stanković 2000
77.	*Columba palumbus*	M	uc	Stanković 2000
78.	*Streptopelia decaocto*	R	fc-c	Stanković 2000
79.	*Streptopelia turtur*	M	uc	Stanković 2000
80.	*Cuculus canorus**	M	uc	Stanković 2000
81.	*Otus scops**	M	fc	Marinković 1979; Puzović et al. 1988; Stanković 2000
82.	*Bubo bubo**	R	s	Marinković 1979; Puzović et al. 1988; Grubač voce viva
83.	*Athene noctua**	R	fc	Marinković 1979; Stanković 2000
84.	*Strix aluco**	R	uc-fc	Marinković 1979; Stanković 2000
85.	*Asio otus**	R	fc	Stanković 2000, 2003
86.	*Caprimulgus europaeus**	P,M?	s-uc	Puzović 1987; Stanković 2000
87.	*Apus apus**	P,M?	s	Stanković 2000, 2003, 2005
88.	*Alcedo atthis**	R	uc	Puzović et al. 1988; Stanković 2000
89.	*Merops apiaster**	M	uc	Stanković 2000, 2003; Puzović voce viva
90.	*Coracias garrulus*	n	vr	Puzović 1987
91.	*Upupa epops**	M	s	Stanković 2000, unpub.data
92.	*Jynx torquilla**	R	s	Stanković 2000
93.	*Picus canus**	R	s	Stanković 2000, 2012a
94.	*Picus viridis**	R	uc	Stanković 2000, 2012a
95.	*Dryocopus martius*	n	n	Puzović et al. 1988
96.	*Dendrocopos major**	R	fc	Stanković 2000, 2012a
97.	*Dendrocopos syriacus**	R	uc-fc	Stanković 2000, 2012a
98.	*Dendrocopos medius**	R	uc	Stanković 2000, 2012a
99.	*Dendrocopos minor**	R	s	Stanković 2000, 2012a
100.	*Galerida cristata**	R	uc	Stanković 2000
101.	*Lullula arborea**	M	s	Puzović 1987; Puzović et al. 1988; Stanković 2000, 2003
102.	*Alauda arvensis**	M-R	uc-fc	Puzović et al. 1988; Stanković 2000, 2003
103.	*Riparia riparia**	M	fc	Stanković 2000
104.	*Hirundo rustica**	M	fc	Stanković 2000
105.	*Delichon urbica**	M	fc	Stanković 2000
106.	*Anthus trivialis**	M	uc	Puzović et al. 1988; Stanković 2000, 2003
107.	*Anthus pratensis*	P	vr	Stanković 2000
108.	*Anthus spinolleta*	W	s	Stanković 2012b
109.	*Motacilla flava**	M	fc	Stanković 2000
110.	*Motacilla cinerea*	R	s	Puzović et al. 1988; Stanković 2000, 2003
111.	*Motacilla alba**	R	fc	Puzović et al. 1988; Stanković 2000
112.	*Cinclus cinclus*	R?	r	Puzović et al. 1988
113.	*Troglodytes troglodytes**	R	uc-fc	Stanković 2000, 2012a
114.	*Prunella modularis*	W	s	Stanković 2000, 2003, 2012a
115.	*Erithacus rubecula**	R	fc	Stanković 2000, 2012a
116.	*Luscinia megarhynchos**	M	fc	Stanković 2000

