

Birds of Vrachanski Balkan Nature Park

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Abstract. The work is based mainly on personal field studies of the authors during different periods of time from the beginning of the 1980s until present. As a result, the Park's species list is extended to 208 bird species, 131 of them nesting in the mountain. We report 23 species for the first time for the Park's area. Analyses of proportion of species distribution among 13 habitat types revealed several patterns: 1) forest habitats held more species than expected; 2) number of species that nested in 1, 2 or 3 habitats was higher than expected; 3) proportion of species, that nested in 1, 2 or 3 habitats was higher in rock habitats, mountain pastures and running waters, and lower in broadleaf plantations.

Key words: birds, Vrachanski Balkan, species composition, zoogeography, habitats, Bulgaria.

Introduction

There are several ornithological publications for the territory of the mountain Vrachanski Balkan and Vrachanski Balkan Nature Park. Those are the works of Profirov (1988), Milchev & Georgiev (1998), Georgiev & Milchev (2000), Stoyanov & Donchev (2011), and Nankinov (2012). Information about different species in the area, or species from different areas of the Park, can be found in other publications - Simeonov (1962), Donchev (1970), Stoyanov (2002), Stoyanov (2006) etc.

So far there has been no serious attempt at ecological characteristic of the ornitofauna of the Park. Georgiev & Milchev (2000) mention habitat distribution and occurrence correlation of 22 species and 5 types of habitats. Stoyanov & Donchev (2011) are describing 5 bird communities, nesting in different habitats. Both works are mainly descriptive and lack deeper analysis of the species distribution within and among the described habitats.

The main goal of this paper is to make overview on species diversity and to reveal some patterns of species composition from zoogeographic, ecological and conservation point of view.

Materials and methods

Field work. This work is based mainly on personal field studies of the authors during different periods of time from the beginning of the 1980s until present. The field work is carried out according to standard methodologies - field transects and point counts.

We have conducted daytime and nighttime searches, according to characteristics of the different species. For visual observations we used mainly binoculars with magnification and objective diameter 10X50 and fieldscopes 20X60-80. We also searched for pellets, feathers, and other signs of activity. Mist nets are used in some occasions for clarifying species composition of small passerines during migration.

Study area. The Park's territory includes almost whole mountain Vrachanski Balkan, as well as the rock massif Lakatnishki skali. The altitude ranges from approximately 250 m a.s.l. to 1481.8 m a.s.l. (peak Beglichka mogila). The baserock is mostly limestone, with high degree of karstification. As a result the mountain is rich of karst forms and rock complexes, and is relatively dry. There are 37 formations and 124 associations described from the Park's territory. The lower parts of the mountain are occupied by thermophilous oak formations, while higher parts are covered by beech forests. Widespread are the formations of hornbeam and other xerophytic shrub formations. Grassland has secondary origin and occupies large portions of the mountain, especially in the highest parts. Other artificial habitats are the coniferous and the broadleaf plantations, the former occupying significant portion of the Park.

Habitat classification

The habitat classification is based on Corine land cover (Commission of the European Communities 1994), adjusted to the specifics of the mountain and the characteristics of the research object (birds). The habitat classification we adopted is as follows:

A. Forests.

1. Broadleaf forests

1.1. Oak forests (A.1.1) - includes all forests and woods in the "oak" belt.

1.2. Beech forests (A.1.2) - includes all forests and woods in the "beech" belt.

2. Coniferous plantations (A.2).

3. Broadleaf plantations (A.3) - mostly *Robinia pseudoacacia*, but also poplar hybrids, and walnut orchards.

4. Riparian woods and bushes (A.4).

B. Bushes and grassland

1. Bushes (B.1) - includes formations of *Carpinus orientalis*, *Paliurus spina-christi* (very restricted), *Crataegus sp.*, *Corylus avellana* etc.

2. Dry grassland (B.2).

3. Mountain pastures (B.3).

4. Mesophilous and hygrophilous grassland (B.4).

C. Artificial landscape (C) - villages, chalets, huts, etc.

D. Rocky habitats (D).

E. Inland surface waters.

1. Standing waters (E.1).

2. Running waters (E.2).

Species composition

The qualitative abundance of the registered species is based on the numbers of pairs (for larger and/or rare nesting birds) or authors subjective evaluation of species encounter frequency. We also considered the distribution of suitable habitat for the species in question on the Park's territory (subjectively evaluated). Species, which are known only from the literature, are not evaluated. We did not include in the list 3 species - *Strix uralensis* Pallas, 1771, *Aegolius funereus* Linnaeus, 1758, and *Sitta neumayer* Michahellis, 1830, mentioned

only by Nankinov (2012), and which were never found before or after that.

We defined the different periods in the life cycle of birds as nesting period (according to the International scale for nesting probability, Simeonov & Michev 1991), migration (including postnatal dispersion and movements of non breeding individuals during breeding season), and wintering (including of species, which stay on the Park's territory the whole year). Species, for which nesting in the Park has not been confirmed in more recent times (e. g. *Aegypius monachus* Linnaeus, 1766, *Aquila heliaca* Savigny, 1809) are not treated as nesting.

