

ORNITHOLOGICAL OBSERVATIONS ON THE MIDDLE COURSE OF THE RIVER SOMES - TAXONOMIC AND ECOLOGICAL CONSIDERATIONS (TAXONOMIC AND ECOLOGICAL ASPECTS OF THE SOMEȘ RIVER MIDDLE COURSE ORNITOFAUNA)

Alexandru Laposi*, Aurel Ardelean, Gavril Ardelean, Doru Ardelean, Camelia Duță
 "Vasile Goldis" Western University of Arad, Romania

ABSTRACT. The paper presents results of the observations conducted during 2010-2015 on birds attending the middle section of Someș river at different times of the year. The observations were focused primarily on the river and adjacent habitats. 126 bird species have been counted belonging to 17 orders and 43 families. Aquatic or wetlands dependent birds are best represented with 44 species, followed by forest species housed by the riverside coppice with 42 species and 26 agricultural habitats characteristic species. Among aquatic species, 24 species are passage or winter visitors, 20 species nest on or near the river, and of these seven species are dependent on river habitats, present on the entire study area. 25 of the identified species are listed in Annex I of the Birds Directive.

Key words: Someș River, habitats, aquatic birds, ecology, breeding species.

INTRODUCTION:

Someș River is the main river of Transylvania, the fifth largest river in the country. In this paper are analyzed the ornithological observations made on the

river section belonging to Salaj County (fig. 1), in highlighting the importance of Someș River in ornithological diversity conservation of the area.



Fig. 1. Location of the study area

Despite the importance of the river Someș for this part of the country, the ornithological literature of study area is quite poor, unlike the lower portion of the river which has some ornithological works (Ardelean 2000; Ardelean, 2001; Ardelean, Beres, 2003-2004). Latest information about the study area is provided by Szabó D. Zoltán, 1999; Weber și Lörincz, 1999. The subject is touched tangentially in more general ornithological works (Munteanu et al., 2002), but without any major works dedicated to Someș birds to date (Ardelean, 2000).

MATERIAL AND METHODS:

Data were collected through transect and point observation method. The routes have focused primarily on the river, but were visited all wetlands in the vicinity of Someș (gravel pits, small marshes, flooded areas). The studied area was fully covered within 2010- 2015, during the 21 days of observation at all times of the year.

During the study were used: Nikon Monarch 10 x 42 binoculars, 20 – 60 X 100 spotting scope, photo camera, Garmin Etrex Legend GPS, field bird guide (*Collins Bird Guide*).

RESULTS AND DISCUSSIONS:

126 bird species were spotted and identified, which are permanent residents of Someș river habitats, or visit at certain times of the year Someș River and

adjacent areas. The full list of species is included in the overview in Annex 1. **Identified species systematics**

The 126 identified species belong to 17 orders și 43 families (Table nr.1).

Tab.1.
Taxonomical structure of Someș River ornithofauna.

Order	Family	Nr. family	Nr species	%
1. GALLIFORMES	1. Phasianidae	1	3	2,3
2. ANSERIFORMES	2. Anatidae	1	8	6,3
3. GAVIIFORMES	3. Gaviidae	1	1	0,7
4. PODICIPEDIFORMES	4. Podicipedidae	1	1	0,7
5. CICONIIFORMES	5. Ciconiidae	1	2	1,5
6. PELECANIFORMES	6. Ardeidae; 7. Phalacrocoracidae	2	6	4,7
7. ACCIPITRIFORMES	8. Pandionidae; 9. Accipitridae	2	10	7,9
8. FALCONIFORMES	10. Falconidae	1	2	1,5
9. GRUIFORMES	11. Rallidae	1	3	2,3
10. CHARADRIIFORMES	12. Charadriidae; 13. Scolopacidae; 14. Laridae	3	13	10,3
11. COLUMBIFORMES	15. Columbidae	1	4	3,1
12. CUCULIFORMES	16. Cuculidae	1	1	0,7
13. STRIGIFORMES	17. Strigidae	1	1	0,7
14. CORACIIFORMES	18. Alcedinidae; 19. Meropidae	2	2	1,5
15. BUCEROTIFORMES	20. Upupidae	1	1	0,7
16. PICIFORMES	21. Picidae	1	6	4,7
17. PASSERIFORMES	22. Laniidae; 23. Oriolidae; 24. Corvidae; 25. Paridae; 26. Remizidae; 27. Alaudidae; 28. Hirundinidae; 29. Aegithalidae; 30. Phylloscopidae; 31. Acrocephalidae; 32. Locustellidae; 33. Sylviidae; 34. Troglodytidae; 35. Sittidae; 36. Certhiidae; 37. Sturnidae; 38. Turdidae; 39. Muscicapidae; 40. Passeridae; 41. Motacillidae; 42. Fringillidae; 43. Emberizidae	22	62	49,2
		43	126	

It can be seen that the best representation, as is natural, have the species belonging to the order Passeriformes with 62 species (49.2%), followed by Charadriiformes, with 13 species (10.3%), Accipitriformes with 10 species (7.9%) and Anseriformes 8 species (6.3%)

Ecological considerations

Regarding the ecological categories of birds inventoried, aquatic or wetland habitats dependent species dominates with 44 (34.92%), 42 (33.33%) woodland habitats characteristic species and 26 (20,63%) open land or agricultural habitats related species, the three categories totaling 88.88% of all the species identified (Table. No.2), their share is plotted in Fig. 2.