..continued on the next page

117.	*Luscinia svecica*	V	vr	Stanković 2009b
118.	*Phoenicurus ochruros**	R	uc	Stanković 2000, 2007
119.	*Phoenicurus phoenicurus**	M	fc	Stanković 2000, 2003, 2007
120.	*Saxicola rubetra**	M	s	Stanković 2000, 2003
121.	*Saxicola torquatus**	M	uc	Stanković 2000, 2003
122.	*Turdus merula**	R	fc	Stanković 2000, 2012a
123.	*Turdus pilaris*	W	fc-c	Stanković 2000, 2010, 2012a
124.	*Turdus philomelos**	M	uc	Puzović et al. 1988; Stanković 2000
125.	*Turdus iliacus*	W	r	Stanković 2000, 2005, 2012a
126.	*Turdus viscivorus*	W	vr	Puzović et al. 1988; Stanković 2000
127.	*Locustella naevia*	P	vr	Puzović 1987
128.	*Locustella luscinioides**	M	s-uc	Puzović 1987; Stanković 2012c
129.	*Acrocephalus paludicola*	ex	-	Reiser 1904
130.	*Acrocephalus schoenobaenus**	M	uc	Stanković 2000, 2005, unpub.data
131.	*Acrocephalus palustris**	M	uc-fc	Stanković 2000, 2003
132.	*Acrocephalus scirpaceus*	P	s	Stanković 2000
133.	*Acrocephalus arundinaceus**	M	uc	Milenković 1987; Stanković 2000
134.	*Hippolais icterina*	P	uc	Puzović 1987; Stanković 2000
135.	*Sylvia nisoria*	P	vr	Puzović 1987
136.	*Sylvia curruca**	P,M?	s	Puzović et al. 1988; Stanković 2000, 2003, 2005
137.	*Sylvia communis**	M	fc	Stanković 2000
138.	*Sylvia borin**	M?	s-uc	Puzović 1987; Stanković 2000, 2005
139.	*Sylvia atricapilla**	M	fc	Stanković 2000
140.	*Phylloscopus sibilatrix*	P,M?	r-s	Stanković 2000
141.	*Phylloscopus collybita**	M	fc	Stanković 2000
142.	*Phylloscopus trochilus*	P	uc	Puzović 1987; Stanković 2000, 2003
143.	*Regulus regulus*	PW,R?	s-c	Puzović et al. 1988; Stanković 2000, 2012a
144.	*Regulus ignicapillus*	W	s	Puzović 1987; Stanković 2000, unpub.data
145.	*Muscicapa striata**	MP	uc	Stanković 2000, 2003
146.	*Ficedula albicollis**	M	r-s	Stanković 2000, 2003
147.	*Ficedula hypoleuca*	P	uc	Stanković 2000, 2003
148.	*Aegithalos caudatus**	R	fc	Stanković 2000, 2012a
149.	*Parus palustris**	R	uc	Stanković 2000, 2012a
150.	*Parus lugubris*	n	vr	Puzović et al. 1988
151.	*Parus ater*	W,R?	uc	Puzović et al. 1988; Stanković 2000, 2003, 2012a
152.	*Parus caeruleus**	R	fc	Stanković 2000, 2012a
153.	*Parus major**	R	c	Stanković 2000, 2012a
154.	*Sitta europaea**	R	fc	Stanković 2000, 2012a
155.	*Certhia familiaris**	W,R?	r	Puzović et al. 1988; Stanković 2000
156.	*Certhia brachydactyla**	R	uc	Puzović et al. 1988; Stanković 2000, 2012a
157.	*Remiz pendulinus**	M	uc	Stanković 2000, 2002, 2003

..continued on the next page

158.	*Oriolus oriolus**	M	fc	Stanković 2000
159.	*Lanius collurio**	M	fc	Stanković 2000, 2003
160.	*Lanius minor**	M	s	Stanković 2000, 2008a
161.	*Lanius excubitor*	W	s-uc	Puzović et al. 1988; Stanković 2000, 2003
162.	*Lanius senator**	P,M?	vr	Stanković 2000
163.	*Garrulus glandarius*	R	fc	Stanković 2000, 2012a
164.	*Pica pica*	R	c	Stanković 2000
165.	*Corvus monedula*	R	uc-fc	Stanković 2000
166.	*Corvus frugilegus*	R	fc-c	Stanković 2000
167.	*Corvus corone cornix*	R	fc	Stanković 2000
168.	*Corvus corax*	R	uc	Stanković 2000
169.	*Sturnus vulgaris*	M-R	fc	Stanković 2000, 2012a
170.	*Sturnus roseus*	V	vr	Sekulić voce viva
171.	*Passer domesticus*	R	c	Stanković 2000
172.	*Passer hispaniolensis*	ex	-	Gengler 1920
173.	*Passer montanus*	R	c	Stanković 2000
174.	*Fringilla coelebs**	R	fc	Stanković 2000, 2012a
175.	*Fringilla montifringilla*	W	fc	Puzović 1987,1988; Stanković 2000, 2003, 2012a
176.	*Serinus serinus*	W	r	Stanković 2003, 2005
177.	*Carduelis chloris**	R	fc	Stanković 2000, 2012a
178.	*Carduelis carduelis**	R	fc	Stanković 2000, 2012a
179.	*Carduelis spinus*	W	fc	Stanković 2000, 2012a
180.	*Carduelis cannabina*	W	r-uc	Stanković 2000
181.	*Loxia curvirostra*	W?	vr	Milenković voce viva
182.	*Pyrrhula pyrrhula*	W	uc	Stanković 2000, 2012a
183.	*Coccothraustes coccothraustes**	R	uc	Stanković 2000, 2012a
184.	*Emberiza citrinella**	R	uc	Stanković 2000, 2012a
185.	*Emberiza cirlus**	R	uc	Stanković 2000, 2003, 2012a
186.	*Emberiza cia*	W	vr	Stanković 2008b
187.	*Emberiza hortulana**	M	uc	Puzović 1987, et al. 1988; Stanković 2005, unpub.data
188.	*Emberiza schoeniclus*	W	fc	Stanković 2000, 2012b
189.	*Miliaria calandra**	R	fc	Stanković 2000, 2012a, unpub.data