Analyses. We used Goodness of fit test for comparing proportions of different zoogeographic types of the birds, nesting in the Park's territory, with the Bulgarian avifauna (Simeonov *et al.* 1990). For the nesting avifauna, Chi-square test was used to compare: proportions of number of species, nesting in different number of habitats (1 to 7), and number of species, nesting in different habitats (13 habitats) with the total number of species, nesting in the Park; number of very rare (VR) and rare (R) species (pooled together) with the number of common (C) and very common (VC) species (pooled together) in different habitats, and number of species with higher conservation value (included in Red data book of Bulgaria and/or Appendix 2 of Biodiversity Law) with the rest of the species in different habitats. Species, which no longer nest in the Park, as well as species, which nest in the Park's periphery, are not included in the analyses.

For the statistical analyses we used Minitab 16.1.1, Minitab Inc., 2010 (Trial version).

Results

Species composition

We registered a total of 208 bird species for the territory of Vrachanski Balkan Nature Park. This is approximately 51% of the ornitofauna of Bulgaria (BUNARCO 2009). Among them 131 species (54% of the regularly nesting birds in Bulgaria, *ibid.*) are nesting on the Park's territory (three species are treated as no longer nesting - *Neophron percnopterus* Linnaeus, 1766, *Falco cherrug* Gray, 1834, and *Coracias garrulus* Linnaeus, 1758). 54 species were registered only during seasonal migrations, or as incidental visitors, and three species are registered only during winter (*Anser anser* Linnaeus, 1758, *Anser albifrons* Scopoli, 1769, and *Falco cherrug*). Twenty three species were newly recorded for the Park's area. Most of them are very rare migrants, but 3 species are registered during the breeding season. Species composition, species relative abundance during the three life cycle periods, and their conservation status are given in Appendix 1.

Zoogeography of nesting ornitofauna

Nesting ornitofauna of the Park belongs to 12 zoogeographical types (Tabl. 1). Most numerous are Palearctic species (38%), followed by species of European and European - Turkestanian origin (14%). There was no significant difference between the proportions of different types from the Park and the country as a whole ($n = 123$, $DF = 11$, $Chi-Sq = 12.3247$, $P-Value = 0.340$; Fig. 1).

Table 1. Number of species, belonging to different zoogeographical categories in the Park's territory (VBNP) and Bulgaria (BG).

Zoogeographical type	Abbreviation	VBNP	BG
Cosmopolitan	COS	2	12
European	EUR	17	24
European-turkestanian	ET	17	23
Holarctic	HOL	12	23
Indo-african	IA	3	10
Mediterranean	MED	7	14
Old world	OW	6	18
Palaearctic	PAL	47	81
Paleomontane	PAM	4	6
Paleoexeric	PAX	1	5
Paleoxero-montane	PXM	3	4
Turkeстано-mediterranean	TM	4	14

Nesting species and habitats

On the Park's territory, forest habitats are richest of species. 54 to 35 species nest in the different type of forests, with lowest number established for broadleaf plantations (Tabl. 2). They are followed by bush (35 species) and rocky habitats (32 species). Low number of nesting species was established for water habitats (2 species connected with stagnant water and 7 - with rivers), which correspond with the small area of those habitats in the Park's territory. Those observations are supported by the results of Chi-Square test ($\chi^2 = 100.071$, $DF = 12$, $P\text{-Value} < 0.05$), with observed values for oak forests (A.1.1), beech forests (A.1.2), coniferous plantations (A.2) and riparian woods (A.4) higher, and those for mountain pastures (B.3), mesophile grassland (B.4), standing (E.1) and running waters (E.2) lower than expected.

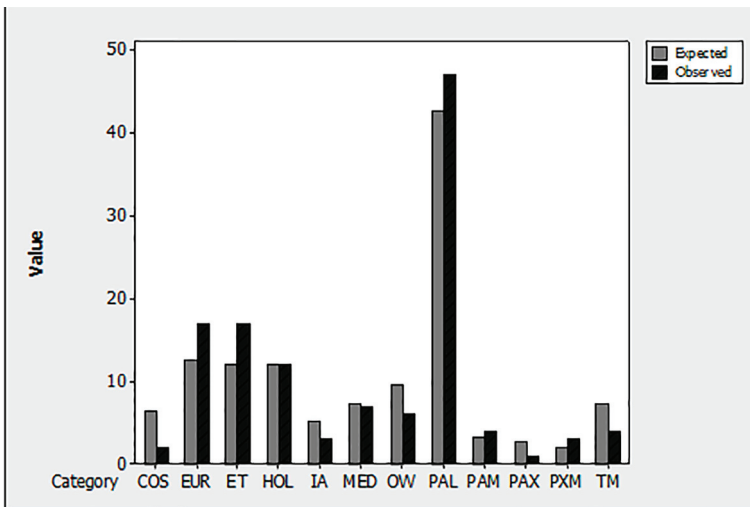


Fig. 1. Chart of observed and expected values of zoogeographical types in Vrachanski Balkan Nature Park, Goodness of fit test. Abbreviations as in Table 1.

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Table 2. Birds, nesting in different habitat types in Vrachanski Balkan Nature Park.

