

STRUCTURE OF BIRD COMMUNITIES FROM CEFA NATURE PARK

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DOI: 10.1515/trser-2015-0006

KEYWORDS: Romania, Cefa Nature Park, Natura 2000, Birds Directive.

ABSTRACT

Cefa Nature Park had, even before its establishment, a protection status directed especially towards the bird fauna, in which varied and vast wetlands, forests, meadows and agricultural lands with low agricultural activity are found. The present paper shows the results of a long period of monitoring (1991-2012) the bird fauna from this area. There are currently 78 identified species, protected and recorded in the Annex I from Birds Directive 79/409/CEE. Another 168 species were identified, that are not found on the above list, thus reaching a total number of 246 species (66% of the total bird fauna of Romania). Quantitative data is also shown with respect to the size of these species population, as well as the belonging to the sedentary or migratory species group. All of the results support the fact that Cefa Nature Park is an area of major importance for bird fauna in the Northwestern territory of Romania, and especially for those species that need wetland habitats for nesting, passage or wintering.

ZUSAMMENFASSUNG: Struktur der Vogelmenschen im Naturpark Cefa.

Der Naturpark Cefa hatte bereits vor seiner Ausweisung als solcher, einen Schutzstatus der insbesondere auf den Vogelbestand dieses Gebietes ausgerichtet war, auf dem sich ausgedehnte, unterschiedliche Feuchtgebietsflächen sowie Wälder, Wiesen und Ackerflächen mit geringer Nutzungsintensität befinden. Die vorliegende Arbeit bringt die Ergebnisse eines langjährigen Monitorings (1991-2012) der Vogelfauna dieses Gebietes. Darunter wurden 78 Arten identifiziert, die einen Schutzstatus haben und im Anhang I der Vogelschutzrichtlinie 79/409/CEE verzeichnet sind. Außerdem wurden weitere 168 Arten identifiziert, die auf obiger Liste nicht enthalten sind, sodass insgesamt 246 Arten festgestellt wurden (66% der in Rumänien vorkommenden Arten). Hinzu kommen quantitative Angaben bezüglich Populationsgröße der Arten sowie deren Zugehörigkeit zur Gruppe der Zug- oder Standvögel. Alle diese Ergebnisse bekräftigen die Tatsache, dass der Naturpark Cefa ein Gebiet von großer Bedeutung für die Vogelfauna im Nordwesten Rumäniens darstellt, insbesondere für die Arten, die zur Brutzeit, während des Durchzugs oder zur Überwinterung Feuchtgebietshabitats benötigen.

REZUMAT: Structura comunităților de păsări din Parcul Natural Cefa.

Parcul Natural Cefa, încă înainte de constituire a avut statut de protecție, care viza în special fauna de păsări din această zonă, în care există întinse și variate suprafețe de zone umede, alături de pădure, pajiști și terenuri arabile pe care se practică o agricultură de intensitate slabă. Lucrarea de față prezintă rezultatele unei monitorizări de lungă durată (1991-2012) a faunei de păsări din această zonă. Un număr de 78 de specii identificate până în prezent sunt protejate, fiind prezente în Anexa I a Directivei Păsări 79/409/CEE. Pe lângă acestea, un număr de 168 de specii care nu se află pe lista de mai sus, au fost identificate, ajungându-se la un număr total de 246 specii (66% din totalul faunei de păsări a României). Lucrarea prezintă de asemenea și date cantitative cu privire la mărimea populațiilor acestor specii, precum și apartenența la grupul de specii sedentare sau migratoare.

INTRODUCTION

Cefa Nature Park was established in 2010, in the Northwestern part of Romania, on an area of 5002 ha, in order to preserve the natural values of this region. This rich diversity of the habitat and species (Curtean-Bănăduc et al., 2012) is explained by the varied conditions present here. In this area, there are remains of the vast wetlands supplied in the past by the Crișul Repede River and the numerous plain brooks, vast salting meadows, forests, and not lastly, the largest (size-wise) fish-pond complex from the Northwestern Romania.

One of the most important groups for biodiversity preservation is represented by birds; this is why the area was given a protected area status since 1981. That year, the Bihor County Council declared (Resolution 251/20.06.1981) Rădvani Forest a zoological reserve, having the protection of the heron colony as a main goal. Subsequently, the area was given a status of protected natural area of national interest, being declared by Law 5/2000 as the Bird Colony from Rădvani Forest Nature Reserve, with an area of three ha. Beginning in 1989, the ponds from Cefa and Rădvani Forest were listed as Important Bird Areas - AIA - (Munteanu, 2004; Papp and Sándor, 2007; Papp and Fântână, 2008).

Presently, beside the protection status given by establishing the Cefa Nature Park, the area is also part of two Natura 2000 sites: Cefa - code ROSCI0025, (5,413 ha) and Pescăria Cefa - Pădurea Rădvani - code ROSPA0097 (12,253.9 ha).

The goal of this paper is to present the results of a long period monitoring (1991-2012) of the bird fauna from this area. Also, it shows quantitative data with respect to the size of the population of these species, as well as their belonging to the sedentary or migratory species group.

MATERIAL AND METHODS

Study area. In Cefa Nature Park, on an area of 5002 ha, the following habitats can be found: aquatic habitats (903 ha, 18% of the total park area), meadows (1,825 ha, 36%), forest (238 ha, 5%) and arable land (937 ha, 19%).