Key: R - breeder resident, M - breeder migrant, P - passage migrant, W - winter visitor, V - vagrant, n - status unknown, ex - extinct, ? - potential (R, M, W), vr - very rare, r - rare, s - scarce, uc - uncommon, fc - fairly common, c - common, * - strictly protected species (breeders) by law of the Republic of Serbia.

Discussion

A total of 189 species from 47 familia and 16 ordo (breeding, wintering, migration) have been found in this region (Table 1).

The number of species by ordo: Passeriformes 90 (47,6 %), Charadriiformes 24 (12,6 %), Falconiformes 14 (7,4 %), Ciconiiformes 12 (6,3 %), Anseriformes 11 (5,8 %), Piciformes 8 (4,2 %), Gruiformes 6 (3,2 %), Strigiformes 5 (2,6 %), Coraciiformes 4 (2,1 %), Galliformes 4 (2,1 %), Columbiformes 3 (1,6 %), Podicipediformes 3 (1,6 %),

Pelecaniformes 2 (1,1 %), Cuculiformes 1 (0,5 %), Caprimulgiformes 1 (0,5 %), Apodiformes 1 (0,5 %). The families with the largest number of species are: Sylviidae 18 species, Turdidae 12, Anatidae 11, Scolopacidae 11 and Fringillidae 10.

From the total number of species 99 (52,4 %) are considered to breed. Of these, 58 (59 %) species are Passeriformes and 41 (41 %) non-Passeriformes. The most important breeding birds are: *I. minutus, N. nycticorax, A. cinerea, A. querquedula, F. subbuteo, Ch. dubius, V. vanellus, S. hirundo, B. bubo, U. epops, J. torquilla, P. canus, L. arborea, A. trivialis, M. cinerea, T. philomelos, L. luscinioides, A. schoenobaenus, M. striata, F. albicollis, C. brachydactyla, R. pendulinus, L. minor, E. hortulana.*

Summarizing the results of bird fauna reasearch were analyzed and isolated the main ornitho-faunistic characteristics of the study area.

- The relatively high diversity of bird fauna caused by long-term research, various habitats and the fact that the area is situated on the Morava-Vardar migratory passway. In the period of most intensive fieldwork, from 1984 to 2015, 185 bird species were recorded. Only 3 species have records a century old (*B. lagopus, A. paludicola, P. hispaniolensis*) and one species have record older than four decades (*A. heliaca*).

The Morava-Vardar migratory passway is the lower intensity (mostly small number of individuals) despite the large number of observed species. Rare passage migrants and vagrants are: *P. cristatus, P. nigricollis, B. stellaris, A. ralloides, C. nigra, A. nyroca, C. gallicus, C. aeruginosus, F. vespertinus, Falco sp., R. aquaticus, P. porzana, P. parva, H. himantopus, R. avosseta, Ch. hiaticula, Ph. pugnax, L. minimus L. limosa, T. erithropus, L. minutus, L. canus, L. cachinnans, S. albifrons, Ch. niger, Ch. leucopterus, A. pratensis, L. svecica, L. naevia, A. scirpaceus, S. nisoria, S. roseus.*

- There are two types of ornithofauna: changing woodland and hilly – mountainous (*Matvejev*, 1950). Due to the greater representation of lowland in the landscape, dominated by changing woodland type of ornithofauna, characterized by a large number of species.