Nº	Species	A.1.1	A.1.2	A.2	A.3	A.4	B.1	B.2	B.3	B.4	C	D	E.1	E.2
1	<i>C. nigra</i>	+										+		
2	<i>G. fulvus</i>												+	
3	<i>A. gentilis</i>	+	+	+	+									
4	<i>A. nisus</i>	+	+	+	+									
5	<i>P. apivorus</i>	+	+	+	+									
6	<i>B. buteo</i>	+	+	+	+	+								
7	<i>B. rufinus</i>											+		
8	<i>A. pomarina</i>	+	+											
9	<i>A. chrysaetos</i>												+	
10	<i>C. gallicus</i>	+	+	+	+									
11	<i>F. tinnunculus</i>												+	
12	<i>F. subbuteo</i>	+	+	+	+	+								
13	<i>F. peregrinus</i>												+	
14	<i>C. coturnix</i>							+		+				
15	<i>P. colchicus</i>					+	+			+				
16	<i>A. graeca</i>						+	+	+				+	
17	<i>P. perdix</i>					+	+	+		+				
18	<i>G. chloropus</i>												+	+
19	<i>C. crex</i>								+	+				
20	<i>C. dubius</i>													+
21	<i>A. hypoleucos</i>													+
22	<i>C. oenas</i>	+	+											
23	<i>C. palumbus</i>	+	+	+	+	+								
24	<i>C. livia</i>												+	
25	<i>S. turtur</i>	+			+	+								
26	<i>C. canorus</i>	+	+	+	+	+	+							
27	<i>C. europaeus</i>	+					+							
28	<i>O. scops</i>	+	+			+								
29	<i>B. bubo</i>												+	
30	<i>A. noctua</i>										+	+		
31	<i>S. aluco</i>	+	+	+		+							+	
32	<i>A. otus</i>	+	+	+	+	+								
33	<i>A. apus</i>											+		
34	<i>A. melba</i>												+	
35	<i>A. atthis</i>													+
36	<i>M. apiaster</i>							+						
37	<i>U. epops</i>	+			+	+							+	
38	<i>J. torquilla</i>	+	+	+	+	+								
39	<i>D. martius</i>	+	+	+	+	+								
40	<i>P. viridis</i>	+	+	+	+	+						+		
41	<i>P. canus</i>	+	+			+								
42	<i>P. minor</i>	+	+	+	+	+						+		
43	<i>P. leucotos</i>		+											

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Nº	Species	A.1.1	A.1.2	A.2	A.3	A.4	B.1	B.2	B.3	B.4	C	D	E.1	E.2
44	<i>P. medius</i>	+	+			+								
45	<i>P. major</i>	+	+	+	+	+						+		
46	<i>P. syriacus</i>	+	+	+	+	+						+		
47	<i>E. alpestris</i>								+					
48	<i>L. arborea</i>						+	+	+	+				
49	<i>A. arvensis</i>							+	+	+				
50	<i>H. rupestris</i>											+	+	
51	<i>H. rustica</i>											+	+	
52	<i>H. daurica</i>											+	+	
53	<i>D. urbica</i>											+	+	
54	<i>M. cinerea</i>											+		+
55	<i>M. alba</i>											+	+	+
56	<i>A. trivialis</i>						+	+	+	+				
57	<i>A. spinoletta</i>								+	+				
58	<i>L. collurio</i>				+	+	+	+	+	+	+			
59	<i>L. minor</i>				+	+	+	+						
60	<i>L. senator</i>						+	+						
61	<i>C. cinclus</i>											+		+
62	<i>T. troglodytes</i>	+	+	+										
63	<i>P. collaris</i>								+	+		+		
64	<i>P. modularis</i>			+			+		+					
65	<i>E. rubecula</i>	+	+	+	+	+								
66	<i>E. luscinia</i>					+								
67	<i>E. megarhynchos</i>					+	+							
68	<i>P. ochrurus</i>											+	+	
69	<i>P. phoenicurus</i>	+				+	+	+				+		
70	<i>S. rubetra</i>						+	+	+					
71	<i>S. torquata</i>						+	+	+					
72	<i>O. oenanthe</i>							+	+				+	
73	<i>O. hispanica</i>						+	+					+	
74	<i>M. saxatilis</i>								+				+	
75	<i>T. merula</i>	+	+	+	+	+	+					+		
76	<i>T. philomelos</i>	+	+	+	+	+								
77	<i>T. viscivorus</i>		+	+										
78	<i>H. icterina</i>	+				+	+							
79	<i>H. pallida</i>	+				+	+							
80	<i>S. nisoria</i>					+	+	+						
81	<i>S. borin</i>	+					+							
82	<i>S. atricapilla</i>	+	+			+								
83	<i>S. communis</i>	+				+	+	+						
84	<i>S. curruca</i>	+				+	+							
85	<i>R. regulus</i>			+										
86	<i>R. ignicapillus</i>			+										
87	<i>P. collybita</i>	+	+	+										
88	<i>P. sibilatrix</i>		+	+										