Aquatic habitats. The establishment of Cefa fishponds was favored by its location on lowland, subject to flooding which led to marsh forming. After building the Collector Canal (in 1899), the fishponds were created and administrated today by private business. On the fishery area there are 47 basins, with a depth of 1-1.5 m and a total water surface of approximative 663 ha. Besides the fishponds, there can also be found marshes, natural pools, and wet fields networked by canals and ditches.

Meadow habitats. They are used as pastures (1,624 ha, 32% of the total park area) and hayfields (201 ha, 4%). After canalling and draining, they were salinated thus transforming into saltings, scattered all over the park, and covered with halofile secondary vegetation. These saltings have striped characteristics, or a concentric display of the vegetation, according to the salt concentration and the hydric regime of the soil.

Forest habitat. Rădvani Forest is the remnants of the old plain oak forest covering the Crișurilor Plain, alternating with steppe meadows. The average age of the main forest body (Cefa - Ateaș) is between 65-70 years old, with the oldest trees - English oak *Quercus robur* at 80 years old. Cefa's forest body has an average age of 65 years old, with its oldest trees at 70 years old.

Arable land. Even though the Cefa Nature Park territory is an anthropized habitat, the agricultural surfaces support a rich biodiversity, not being exploited in an intensive system. Many of these surfaces show a high degree of abandonment (because of their high wetness and salting).

The paper was elaborated based on observations made in the Cefa Nature Park area starting in 1991. During this period, there have been numerous bird monitoring actions in the area. For the inventory of bird species, direct observations, and methods of line and point transects have been used (Sutherland et al., 2004). Observation started at 6:30-7:00 a.m. and continued until evening at sunset, around 8:00 p.m.

For inventory and monitoring activities, binoculars (Minox HG 10x52 and Leica Ultravid 10x42 HD), telescopes (Zeiss DiaScope 85, 20-60x85) and bird field guides were used (Bruun et al., 1999; Svensson et al., 2010). All observations were noted in the field. Later, centralization and systematization of the data were performed.

RESULTS AND DISCUSSION

Bird species identified in the Cefa Nature Park are presented within table 1, highlighting the breeding pairs, number of individuals from resident species, as well as wintering and staging species. Binary taxonomy was updated by Avisabe - The world bird database (*).

Table 1: Birds species from Cefa Nature Park, 1991-2012. A: abundant (species existing in over 75% of systematic observations - s.o.), C: common (species existing in over 51-75% of s.o.), RC: relatively common (species existing in over 26-50% of s.o.), R: rare (species existing in over 11-25% of s.o.), VR: very rare (species existing in over 6-10% of s.o.), S: sporadically (species existing in over 1-5% of s.o.), ER: erratic (species existing only exceptionally, under 1% of s.o.).

Natura 2000 Code	Species	Population size			
		Resident species	Migratory species		
			Breeding (pairs)	Wintering (individuals)	Staging (individuals)
Species from Annex I - Birds Directive 79/409/CEE					
A001	1. <i>Gavia stellata</i>				1-3
A002	2. <i>Gavia arctica</i>				2-10
A393	3. <i>Phalacrocorax pygmaeus</i>				4-25
A020	4. <i>Pelecanus crispus</i>				0-1
A021	5. <i>Botaurus stellaris</i>		6-10	0-2	10-15
A022	6. <i>Ixobrychus minutus</i>		40-50		200-400
A023	7. <i>Nycticorax nycticorax</i>		120-150	0-1	600-900
A024	8. <i>Ardeola ralloides</i>		3-7		15-40
A026	9. <i>Egretta garzetta</i>		5-14		250-400
A027	10. <i>Egretta alba</i>		8-15	2-6	400-700
A029	11. <i>Ardea purpurea</i>		8-10		80-120
A030	12. <i>Ciconia nigra</i>		0-1		12-20
A031	13. <i>Ciconia ciconia</i>		2-4		
A032	14. <i>Plegadis falcinellus</i>				0-5
A034	15. <i>Platalea leucorodia</i>				150-360
A038	16. <i>Cygnus cygnus</i>				0-4
A042	17. <i>Anser erythropus</i>				0-3
A396	18. <i>Branta ruficollis</i>				0-9
A397	19. <i>Tadorna ferruginea</i>				0-4

Table 1 (continuing): Birds species from Cefa Nature Park, 1991-2012.