Changing woodland landscape has a diverse winter bird fauna, which in addition to winter visitors, consisting of domestic and "foreign" populations of resident birds. Foreign visiting populations are the mountain population and the population of the northern countries, which usually do not belong to the subspecies of resident. Species observed during the winter (winter visitors): *Ph. carbo, Ph. pygmaeus, C. albus, C. olor, A. fabalis, A. albifrons, A. crecca, A. acuta, A. ferina, C. cyaneus, A. nisus, G. grus, G. gallinago, A. hypoleucos, L. ridibundus, A. spinolleta, P. modularis, T. pilaris, T. iliacus, T. viscivorus, R. regulus, R. ignicapillus, P. ater, C. familiaris, L. excubitor, F. montifringilla, S. serinus, C. spinus, C. cannabina, P. pyrrhula, E. cia, E. schoeniclus.*

Among the registered species are internationally and nationally important. Among breeders, 76 species are strictly protected by law of the Republic of Serbia (*Anonimus*, 2010). The SPEC categories (Species of European Conservation Concern) (*Burfield, J. & van Bommel, F.*, 2004) have a 58 breeding and potential breeding species:

Spec 2 (Species with an unfavourable European conservation status, and with more than half of the global breeding or wintering population concentrated in Europe): *C. ciconia, V. vanellus, O. scops, C. europaeus, P. viridis, L. arborea, Ph. phoenicurus, L. minor, L. senator, E. hortulana, M. calandra.*

Spec 3 (Species with an unfavourable European conservation status, but with less than half of the global breeding or wintering population within Europe): *I. minutus, N. nycticorax, A. querquedula, F. tinnunculus, P. perdix, C. coturnix, S. turtur, B. bubo, A. noctua, A. atthis, M. apiaster, U. epops, J. torquilla, P. canus, G. cristata, A. arvensis,*

R. riparia, H. rustica, D. urbica, M. striata, P. palustris, L. collurio, S. vulgaris, P. domesticus, P. montanus.

Spec 4 (Species with an favourable European conservation status, and with the global populations concentrated in Europe): *C. palumbus, S. aluco, D. syriacus, D. medius, E. rubecula, L. megarhynchos, S. rubetra, T. merula, L. luscinioides, A. schoenobaenus, A. palustris, S. communis, S. borin, S. atricapilla, F. albicollis, P. caeruleus, C. brachydactyla, C. monedula, F. coelebs, C. chloris, E. citrinella, E. cirlus.*

It is necessary to take measurements in order to recognize some of the most important bird sites and to name them the protected natural areas. These could be parts of Mt. Juhor and Mt. Crni Vrh, Laništanska Bara, Brzansko Moravište, Predorske Bare, Dragocvetačko Jezero, Končarevo and parts of Rit - floodplain area near Jagodina.

The present review of the species is not final and is subject to changes and amendments. For some species are needed of additional investigations to determine the final status, remove any doubts or to prove the assumptions

References

Anonymus (2010) Pravilnik o proglašenju i zaštiti strogo zaštićenih i zaštićenih divljih vrsta biljaka, životinja i gljiva."Službeni glasnik RS", br. 5/2010.

Anonymous, (2011) *Strateška procena uticaja Prostornog plana grada Jagodine na životnu sredinu*. JP Direkcija za urbanizam Kragujevac, 91 pp.

Burfield, J., & van Bommel, F. (2004) *Birds in Europe: Population estimates, trends and conservation studies*. BirdLife International, Cambridge, 59 pp.

Gengler, J. (1920) *Balkanvogel.* H.A. Pierer, *Altenburg,* 210 pp.

Marinković, Đ. (1979) Grabljivice Crnog vrha. *DMI „Polet", zbornik radova – Crni vrh*, 2, 54-57.