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Nº	Species	A.1.1	A.1.2	A.2	A.3	A.4	B.1	B.2	B.3	B.4	C	D	E.1	E.2
89	<i>F. semitorquata</i>		+			+								
90	<i>F. parva</i>		+											
91	<i>M. striata</i>	+	+			+					+			
92	<i>A. caudatus</i>	+				+	+							
93	<i>P. palustris</i>	+	+			+								
94	<i>P. lugubris</i>	+	+			+								
95	<i>Parus montanus</i>		+	+										
96	<i>P. ater</i>			+										
97	<i>Parus major</i>	+	+	+	+	+	+				+			
98	<i>P. caeruleus</i>	+	+	+	+	+	+				+			
99	<i>S. europaea</i>	+	+	+		+								
100	<i>T. muraria</i>												+	
101	<i>C. familiaris</i>	+	+	+		+								
102	<i>E. citrinella</i>	+	+	+			+	+	+					
103	<i>E. cirius</i>				+		+	+						
104	<i>E. hortulana</i>	+			+		+	+						
105	<i>E. calandra</i>						+	+	+					
106	<i>E. cia</i>						+	+					+	
107	<i>F. coelebs</i>	+	+	+	+	+					+			
108	<i>S. serinus</i>			+										
109	<i>C. chloris</i>	+	+	+	+	+	+				+			
110	<i>C. carduelis</i>	+			+	+	+				+			
111	<i>A. cannabina</i>						+	+	+					
112	<i>L. curvirostra</i>			+										
113	<i>P. pyrrhula</i>		+	+										
114	<i>C. coccythraustes</i>	+	+	+	+	+								
115	<i>S. vulgaris</i>	+	+		+	+					+			
116	<i>O. oriolus</i>	+			+	+								
117	<i>P. domesticus</i>										+	+		
118	<i>P. montanus</i>				+	+	+				+	+		
119	<i>G. glandarius</i>	+	+	+	+	+								
120	<i>N. caryocatactes</i>			+										
121	<i>P. graculus</i>												+	
122	<i>Corvus monedula</i>										+	+		
123	<i>C. corone</i>		+	+	+	+								
124	<i>C. corax</i>			+									+	
TOTAL		54	48	43	35	51	35	23	17	10	25	32	2	7

There was significant difference in the proportion of number of species, nesting in different number of habitats (Chi-Sq = 26.665, DF = 6, P-Value < 0.05). Observed values for species, nesting in only one, two or three habitats (25, 28 and 27 species respectively) were higher, and those for species, nesting in 6 or 7 habitats (7 and 5 species) were lower than expected. In order to establish which habitats are important for the “specialized” species (those nesting in 1, 2 and 3 habitats), we performed another Chi-Square test for difference in proportions between those species and the rest of the species, nesting in the different

habitats. The standing waters (E.1) were omitted from the test because of small sample size. The difference was significant (Chi-Sq = 60.671, DF = 11, P-Value < 0.05), with higher than expected observed values for “specialized” species in mountain pastures (B.3), rocky habitats (D), and running waters (E.2), and lower for broadleaf plantations (Fig. 2). The most significant contribution to the Chi-Square value is attributable to the “specialized” species in rocky habitats (Fig. 3).

In order to eliminate probable bias, caused by difference in species proportion in different habitats, we tested the distribution pattern of very rare (34 species) and rare (27 species) nesting species separately for forest habitats (A.1.1, A.1.2, A.2, A.4), “dry” habitats (A.3, B.1, B.2, C, D), and “wet” habitats (B.3, B.4, E.2). There was no significant difference in the proportion of rare birds (very rare and rare pooled together) and common birds (common and very common pooled together) in the different habitats (P-Value > 0.05 for all of the three groups).

There was also no significant difference in the proportions of species with higher conservation value and the rest of the nesting species (Chi-Sq = 9.387, DF = 11, P-Value = 0.586).

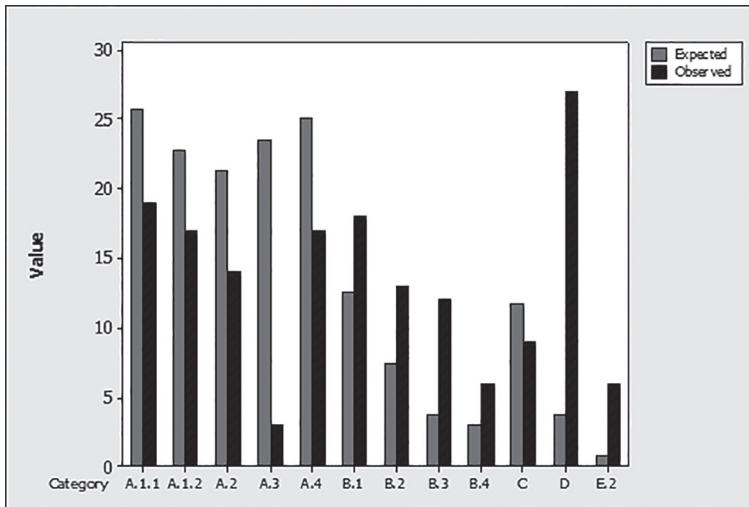


Fig. 2. Chart of observed and expected values of number of “specialized” species in different habitats.

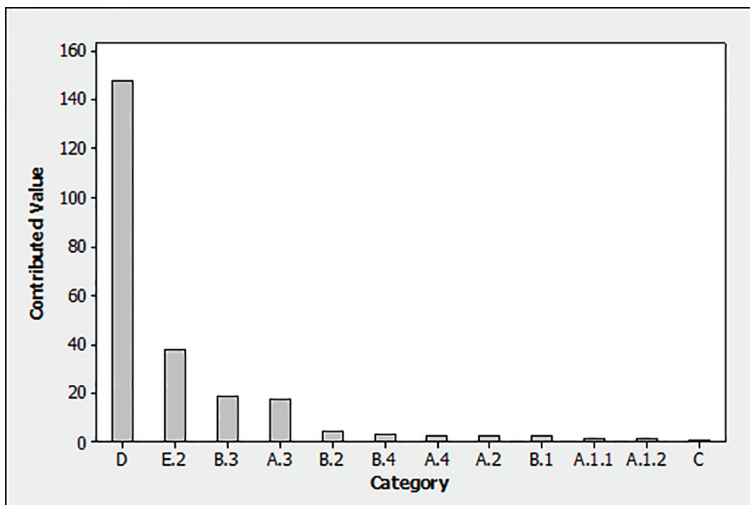


Fig. 3. Chart of Contribution to the Chi-Square value by category.