Natura 2000 Code	Species	Population size			
		Resident species	Migratory species		
			Breeding (pairs)	Wintering (individuals)	Staging (individuals)
A060	20. <i>Aythya nyroca</i>		15-35		150-380
A068	21. <i>Mergus albellus</i>				25-80
A072	22. <i>Pernis apivorus</i>		0-1		15-20
A074	23. <i>Milvus migrans</i>		0-1		5-8
A075	24. <i>Milvus milvus</i>				0-1
A076	25. <i>Haliaeetus albicilla</i>			15-55	
A080	26. <i>Circaetus gallicus</i>				0-2
A081	27. <i>Circus aeruginosus</i>		8-12	0-2	150-220
A082	28. <i>Circus cyaneus</i>			2-4	10-100
A083	29. <i>Circus macrourus</i>				0-2
A084	30. <i>Circus pygargus</i>		0-2		12-18
A403	31. <i>Buteo rufinus</i>				1-3
A089	32. <i>Aquila pomarina</i>		0-1		0-2
A090	33. <i>Aquila clanga</i>				1
A404	34. <i>Aquila heliaca</i>				0-3
A092	35. <i>Hieraaetus pennatus</i>				0-1
A094	36. <i>Pandion haliaetus</i>				5-12
A097	37. <i>Falco vespertinus</i>				0-12
A098	38. <i>Falco columbarius</i>			1-3	10-18
A511	39. <i>Falco cherrug</i>		0-1		4-8
A103	40. <i>Falco peregrinus</i>				3-5
A119	41. <i>Porzana porzana</i>		R		
A120	42. <i>Porzana parva</i>		R		
A122	43. <i>Crex crex</i>		0-4		
A127	44. <i>Grus grus</i>				0-90
A129	45. <i>Otis tarda</i>				0-2
A131	46. <i>Himantopus himantopus</i>		0-3		2-30
A132	47. <i>Recurvirostra avosetta</i>		0-12		60-120
A140	48. <i>Pluvialis apricaria</i>				250-800
A149	49. <i>Calidris alpina</i>				600-1,000
A151	50. <i>Philomachus pugnax</i>				2,200-7,000
A154	51. <i>Gallinago media</i>				VR
A157	52. <i>Limosa lapponica</i>				0-2
A166	53. <i>Tringa glareola</i>				800-1,400
A170	54. <i>Phalaropus lobatus</i>				0-1
A176	55. <i>Ichthyaetus melanocephalus</i>				0-1
A177	56. <i>Hydrocoloeus (Larus) minutus</i>				2-30
A189	57. <i>Gelochelidon nilotica</i>				0-1
A190	58. <i>Hydroprogne (Sterna) caspia</i>				0-1
A193	59. <i>Sterna hirundo</i>		0-20		80-240
A195	60. <i>Sterna albifrons</i>				0-1

Table 1 (continuing): Birds species from Cefa Nature Park, 1991-2012.

Natura 2000 Code	Species	Population size			
		Resident species	Migratory species		
			Breeding (pairs)	Wintering (individuals)	Staging (individuals)
A196	61. <i>Chlidonias hybridus</i>		5-240		350-650
A197	62. <i>Chlidonias niger</i>		0-10		45-300
A222	63. <i>Asio flammeus</i>		0-1		0-20
A229	64. <i>Alcedo atthis</i>		0-2	2-4	
A231	65. <i>Coracias garrulus</i>		0-1		0-8
A234	66. <i>Picus canus</i>	0-1			
A236	67. <i>Dryocopus martius</i>	1-2			
A429	68. <i>Dendrocopos syriacus</i>	1-4			
A238	69. <i>Dendrocopos medius</i>	2-4			
A245	70. <i>Galerida cristata</i>	C			
A246	71. <i>Lullula arborea</i>		1-2		
A255	72. <i>Anthus campestris</i>		0-2		
A272	73. <i>Luscinia svecica</i>		2-4		
A293	74. <i>Acrocephalus melanopogon</i>		1-3		
A307	75. <i>Sylvia nisoria</i>		1-4		
A321	76. <i>Ficedula albicollis</i>		1-2		
A338	77. <i>Lanius collurio</i>		C		
A339	78. <i>Lanius minor</i>		6-12		
Species which are not in Annex I from Birds Directive 79/409/CEE					
A004	1. <i>Tachybaptus ruficollis</i>		12-30		600-1,000
A005	2. <i>Podiceps cristatus</i>		120-200		600-800
A006	3. <i>Podiceps grisegena</i>		1-2		15-20
A008	4. <i>Podiceps nigricollis</i>		3-18		120-200
A017	5. <i>Phalacrocorax carbo</i>				1,200-2,500
A025	6. <i>Bubulcus ibis</i>				ER
A028	7. <i>Ardea cinerea</i>		293-370		800-1,200
A036	8. <i>Cygnus olor</i>		0-1		4-24
A039	9. <i>Anser fabalis</i>				ER
A041	10. <i>Anser albifrons</i>				5,000-15,000
A043	11. <i>Anser anser</i>		10-25		250-1,200
A048	12. <i>Tadorna tadorna</i>				10-20
A050	13. <i>Anas penelope</i>				600-1,000
A051	14. <i>Anas strepera</i>		10-12		120-360
A052	15. <i>Anas crecca</i>				6,000-10,000
A053	16. <i>Anas platyrhynchos</i>		20-30	20-50	4,000-7,000
A054	17. <i>Anas acuta</i>				140-260
A055	18. <i>Anas querquedula</i>		4-7		800-2,000
A056	19. <i>Anas clypeata</i>				1,000-2,000
A058	20. <i>Netta rufina</i>		0-2		0-8
A059	21. <i>Aythya ferina</i>		75-120	8-16	3,000-8,000

Table 1 (continuing): Birds species from Cefa Nature Park, 1991-2012.