Matvejev, S.D. (1950) *Rasprostranjenje i život ptica u Srbiji*. SANU, 161, Beograd, 362 pp.

Matvejev, S.D. & Pucner, I.J. (1989) *Karta bioma: Predeli Jugoslavije i njihova zaštita*. Prirodnjački muzej, 36, Beograd, 76 pp.

Milenković, V. (1987) *Avifauna Dragocvetačkog jezera*. Obrazovni centar „Svetozarevo", maturski rad, Svetozarevo, 17 pp.

Puzović, S. (1987) *Rezultati praćenja migracije ptica u Bagrdanskoj klisuri 1984*. BID „Josif Pančić", Beograd, manuskript, 17 pp.

Puzović, S., Milenković, V., Sekulić, V., Perić, V. & Paković, Z. (1988) Građa za ornitofaunu planine Juhor. *Zbornik radova „Prvih deset godina"*. BID „Josif Pančić", Beograd, 95-106.

Puzović, S. (1992) Šumska šljuka *Scolopax rusticola* u Šumadiji. *Scolopax*, 2, 13-29.

Radaković M. (2009) Gnežđenje obične čigre *Sterna hirundo* na šljunkari kod Bagrdana (Pomoravlje). *Ciconia*, 18, 221-223.

Reizer, O. (1904) Izvještaj o uspjehu ornitoloških putovanja u Srbiji godine 1899. i 1900. *Glasnik ZM BIH*, 16, 126-152.

Stanković, B. (2013/2014) Sastav i brojnost migratorne faune ptica močvarica plavnog područja Rit kod Jagodine. *Ciconia*, 22/23, 29-34.

Stanković, B. (2012a) Zimska brojnost detlića *Piciformes* i pevačica *Passeriformes* okoline Jagodine. *Ciconia*, 21, 43-47.

Stanković, B. (2012b) Prolećna seoba ptica 2012. u Ritu kod Jagodine. *Ciconia*, 21, 59.

Stanković, B. (2012c) Verovatno gnežđenje običnog cvrčića *Locustella luscinioides* u Ritu kod Jagodine. *Ciconia*, 21, 75.
Stanković, B. (2010) Prolećna seoba ptica 2010. u Ritu kod Jagodine. *Ciconia*, 19, 159–162.
Stanković, B. (2009a) Kolonija gaka *Nycticorax nycticoraxna* Dragocvetačkom jezeru kod Jagodine. *Ciconia*, 18, 178-179.
Stanković, B. (2009b) Modrovoljka *Luscinia svecica* i barski petlić *Porzana porzana* kod Jagodine. *Ciconia*, 18, 227.
Stanković, B. (2008a) Lesser Grey Shrike *Lanius minor*. *Acrocephalus,* 29 (138/139), 192.
Stanković, B. (2008b) Rock Bunting *Emberiza cia*. *Acrocephalus,* 29 (138/139), 192.
Stanković, B. (2008c) Crane *Grus grus*. *Acrocephalus,* 29 (138/139), 193.
Stanković, B. (2007) Gustine teritorija obične crvenrepke *Phoenicurus phoenicurus* i crne crvenrepke *Phoenicurus ochruros* u Jagodini. *Ciconia*, 16, 46-48.
Stanković, B. (2005) Pregled faune ptica šire okoline Jagodine. *Ecologica*, 12/44, 48-52.
Stanković, B. (2003) Rezultati novih ornitoloških istraživanja iz okoline Jagodine. *Ciconia*, 12, 154-158.
Stanković, B. (2002a) Gnežđenje žalara slepića *Charadrius dubius* na Velikoj Moravi i faktori koji utiču na njegovu uspešnost. *Ciconia*, 11, 162.
Stanković, B. (2002b) Praćenje gnežđenja bele senice *Remiz pendulinus* u srednjem Pomoravlju. *Ciconia*, 11, 170.
Stanković, B. (2001) Gnežđenje bele rode *Ciconia ciconia* u okolini Jagodine. *Ciconia*, 10, 146-147.
Stanković, B. (2000) Pregled faune ptica šire okoline Jagodine u srednjem Pomoravlju. *Ciconia*, 9, 80-102.