Discussion

With half of the Bulgarian bird species registered on the Park's territory, and more than half nesting within its borders, Vrachanski Balkan could be described as very rich regarding the ornitofauna. This is reflected by the designation of the site as Important Bird Area (Stoyanov *et al.* 2007). For comparison, Ponor mountain, which is also Important Bird Area, and is very similar regarding the geology and habitats, holds 120 nesting bird species (Dyulgerova & Nikolov 2014). As our results demonstrate, the number of species, registered in Vrachanski Balkan, keeps growing. This fact is based mostly on observations of migrating birds, which are still not studied in detail. We expect that systematic observations of seasonal migration will reveal that more species use the Park's territory during that stage of their lifecycle, for rest and/or feeding. The presence of *Nucifraga caryocatactes* (Linnaeus, 1758) is connected with the considerable area of coniferous plantations (about 6% of the Park's territory; Veseslinov & Matev 2011), some of which are created 50 - 60 years ago (*ibid.*). Their long existence leads to "naturalization" of those habitats, which is reflected by the relatively high number of species, nesting in them, as demonstrated by our results. The registration of *Apus pallidus* (Shelley, 1870) is in accordance with the well documented and explained expansion of the species areal northwards (Moreno-Rueda 2009, Nankinov *et al.* 1997, Tietze *et al.* 2015). *Erithacus luscinia* (Linnaeus, 1758) is a rare breeder in Bulgaria (Nankinov 2009). Its discovery in the Vrachanski Balkan Nature Park shows the importance of long term field research for more objective and complete conception for the ornitofauna of certain area, especially as large as the Park's territory.

In 2014 two pairs of *Gyps fulvus* (Hablizl, 1783), from a flock, released on implementation of project for the reintroduction of the species in Stara planina (Green Balkans Federation 2010), nested near the site of reintroduction. This is the first confirmed breeding of the species after its disappearance since the middle of 20th century.

Unfortunately, along with the three newly registered nesting species, during the last couple of decades three species ceased to breed in the mountain. While *Coracias garrulus* has never been typical for the Park's territory and its disappearance is probably connected with changes in the surrounding, agricultural areas, the disappearance of *Neophron percnopterus* and *Falco cherrug* is due to factors on national and international levels (Kurtev *et al.* 2008, Ragyov *et al.* 2009, Ragyov *et al.* 2014, Skartsi *et al.* 2014). Our last observation of the Saker falcon during breeding season in the Park's territory is in 1998 (hunting pair), and the last nesting pair of the Egyptian vulture disappeared in 2009.

The zoogeographic characteristic of the Park's ornitofauna shows no differences in the proportions of the different types from those in the country as a whole. The result is consistent with the conclusion of Boev *et al.* (2007) of high homogeneity of the Bulgarian ornitofauna from zoogeographical point of view.

The results for the number of nesting species in the different habitats is also not surprising. Among terrestrial habitats, forests are richer of biodiversity as a rule, especially compared to open, grassland habitats (as in our results), and the fact that they occupy almost 1/3 of the Park's territory explains very well the higher proportion of nesting birds. The exception is the broadleaf plantations (mainly *Robinia pseudoacacia*), which have been known for their poor biodiversity, and our results prove this at least for the Park's territory. Lower diversity of birds in water habitats is explained by the very small area they are occupying within the mountain. Regardless of this low diversity, the proportion

of “specialized” species was higher in water habitats (running water only) and mountain pastures, which underlines their importance for the conservation of such vulnerable species. The highest proportion of “specialized” species was obtained for rock habitats, which are very important for the Park’s ornitofauna.

There was no difference in the proportion of species, classified by us as very rare or rare for the mountain, and the rest of the species from the different habitats. No such difference was found when comparing species with higher conservation value. We have classified 34 species as very rare, and 27 as rare. The relative abundance of part of them is low simply because of small area of suitable habitat (e.g. aquatic birds) or other unfavorable conditions (e.g. lowland birds), or because the mountain is at the border of their areal (some passerines). However, for some of them we have observed a tendency towards decreasing of their abundance in at least the 2 last decades. According to our data, some of the factors, that are responsible for this are: logging, which damages, sometime destroys large areas of forest habitats, can destroy nests, eggs and nestlings, when done in the breeding season, and disturbs the birds in the vicinity of the work; direct persecution - illegal hunting, including with traps, and nest robbing of birds of prey; disturbance by treasure hunters, off-road driving and other extreme sports; electrocution by low-voltage power lines.

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Appendix 1: Species composition of ornitofauna of Vrachanski Balkan Nature Park.