Natura 2000 Code	Species	Population size			
		Resident species	Migratory species		
			Breeding (pairs)	Wintering (individuals)	Staging (individuals)
A061	22. <i>Aythya fuligula</i>		0-1		400-800
A067	23. <i>Bucephala clangula</i>				120-250
A069	24. <i>Mergus serrator</i>				0-8
A070	25. <i>Mergus merganser</i>				10-28
A086	26. <i>Accipiter nisus</i>		0-1	4-10	
A085	27. <i>Accipiter gentilis</i>		2-3		
A087	28. <i>Buteo buteo</i>		3-5	12-30	
A088	29. <i>Buteo lagopus</i>			3-6	
A096	30. <i>Falco tinnunculus</i>		4-10	8-18	
A099	31. <i>Falco subbuteo</i>		1-2		
A113	32. <i>Coturnix coturnix</i>		10-25		
A115	33. <i>Phasianus colchicus</i>		C		
A118	34. <i>Rallus aquaticus</i>		10-30		
A123	35. <i>Gallinula chloropus</i>		160-240		250-320
A125	36. <i>Fulica atra</i>		120-200		8,000-14,000
A130	37. <i>Haematopus ostralegus</i>				0-2
A136	38. <i>Charadrius dubius</i>		5-12		60-140
A137	39. <i>Charadrius hiaticula</i>				4-18
A141	40. <i>Pluvialis squatarola</i>				60-120
A142	41. <i>Vanellus vanellus</i>		25-60		6,000-9,000
A144	42. <i>Calidris alba</i>				6-20
A149	43. <i>Calidris alpina</i>				S
Without code	44. <i>Calidris melanotos</i>				VR
A145	45. <i>Calidris minuta</i>				360-500
A146	46. <i>Calidris temminckii</i>				20-60
A147	47. <i>Calidris ferruginea</i>				160-220
A150	48. <i>Limicola falcinellus</i>				2-6
A152	49. <i>Lymnocyptes minimus</i>				30-60
A153	50. <i>Gallinago gallinago</i>		0-6		300-450
A155	51. <i>Scolopax rusticola</i>		0-1		8-16
A156	52. <i>Limosa limosa</i>				6,000-9,000
A158	53. <i>Numenius phaeopus</i>				800-1,200
A160	54. <i>Numenius arquata</i>		0-7		1,400-1,800
A161	55. <i>Tringa erythropus</i>				1,500-2,500
A162	56. <i>Tringa totanus</i>		1-7		120-280
A163	57. <i>Tringa stagnatilis</i>				40-60
A164	58. <i>Tringa nebularia</i>				240-460
A165	59. <i>Tringa ochropus</i>				140-300
A168	60. <i>Actitis hypoleucos</i>			0-1	150-230
A169	61. <i>Arenaria interpres</i>				0-1
A171	62. <i>Phalaropus fulicarius</i>				0-8

Table 1 (continuing): Birds species from Cefa Nature Park, 1991-2012.

Natura 2000 Code	Species	Population size			
		Resident species	Migratory species		
			Breeding (pairs)	Wintering (individuals)	Staging (individuals)
A179	63. <i>Chroicocephalus ridibundus</i>		0-30		15,000-35,000
A182	64. <i>Larus canus</i>				360-700
A183	65. <i>Larus fuscus</i>				4-12
A184	66. <i>Larus argentatus</i>				VR
A604	67. <i>Larus michahellis</i>				VR
A184	68. <i>Larus cachinnans</i>				1,000-2,000
A198	69. <i>Chlidonias leucopterus</i>				45-60
A207	70. <i>Columba oenas</i>		1-3		VR
A206	71. <i>Columba livia</i>		C		
A208	72. <i>Columba palumbus</i>		4-10		R
A210	73. <i>Streptopelia turtur</i>		3-9		VR
A209	74. <i>Streptopelia decaocto</i>				
A212	75. <i>Cuculus canorus</i>		RC		RC
A214	76. <i>Otus scops</i>		1-3		
A221	77. <i>Asio otus</i>		2-3		
A218	78. <i>Athene noctua</i>		2-3		
A213	79. <i>Tyto alba</i>		3-4		
A226	80. <i>Apus apus</i>				400-800
A230	81. <i>Merops apiaster</i>				200-600
A235	82. <i>Picus viridis</i>		C		
A237	83. <i>Dendrocopos major</i>		C		
A240	84. <i>Dendrocopos minor</i>		C		
A232	85. <i>Upupa epops</i>		1-2		25-50
A233	86. <i>Jynx torquilla</i>		1-3		15-25
A247	87. <i>Alauda arvensis</i>		C		RC
A249	88. <i>Riparia riparia</i>				3,000-8,000
A251	89. <i>Hirundo rustica</i>		C		
A253	90. <i>Delichon urbicum (urbica)</i>		C		8,000-14,000
A256	91. <i>Anthus trivialis</i>		1-4		
A257	92. <i>Anthus pratensis</i>				20-50
A258	93. <i>Anthus cervinus</i>				2-10
A259	94. <i>Anthus spinoletta</i>			1-5	400-800
A260	95. <i>Motacilla flava flava</i>		70-180		1,000-2,000
A261	96. <i>Motacilla cinerea</i>				S
A262	97. <i>Motacilla alba</i>		20-55		1,500-3,000
A263	98. <i>Bombycilla garrulus</i>				ER
A265	99. <i>Troglodytes troglodytes</i>		C		
A266	100. <i>Prunella modularis</i>		C		
A269	101. <i>Erithacus rubecula</i>		A		RC
A270	102. <i>Luscinia luscinia</i>		ER		ER

Table 1 (continuing): Birds species from Cefa Nature Park, 1991-2012.