No	Species	1	2	3	BDL	RDB	IUCN	CITES	CMS
1	<i>Phalacrocorax carbo</i>		C	VC			NE		
2	<i>Nycticorax nycticorax</i>		VR		2,3	VU			
3	<i>Ixobrychus minutus</i>		VR		2,3	EN			II
4	<i>Egretta garzetta</i>		L		2,3	VU			
5	<i>Egretta alba</i>		R	VR	2,3	CR			II
6	<i>Ardea cinerea</i>		C	C	3	VU			
7	<i>Ardea purpurea</i>		VR		2,3	EN			II
8	<i>Ciconia nigra</i>	C	C		2,3	VU		II	II
9	<i>Ciconia ciconia*</i>	VR	R		2,3	VU			II
10	<i>Cygnus olor</i>		VR	VR	3	VU			II
11	<i>Anser anser</i>			VR	3	EN			II
12	<i>Anser albifrons</i>			VR					II
13	<i>Anas platyrhynchos*</i>	R	C	C					II
14	<i>Anas querquedula</i>		VR			VU			II
15	<i>Anas crecca</i>		VR	VR					II
16	<i>Anas penelope</i>		VR	VR					II
17	<i>Neophron percnopterus**</i>		VR		2,3	EN	EN	II	II
18	<i>Gyps fulvus***</i>	VR	R	R	2,3	EN		II	II
19	<i>Aegypius monachus</i>		VR		2,3	EX	NT	II	II
20	<i>Milvus milvus</i>		VR		2,3	CR	NT	II	II
21	<i>Milvus migrans</i>		VR		2,3	VU		II	II
22	<i>Circus aeruginosus</i>		R		2,3	EN		II	II
23	<i>Circus cyaneus</i>		R	VR	2,3	CR		II	II
24	<i>Circus pygargus</i>		VR		2,3	VU		II	II
25	<i>Circus macrourus</i>		VR		2,3	EX	NT	II	II
26	<i>Accipiter gentilis</i>	R	R	R	3	EN		II	II

AVES

Nº	Species	1	2	3	BDL	RDB	IUCN	CITES	CMS
27	<i>Accipiter nisus</i>	R	C	C	3	EN		II	II
28	<i>Accipiter brevipes</i>		VR		2,3	VU		II	II
29	<i>Pernis apivorus</i>	C	C		2,3	VU		II	II
30	<i>Buteo buteo</i>	VC	VC	C	3			II	II
31	<i>Buteo rufinus</i>	C	R	VR	2,3	VU		II	II
32	<i>Buteo lagopus</i>		VR	VR	3			II	II
33	<i>Aquila pomarina</i>	VR	VR		2,3	VU		II	II
34	<i>Aquila clanga</i>		VR		2,3	CR	VU	II	I
35	<i>Aquila chrysaetos</i>	R	R	R	2,3	VU		II	II
36	<i>Aquila heliaca</i>		VR		2,3	CR	VU	II	I
37	<i>Haliaeetus albicilla</i>		VR	VR	2,3	VU		I	I
38	<i>Hieraaetus pennatus</i>		VR		2,3	VU		II	II
39	<i>Circaetus gallicus</i>	R	R		2,3	VU		II	II
40	<i>Pandion haliaetus</i>		VR		2,3	CR		II	II
41	<i>Falco tinnunculus</i>	C	VC	R	3			II	II
42	<i>Falco naumanni</i>		VR		2,3	CR		II	I
43	<i>Falco vespertinus</i>		VR		2,3	CR	NT	II	II
44	<i>Falco columbarius</i>		VR	VR	2,3			II	II
45	<i>Falco subbuteo</i>	R	R		3	VU		II	II
46	<i>Falco peregrinus</i>	C	C	R	2,3	EN		I	II
47	<i>Falco cherrug**</i>			VR	2,3	CR	EN	II	II
48	<i>Falco biarmicus</i>		L		2,3	CR		II	II
49	<i>Coturnix coturnix</i>	C	C						II
50	<i>Phasianus colchicus torquatus***</i>	VR	VR	VR					
51	<i>Bonasa bonasia</i>		VR		2,3				
52	<i>Alectoris graeca</i>	R		VR	2	EN	NT		
53	<i>Perdix perdix</i>	VR	VR	VR					
54	<i>Grus grus</i>		VR		2,3	EX		II	II
55	<i>Fulica atra</i>		VR						
56	<i>Gallinula chloropus</i>	VR	VR						
57	<i>Crex crex</i>	C	C		2,3	VU			II
58	<i>Burhinus oedicephalus</i>		VR		2,3	VU			II
59	<i>Vanellus vanellus</i>		R		3				II
60	<i>Pluvialis squatarola</i>		VR		3				II
61	<i>Eudromias morinellus</i>		L		2,3				II
62	<i>Charadrius dubius</i>	R	R		3	VU			II
63	<i>Tringa ochropus</i>		VR		3	EN			II
64	<i>Tringa glareola</i>		VR		2,3				II
65	<i>Actitis hypoleucos</i>	VR	R		3				II
66	<i>Scolopax rusticola</i>		C			EN			II
67	<i>Gallinago media</i>		VR		2,3		NT		II
68	<i>Gallinago gallinago</i>		VR			CR			II
69	<i>Philomachus pugnax</i>		VR		2,3				II
70	<i>Larus cachinnans</i>		VR	VR					
71	<i>Larus ridibundus</i>		R	R	3	EN			