Natura 2000 Code	Species	Population size			
		Resident species	Migratory species		
			Breeding (pairs)	Wintering (individuals)	Staging (individuals)
A271	103. <i>Luscinia megarhynchos</i>		RC		RC
A273	104. <i>Phoenicurus ochruros</i>		C		RC
A274	105. <i>Phoenicurus phoenicurus</i>				VR
A275	106. <i>Saxicola rubetra</i>		VR		VR
A276	107. <i>Saxicola torquata</i>		R		R
A278	108. <i>Oenanthe oenanthe</i>		R		S
A283	109. <i>Turdus merula</i>	A			
A284	110. <i>Turdus pilaris</i>				R
A285	111. <i>Turdus philomelos</i>		R		RC
A286	112. <i>Turdus iliacus</i>				ER
A287	113. <i>Turdus viscivorus</i>		VR		R
A290	114. <i>Locustella naevia</i>		0-2		ER
A291	115. <i>Locustella fluviatilis</i>		VR		VR
A292	116. <i>Locustella luscinioides</i>		RC		RC
A295	117. <i>Acrocephalus schoenobaenus</i>		A		A
A296	118. <i>Acrocephalus palustris</i>		RC		RC
A297	119. <i>Acrocephalus scirpaceus</i>		A		A
A298	120. <i>Acrocephalus arundinaceus</i>		A		A
A438	121. <i>Hippolais pallida</i>				ER
A299	122. <i>Hippolais icterina</i>		VR		RC
A308	123. <i>Sylvia curruca</i>		RC		RC
A309	124. <i>Sylvia communis</i>		RC		RC
A310	125. <i>Sylvia borin</i>		R		R
A311	126. <i>Sylvia atricapilla</i>		RC		C
A314	127. <i>Phylloscopus sibilatrix</i>		VR		R
A315	128. <i>Phylloscopus collybita</i>		RC		C
A316	129. <i>Phylloscopus trochilus</i>		S		C
A317	130. <i>Regulus regulus</i>				S
A318	131. <i>Regulus ignicapillus</i>				S
A319	132. <i>Muscicapa striata</i>		R		RC
A324	133. <i>Aegithalos caudatus</i>		C		
A330	134. <i>Parus major</i>		C		
A329	135. <i>Cyanistes (Parus) caeruleus</i>		C		
A325	136. <i>Poecile (Parus) palustris</i>		C		
A323	137. <i>Panurus biarmicus</i>		C		
A336	138. <i>Remiz pendulinus</i>		20-40		RC
A332	139. <i>Sitta europaea</i>		C		
A337	140. <i>Oriolus oriolus</i>		6-12		VR
A340	141. <i>Lanius excubitor</i>			15-45	
A342	142. <i>Garrulus glandarius</i>		A		
A343	143. <i>Pica pica</i>		A		

Table 1 (continuing): Birds species from Cefa Nature Park, 1991-2012.

Natura 2000 Code	Species	Population size			
		Resident species	Migratory species		
			Breeding (pairs)	Wintering (individuals)	Staging (individuals)
A347	144. <i>Corvus monedula</i>		A		
A348	145. <i>Corvus frugilegus</i>		A		
A349	146. <i>Corvus cornix</i>		A		
A350	147. <i>Corvus corax</i>		5-8		
A351	148. <i>Sturnus vulgaris</i>		C		A
A353	149. <i>Sturnus roseus</i>				ER
A354	150. <i>Passer montanus</i>		A		
A356	151. <i>Passer domesticus</i>		A		
A359	152. <i>Fringilla coelebs</i>	C			
A360	153. <i>Fringilla montifringilla</i>			RC	
A361	154. <i>Serinus serinus</i>		R		R
A363	155. <i>Carduelis chloris</i>	RC			
A364	156. <i>Carduelis carduelis</i>	RC			
A365	157. <i>Carduelis spinus</i>			ER	
A366	158. <i>Carduelis cannabina</i>	S			
A367	159. <i>Carduelis flavirostris</i>			ER	
A368	160. <i>Carduelis flammea</i>				ER
A369	161. <i>Loxia curvirostris</i>				ER
A372	162. <i>Pyrrhula pyrrhula</i>				VR
A373	163. <i>Coccothraustes coccothraustes</i>	R			
A374	164. <i>Calcarius lapponicus</i>			ER	
A375	165. <i>Plectrophenax nivalis</i>				ER
A376	166. <i>Emberiza citrinella</i>		C		
A381	167. <i>Emberiza schoeniclus</i>		C		
A383	168. <i>Miliaria calandra</i>		C		

Migration birds in the spring/fall passages from Cefa Nature Park

Cefa fishponds, as well as those from the surrounding areas, provide (thanks to their placement on the Pannonic-Bulgarian migration path) ideal habitats for feeding, weight gaining and rest for thousands of birds during spring and fall migrations.

A characteristic of the spring passage is that it starts very early due to mild winters and short time frosts. Cefa Nature Park conditions provide for birds in the spring passage with resting habitats. First on the water surfaces, on the bottoms of the ponds emptied during this time of the year and on pastures, in the two forest bodies and neighbouring arable lands.

Fall passage starts early at Cefa, August-December, depending on the temperature. Favorable conditions, especially for shorebirds, occur during this time of the year by industrial fishing that requires water removal from ponds, leaving only shallow water layers. Thus, on such ponds, thousands of birds can be recorded, belonging to species such as Eurasian Curlew *Numenius arquata* and Whimbrel *N. phaeopus*, Northern Lapwing *Vanellus vanellus*, Black-tailed Godwit *Limosa limosa*, Ruff *Philomachus pugnax*, European Golden Plover *Pluvialis apricaria*, Gray Plover *P. squatarola*, Spotted Redshank *Tringa erythropus*, Common Redshank *T. totanus*, Marsh Sandpiper *T. stagnatilis*, Greenshank *T. nebularia*, Green Sandpiper *T. ochropus*, Wood Sandpiper *T. glareola*, Common Sandpiper *Actitis hypoleucos*,

Little Ringed Plover *Charadrius dubius*, Ringed Plover *C. hiaticula*, Sanderling *Calidris alba*, Little Stint *C. minuta*, Temminck's Stint *C. temminckii*, Curlew Sandpiper *C. ferruginea*, Dunlin *C. alpina*, Black-winged Stilt *Himantopus himantopus*, Avocet *Recurvirostra avosetta*, Jack Snipe *Lymnocyptes minimus*, Common Snipe *Gallinago gallinago*.