AVES

Nº	Species	1	2	3	BDL	RDB	IUCN	CITES	CMS
72	<i>Columba oenas</i>	VR	VR	VR	3	EN			
73	<i>Columba palumbus</i>	VC	C VR	R VR					
74	<i>Columba livia</i>	VR			3	EN			
75	<i>Streptopelia turtur</i>	R	C						II
76	<i>Streptopelia decaocto*</i>	VR	VR	VR					
77	<i>Cuculus canorus</i>	VC	C		3				
78	<i>Caprimulgus europaeus</i>	C			2,3				
79	<i>Otus scops</i>	VC	VC		3			II	
80	<i>Bubo bubo</i>	VC	R	R	2,3	EN		II	
81	<i>Athene noctua</i>	C	C	R	3			II	
82	<i>Strix aluco</i>	VC	C	R	3			II	
83	<i>Asio otus</i>	C	R		3			II	
84	<i>Asio flammeus</i>		VR		2,3			II	
85	<i>Apus apus</i>	R	C		3				
86	<i>Apus pallidus*</i>	VR	R		3				
87	<i>Apus melba</i>	VC	C		3				
88	<i>Alcedo atthis</i>	R	R	VR	2,3				
89	<i>Merops apiaster</i>	VR	VC						II
90	<i>Coracias garrulus**</i>		VR		2,3	VU	NT		II
91	<i>Upupa epops</i>	C	C		3				
92	<i>Jynx torquilla</i>	C	C		3				
93	<i>Dryocopus martius</i>	C	C	C	2,3	VU			
94	<i>Picus viridis</i>	VC	C	C	3				
95	<i>Picus canus</i>	R	R	R	2,3	EN			
96	<i>Picoides minor</i>	R	R	R	3				
97	<i>Picoides leucotos</i>	VR	VR	VR	2,3	EN			
98	<i>Picoides medius</i>	R	R	R	2,3				
99	<i>Picoides major</i>	VC	VC	C	3				
100	<i>Picoides syriacus</i>	VC	C	C	2,3				
101	<i>Melanocorypha calandra</i>		L		2,3	EN			
102	<i>Eremophila alpestris</i>	VR	VR	VR	3	VU			
103	<i>Calandrella brachydactyla</i>		L		2,3	VU			
104	<i>Galerida cristata</i>		R		3				
105	<i>Lullula arborea</i>	VC	VC	VR	2,3				
106	<i>Alauda arvensis</i>	VC	C	VR	3				
107	<i>Riparia riparia</i>		VR		3				
108	<i>Hirundo rupestris</i>	VC	VC		3				
109	<i>Hirundo rustica</i>	VC	VC		3				
110	<i>Hirundo daurica</i>	VC	VC		3				
111	<i>Delichon urbica</i>	VC	VC		3				
112	<i>Motacilla flava</i>		C		3				
113	<i>Motacilla cinerea</i>	VC	C	C	3				
114	<i>Motacilla alba</i>	VC	VC	R	3				
115	<i>Anthus campestris</i>		VR		2,3				
116	<i>Anthus pratensis</i>		C	VR	3				

AVES

Nº	Species	1	2	3	BDL	RDB	IUCN	CITES	CMS
117	<i>Anthus trivialis</i>	VC	VC		3				
118	<i>Anthus spinoletta</i>	VR	R		3				
119	<i>Lanius collurio</i>	VC	C		2,3				
120	<i>Lanius minor</i>	R	R		2,3				
121	<i>Lanius excubitor</i>		C	R	3	CR			
122	<i>Lanius senator</i>	VR	VR		3				
123	<i>Cinclus cinclus</i>	C	VC	R	3				
124	<i>Troglodytes troglodytes</i>	C	C	R	3				
125	<i>Prunella collaris</i>	VR	R	VR	3	VU			
126	<i>Prunella modularis</i>	R	VC	VR	3				
127	<i>Bombycilla garrulus</i>		VR	VR	3				
128	<i>Erithacus rubecula</i>	VC	VC	VR	3				II
129	<i>Erithacus luscini</i>	VR	VR		3				II
130	<i>Erithacus megarrhynchus</i>	VC	VC		3				II
131	<i>Phoenicurus ochruros</i>	VC	VC	VR	3				II
132	<i>Phoenicurus phoenicurus</i>	R	R		3	VU			II
133	<i>Saxicola rubetra</i>	C	C		3				II
134	<i>Saxicola torquata</i>	VR	C		3				II
135	<i>Oenanthe oenanthe</i>	C	R		3				II
136	<i>Oenanthe hispanica</i>	VR	VR		3				II
137	<i>Monticola saxatilis</i>	C	R		3				II
138	<i>Monticola solitarius</i>		VR		3	VU			II
139	<i>Turdus torquatus</i>		VR		3				II
140	<i>Turdus merula</i>	VC	VC	VC	3				II
141	<i>Turdus pilaris</i>		VC	VC	3				II
142	<i>Turdus iliacus</i>		VR	VR	3				II
143	<i>Turdus philomelos</i>	VC	VC	VR	3				II
144	<i>Turdus viscivorus</i>	VC	VC	VR	3				II
145	<i>Locustella fluviatilis</i>		VR		3	VU			II
146	<i>Acrocephalus scirpaceus</i>		VR		3				II
147	<i>Acrocephalus palustris</i>		VR		3				II
148	<i>Acrocephalus arundinaceus*</i>	VR	VR		3				II
149	<i>Hippolais icterina</i>	VR	VR		3	VU			II
150	<i>Hippolais pallida</i>	VR	VR		3				II
151	<i>Sylvia nisoria</i>	R	R		2,3				II
152	<i>Sylvia borin</i>	VR	VR		3	EN			II
153	<i>Sylvia atricapilla</i>	VC	VC		3				II
154	<i>Sylvia communis</i>	VC	VC		3				II
155	<i>Sylvia curruca</i>	C	C		3				II
156	<i>Regulus regulus</i>	VR	C	C	3				II
157	<i>Regulus ignicapillus</i>	VR	C	C	3				II
158	<i>Phylloscopus trochilus</i>		C		3				II
159	<i>Phylloscopus collybita</i>	VC	VC		3				II
160	<i>Phylloscopus sibilatrix</i>	R	C		3				II
161	<i>Ficedula hypoleuca</i>		R		3				II