Also attracted by the trophic supply of the ponds with decreasing water levels, during their passage, there are species like the gulls and terns: Black-headed Gull *Chroicocephalus (Larus) ridibundus* (15,000-35,000 individuals), Caspian Gull *Larus cachinnans* (1,000-2,000 individuals) Common Gull *L. canus* (360-700 individuals), Lesser Black-backed Gull *L. fuscus*, Little Gull *Hydrocoloeus (Larus) minutus*, Common Tern *Sterna hirundo* (80-240 individuals), Whiskered Tern *Chlidonias hybridus* (350-650 individuals), White-winged Tern *Chlidonias leucopterus* (45-60 individuals).

Eurasian Spoonbills *Platalea leucorodia* (sometimes even Glossy Ibis *Plegadis falcinellus*), which are nesting in the Kis-Sarret area from Körös-Maros National Park, perform in large groups during migration on ponds drained of water.

A lot less, but regularly recorded during their passage on the emptied ponds, there are individuals of species: Bar-tailed Godwit *Limosa lapponica*, Little Tern *Sterna albifrons*, Caspian Tern *Hydroprogne (Sterna) caspia*, Gull-billed Tern *Gelochelidon nilotica*, Ruddy Turnstone *Arenaria interpres*, Red-necked Phalarope *Phalaropus lobatus*, Red Phalarope *Phalaropus fulicarius*, Broad-billed Sandpiper *Limicola falcinellus*, Eurasian Oystercatcher *Haematopus ostralegus*, Mediterranean Gull *Ichthyaetus (Larus) melanocephalus*.

Surfaces with reed provide night habitats during fall for about 3,000-8,000 of the Sand Martin *Riparia riparia* and 8,000-14,000 Northern House Martin *Delichon urbicum (urbica)*.

In the ponds area, even if not directly influenced by them, can be recorded during their fall passage, 200-600 of European Bee-eater *Merops apiaster*, 400-800 Water Pipit *Anthus spinoletta*, 1,000-2,000 Yellow Wagtail *Motacilla flava*, and 1,500-3,000 White Wagtail *M. alba*.

Fields covered with hay, pastures and agricultural crops are the resting and/or feeding place outside the nesting period for Greater White-fronted Goose *Anser albifrons* (over 10,000 individuals) and the endangered species: Lesser White-fronted Goose *Anser erythropus* (3 individuals), Red-breasted Goose *Branta ruficollis* (up to nine individuals), Common Crane *Grus grus* (90 individuals), and Short-eared Owl *Asio flammeus* (20 individuals).

Of those recorded as extremely rare during winter or in passage are: Cattle Egret *Bubulcus ibis*, Bohemian Waxwing *Bombycilla garrulus*, Common Crossbill *Loxia curvirostra*, Snow Bunting *Plectrophenax nivalis*, Lapland Bunting *Calcarius lapponicus* and Dalmatian Pelican *Pelecanus crispus*. Ölvedi Szilárd (personal communication) identified once (October 2011), during a bird watching marathon species Pectoral Sandpiper *Calidris melanotos*.

Species' richness attracts predatory bird species due to a great number of birds found during their migration passage and in winter. Thus, recorded during passage going through this area were: five to eight individuals of Black Kite *Milvus migrans*, one Red Kite *Milvus milvus*, 15-55 White-tailed Eagle *Haliaeetus albicilla*, two Short-toed Eagle *Circaetus gallicus*, 150-220 Western Marsh Harrier *Circus aeruginosus*, 90-100 Hen Harrier *C. cyaneus*, two Pallid Harrier *C. macrourus*, 12-18 Montagu's Harrier *C. pygargus*, two Lesser Spotted Eagle *Aquila pomarina*, one Greater Spotted Eagle *A. clanga*, one to three Eastern Imperial Eagle *A. heliaca*, one Booted Eagle *Aquila Hieraetus pennatus*, 10-12 Osprey *Pandion haliaetus*, 12 Red-footed Falcon *Falco vespertinus*, 10-18 Merlin *F. columbarius*, four to eight Saker Falcon *F. cherrug*, three to five Peregrine Falcon *F. peregrinus*, 10-18 Common Kestrel *F. tinnunculus*, four to nine Eurasian Sparrowhawk *Accipiter nisus*, 12-30 Common Buzzard *Buteo buteo*, three to six Rough-legged Buzzard *B. lagopus*, one to three Long-legged Buzzard *B. rufinus*.

Breeding birds species in Cefa Nature Park

Breeding bird species in Rădvani Forest

Rădvani Forest is an adequate habitat for nesting to a great number of herons. Also, it displays proper conditions for nesting of several diurnal and nocturnal predatory species, as well as multitudes of Passeriformes.

In Rădvani Forest, there is a mixed colony of herons, already known from the '40s (Munteanu, 2000). There are breeding together: Grey Heron *Ardea cinerea* (293-370 pairs), Night Heron *Nycticorax nycticorax* (120-150 pairs) and Little Egret *Egretta garzetta* (5-14 pairs). The colony is installed in about 100 English Oak *Quercus robur* and European Ash *Fraxinus excelsior* trees, with heights ranging from 20-25 m. The number of nests vary from one to eight on a tree with an average of four to five nests per tree.

In the Rădvani forest, there is a pair of Black Stork *Ciconia nigra*, nesting here, even though not always successfully. The habitat is adequate for this species, necessitating the presence of an unexplored forest, traversed by water streams.