AVES

No	Species	1	2	3	BDL	RDB	IUCN	CITES	CMS
162	<i>Ficedula semitorquata</i>	C	C		2,3	VU	NT		II
163	<i>Ficedula albicollis</i>		C		2,3	CR			II
164	<i>Ficedula parva</i>	VR	VR		2,3	VU			II
165	<i>Muscicapa striata</i>	R	VC		3				II
166	<i>Aegithalos caudatus</i>	VC	VC	C	3				
167	<i>Parus palustris</i>	C	C	R	3				
168	<i>Parus lugubris</i>	C	C	C	3				
169	<i>Parus montanus</i>	VR	VR	VR	3				
170	<i>Parus ater</i>	C	C	C	3				
171	<i>Parus major</i>	VC	VC	VC	3				
172	<i>Parus caeruleus</i>	VC	C	C	3				
173	<i>Sitta europaea</i>	VC	VC	C	3				
174	<i>Tichodroma muraria</i>	VR	R	R	3		VU		
175	<i>Certhia familiaris</i>	R	R	VR	3				
176	<i>Certhia brachydactyla</i>		VR		3				
177	<i>Emberiza citrinella</i>	VC	VC	R	3				
178	<i>Emberiza cirius</i>	R	R	VR	3				
179	<i>Emberiza hortulana</i>	VC	C		2,3				
180	<i>Emberiza calandra</i>	VC	VC	R	3				
181	<i>Emberiza cia</i>	VC	C	R	3				
182	<i>Emberiza schoeniclus</i>		VR		3				
183	<i>Emberiza melanocephala*</i>	VR	R		3				
184	<i>Fringilla coelebs</i>	VC	VC	C	3				
185	<i>Fringilla montifringilla</i>		C	VC	3				
186	<i>Serinus serinus</i>	R	C	VR	3				
187	<i>Carduelis chloris</i>	VC	VC	C	3				
188	<i>Carduelis spinus</i>		VC	C	3		VU		
189	<i>Carduelis carduelis</i>	VC	VC	C	3				
190	<i>Acanthis flammea</i>		L		3				
191	<i>Acanthis cannabina</i>	R	C	VR	3				
192	<i>Loxia curvirostra</i>	VR	R	R	3				
193	<i>Pyrrhula pyrrhula</i>	R	C	C	3				
194	<i>Coccothraustes coccothraustes</i>	VC	VC	C	3				
195	<i>Sturnus roseus</i>		VR		3		VU		
196	<i>Sturnus vulgaris</i>	VC	VC	VR					
197	<i>Oriolus oriolus</i>	VC	VC		3				
198	<i>Passer domesticus</i>	C	C	R					
199	<i>Passer hispaniolensis*</i>	VR	VR		3				
200	<i>Passer montanus</i>	C	C	R	3				
201	<i>Garrulus glandarius</i>	VC	VC	C					
202	<i>Pica pica*</i>	VR	VR						
203	<i>Nucifraga caryocatactes</i>	VR	VR	VR	3				
204	<i>Pyrrhocorax graculus</i>	R	R	R	3		VU		
205	<i>Corvus monedula</i>	VR	R	VR					
206	<i>Corvus frugilegus</i>		VR	VR					

№	Species	1	2	3	BDL	RDB	IUCN	CITES	CMS
207	<i>Corvus corone</i>	R	C	R					
208	<i>Corvus corax</i>	VC	VC	VC	3				

Legend:

1 - species, registered during nesting period/nesting species; 2 - species, registered during migration; 3 - species, registered as wintering.

BDL - species, included in National Biodiversity Law, Appendix 2 and/or 3 respectively.

RDB - species, included in Red Data Book of the Republic of Bulgaria, with the corresponding status (Golemanski 2011).

IUCN - species, included in The IUCN Red List of Threatened Species. Version 2014.3., with the corresponding status (category 'Least Concern' not shown).

CITES - species, included in the respective appendices (I, II) of Convention on International Trade in Endangered Species of Wild Fauna and Flora.

CMS - species, included in the respective appendices (I, II) of Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention).

Ixobrychus minutus - in bold are species, reported for the first time for the Park's ornitofauna.

* - species, nesting in Park's periphery, or near Park's border, but Park's area is part of its breeding territory; ** - species, which currently does not nest in the Park; *** - introduced/reintroduced species.

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Птиците на Природен Парк Врачански Балкан

ГЕОРГИ СТОЯНОВ, КРАСИМИР ДОНЧЕВ

(Резюме)

Разработката е базирана основно на лични теренни изследвания на авторите през различни периоди от време от началото на 80-те до днес. В резултата, списъка на птиците, установени в границите на Парка е увеличен на 208 вида, като от тях 131 са гнездящи. Новоустановените видове са двадесет и три. Анализа на пропорциите на броя на видовете, гнездящи в 13 различни типа хабитати, разкри няколко закономерности: 1) повече видове гнездят в горските хабитати; 2) броя на видовете, гнездящи само в 1, 2 или 3 хабитата е по-висок от очакваното; 3) пропорцията на видовете, гнездящи в 1, 2 или 3 хабитата е по-висока в скалните хабитати, в планинските пасища и в течащите води, и е по-ниска в широколистните култури.