Among the predatory birds nesting in the Cefa Nature Park are: Honey Buzzard *Pernis apivorus* (one pair), Black Kite *Milvus migrans* (one pair), Eurasian Sparrowhawk *Accipiter nisus* (one pair), Common Buzzard *Buteo buteo* (three to five pairs), Common Kestrel *Falco tinnunculus* (four to nine), Hobby *Falco subbuteo* (one to two pairs).

For the Lesser Spotted Eagle *Aquila pomarina* (one pair) and Peregrine Falcon *Falco cherrug* (one pair), there were no certain nesting records, but there is an evidence that supports this fact; during the last few years the adult pair was observed throughout the nesting period in the forest area.

Additionally, in Rădvani forest nests also a pair of White-tailed Eagle *Haliaeetus albicilla*.

Of the nocturnal predatory birds nesting here, there are two to three pairs of Long-eared Owl *Asio otus* and one to three pairs of Eurasian Scops Owl *Otus scops*.

In the Rădvani Forest area, common nesting species are: woodpeckers (*Dryocopus martius*, *Dendrocopos syriacus*, *D. medius*, and *Picus canus*), wrynecks (*Jynx torquilla*), pigeons and doves (Stock Dove *Columba oenas*, Wood Pigeon *C. palumbus*, and European Turtle Dove *Streptopelia turtur*), Common Cuckoo *Cuculus canorus*, Hooded Crow *Corvus cornix* and many other species of singing birds (Thrush Nightingale *Luscinia luscinia*, Common Nightingales *L. megarhynchos*, European Robin *Erithacus rubecula*, Blackbird *Turdus merula*, Song Thrush *T. philomelos*, Mistle Thrush *T. viscivorus*, Lesser Whitethroat *Sylvia curruca*, Common Whitethroat *S. communis*, Barred Warbler *S. nisoria*, Garden Warbler *S. borin*, Blackcap *S. atricapilla*, Wood Warbler *Phylloscopus sibilatrix*, Common Chiffchaff *P. collybita*, Willow Warbler *P. trochilus*, Collared Flycatcher *Ficedula albicollis*, Spotted Flycatcher *Muscicapa striata*, Great Tit *Parus major*, Blue Tit *Cyanistes (Parus) caeruleus*, Marsh Tit *Poecile (Parus) palustris*, Goldfinch *Carduelis carduelis*, Common Starling *Sturnus vulgaris*, Hawfinch *Coccothraustes coccothraustes*, Chaffinch *Fringilla coelebs*, Yellowhammer *Emberiza citrinella*, Golden Oriole *Oriolus oriolus*, Greenfinch *Carduelis chloris*, European Serin *Serinus serinus*, Woodlark *Lullula arborea*, Black Redstart *Phoenicurus ochruros*, Common Redstart *P. phoenicurus*, and Eurasian Nuthatch *Sitta europaea*).

Near the Rădvani Forest border area, on the Ateaș locality pasture, nests the European Roller *Coracias garrulus* (one to three pairs) and also one to two pairs of Eurasian Hoopoe *Upupa epops*.

Breeding bird species from fishponds area in Cefa Nature Park

The vegetation formed on the fishponds constitutes an important habitat for aquatic avifauna. Here the breeding species are: Great Egret *Egretta alba* (10-15 pairs), Greylag Goose *Anser anser*, Moorhen *Gallinula chloropus*, Eurasian Coot *Fulica atra*, Little Grebe *Tachybaptus ruficollis* (15-40 pairs) and Black-necked Grebe *Podiceps nigricollis* (10-18 pairs).

On the islets formed by the floating vegetation nests, 240 pairs of Whiskered Tern *Chlidonias hybridus*, 10 pairs of Black Tern *Chlidonias niger* and 15-35 pairs of Ferruginous Duck *Aythya nyroca*.

Wide reed areas are the optimal habitat for the nesting of 10-12 pairs of Western Marsh Harrier *Circus aeruginosus*. Moreover, in these areas covered with reed nest the six to nine pairs of Bittern *Botaurus stellaris*, 40-50 pairs of Little Bittern *Ixobrychus minutus*, three to seven pairs of Squacco Heron *Ardeola ralloides*, eight to nine pairs of Purple Heron *Ardea purpurea*, and also the Spotted Crake *Porzana porzana*.

Ducks nest among the pools and in their immediate vicinity: Mallard *Anas platyrhynchos* (20-30 pairs), Pochard *Aythya ferina* (75-120 pairs), Garganey *Anas querquedula* (four to seven pairs), Tufted Duck *Aythya fuligula* (one to two pairs), Gadwall *Anas strepera* (10-12 pairs), Red-crested Pochard *Neta rufina* (one to two pairs).

Some of the birds nesting in reeds and trees on the banks of the canals are as follows: warblers (Great Reed Warbler *Acrocephalus arundinaceus*, Sedge Warbler *A. schoenobaenus*, Moustached Warbler *A. melanopogon*, Marsh Warbler *A. palustris*, European Reed Warbler *A. scirpaceus*), Grasshopper Warbler *Locustella naevia*, River Warbler *L. fluviatilis*, Savi's Warbler *L. luscinioides*, Icterine Warbler *Hippolais icterina*) Reed Bunting *Emberiza schoeniclus*, Penduline Tit *Remiz pendulinus* (20-40 pairs) and Bluethroat *Luscinia svecica* (two to four pairs).

On the banks of the canals which spread all over the Cefa Nature Park are nesting, four to eight pairs of Common Kingfisher *Alcedo atthis*.

Breeding bird species from meadows, pastures, arable lands and swamps

These areas are well represented in Cefa Nature Park, the following birds species are nesting here: Northern Lapwing *Vanellus vanellus* (25-60 pairs), Common Snipe *Gallinago gallinago* (three to six pairs), White Wagtail *Motacilla alba* (20-55 pairs), Yellow Wagtail *Motacilla flava* (70-180 pairs), Black-tailed Godwit *Limosa limosa* (two to six), Common Redshank *Tringa totanus* (one to seven pairs).

Over the last years the studied ponds dry up in summer time, thus they are less disturbed and with small height vegetation, or without vegetation. The following bird species nest in this area: Eurasian Curlew *Numenius arquata* (up to seven pairs), Black-winged Stilt *Himantopus himantopus* (up to three pairs), Pied Avocet *Recurvirostra avosetta* (up to 12 pairs), Common Tern *Sterna hirundo* (up to 20 pairs), Little Ringed Plover *Charadrius dubius* (10-16 pairs), and Black-headed Gull *Chroicocephalus (Larus) ridibundus* (up to 30 pairs).

In the less disturbed grass fields, there were identified nests of Short-eared Owl *Asio flammeus*.

Agricultural crops from Cefa Nature Park are the nesting place for a series of species of protected birds. Here (towards the Romanian-Hungarian national border) a nest of Montagu's Harrier *Circus pygargus* was identified, and the presence of another nesting pair of this rare predator is still uncertain.

Connected to the agricultural crops during their nesting period are also the Common Skylark *Alauda arvensis*, Tawny Pipit *Anthus campestris* (four to eight pairs), Corn Bunting *Miliaria calandra*, and in the bushes bordering the agricultural lands nest the Red-backed Shrike *Lanius collurio* and Lesser Grey Shrike *L. minor* (10-12 pairs). In these habitats during nesting period, four pairs of Corncrake *Crex crex* were identified.

Furthermore, in these habitats the erratic individuals belonging to the Great Bustard *Otis tarda* were recorded, nesting on the hay fields close to Geszt and Mezőgyán (in the nearby Hungary).

Analysis of threats to the bird fauna in Cefa Nature Park

There are anthropogenic pressures carried out on the species and habitats today, with different levels of intensity, such as:

Hunting

Directly affecting all species feeding and nesting on these wetlands. Even though it is done only for the species permitted to be hunted by the national legislation, this activity affects all of the strictly protected species found on these habitats or in the mixed migration and/or feeding groups (Lesser White-Fronted Goose *Anser erythropus*, Red-Breasted Goose *Branta ruficollis*, Ferruginous Duck *Aythya nyroca*, Pygmy Cormorant *Phalacrocorax pygmaeus*, and Common Sandpiper *Actitis hypoleucos* etc.).

Fishery management activities

Inappropriate cutting and/or burning of reeds affects the species nesting in these habitats (warblers, penduline tits, bluethroat, reed buntings, bitterns, etc.). If this burning is done during the migration periods, it can affect the species using the reed as a resting place very seriously during their fall passage (*Riparia riparia*, *Delichon urbica*, and *Apus apus*).

Cutting the natant vegetation formed by Water Chestnut *Trapa natans*, during nesting (in species such as *Aythya nyroca*, *Chlidonias hybridus*, *C. niger*, and *C. leucopterus*), has a direct impact on the nesting success of these species that use islets as support for the nests;

Modifying water levels during nesting directly affects the species nesting on the water surface or in its immediate vicinity (*Himantopus himantopus*, *Recurvirostra avosetta*, *Sterna hirundo*, and *Chroicocephalus ridibundus*), leaving the nests on dry land or flooding the eggs.

Forestry management activities

Removal of trees in the forest (even dry ones) during the reproduction period directly affects the nesting success of certain species.

Other activities (that may be performed or done in a greater extent) which might affect bird species and their habitats are: intensive sport fishing done in more basins than at present; pasturing intensification or definitive abandonment of it; changing of land use; agricultural activity intensification and especially the use of insecticides might affect the species that are used as food by bird populations; building more vacation houses; the extension of the present land within the built-up area; establishment of industrial development areas in the vicinity; increased access of auto vehicle to the meadows; wind farm development; occurrence of investments in Concentrating Solar Power Technologies; pollution of the aquatic ecosystems because of agriculture, management and intensive fishing; draining and inning of wetlands.

CONCLUSIONS

In the habitats from Cefa Nature Park, over half (66%) of the bird species identified are present with certainty on the territory of Romania (246 species from 373 which are present in Checklist of the Birds of Romania (**)).

The area is important both for species reproducing here and also for sedentary and those migratory, providing diverse nesting habitats, distributed on vast areas.

The protected area provides opportunities for refuge, rest and feeding for a variety of migratory species during spring and fall passage and also during winter. Therefore, hundreds of thousands of aquatic and semi-aquatic bird species are present in these seasons in Cefa.

The human pressure is still low in the Cefa Nature Park, which leads the maintenance to be in good to excellent condition of preservation of bird species and their habitats. Even so, the authors' recommendations for the authorities of protected area management are with regard first to the reduction of the anthropogenic pressure intensity represented by hunting and fishpond management (related to maintaining the water level during nesting period, removal of natant vegetation after completion of nesting in the targeted species and mechanic cutting of reeds).

ACKNOWLEDGEMENTS

The author is thankful to Cefa Park Administration for the support of this study in the field.

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