Tab. 2.
Ecological structure of Someș ornithofauna.

Habitat categories	Species	%
Aquatic habitats/ wetlands	44	34,92
Woodlands	42	33,33
Open lands/ agricultural landscape	26	20,63
Other	14	11,12

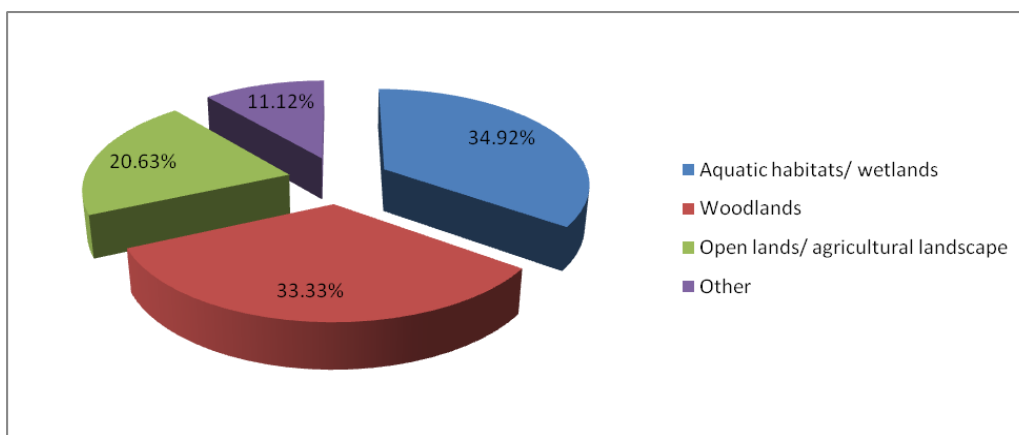


Fig. 2. Main ecological categories of Someș River ornitofauna.

To highlight the importance of Someș aquatic ecosystem the most important are the river aquatic and wetland habitats dependent species.

Among the indices of diversity, constancy (Gomoiu & Skolka, 2001) expresses the extent of the presence of the aquatic species in the river ecosystem. For the study area are euconstants: *Anas platyrhynchos*, *Ardea cinerea*, *Actitis hypoleucos*, *Alcedo atthis*, *Motacilla alba*; constants: *Ciconia ciconia*, *Casmerodius albus*, *Charadrius dubius*, *Riparia riparia*, *Acrocephalus palustris*, and the other species are accidentals or accessory. (Annex 1).

In terms of phenology, of 44 aquatic or wetland species, 24 can be considered winter or passage species, and 20 species are breeding in habitats provided by the Someș River or river floodplain (Table no. 3). Some of these species are nesting mainly in river meadow's wet areas (*Vanellus vanellus*, *Motacilla alba*, *Motacilla flava*, *Acrocephalus arundinaceus*, *Locustella fluviatilis*); on the meadow's ponds or pits (*Fulica atra*, *Galinula chloropus*, *Circus aeruginosus*, *Sterna hirundo*); other habitats (*Ciconia ciconia*, *Ciconia nigra*, *Ardea cinerea*).

Tab.3
The Someș river water bird species phenology.

Nr.	Passage or wintering species (non breeding)	Sedentary or summer visitors (breeding)
1	<i>Anser albifrons</i>	<i>Anas platyrhynchos</i>
2	<i>Anas penelope</i>	<i>Ciconia nigra</i>
3	<i>Anas acuta</i>	<i>Ciconia ciconia</i>
4	<i>Anas querquedula</i>	<i>Galinula chloropus</i>
5	<i>Anas crecca</i>	<i>Fulica atra</i>
6	<i>Bucephala clangula</i>	<i>Ardea cinerea</i>
7	<i>Mergus merganser</i>	<i>Circus aeruginosus</i>
8	<i>Gavia arctica</i>	<i>Vanellus vanellus</i>
9	<i>Tachybaptus ruficollis</i>	<i>Charadrius dubius</i>
10	<i>Nycticorax nycticorax</i>	<i>Actitis hypoleucos</i>
11	<i>Ardea purpurea</i>	<i>Sterna hirundo</i>
12	<i>Casmerodius albus</i>	<i>Alcedo atthis</i>
13	<i>Egretta garzetta</i>	<i>Remiz pendulinus</i>
14	<i>Phalacrocorax carbo</i>	<i>Riparia riparia</i>
15	<i>Pandion haliaetus</i>	<i>Acrocephalus arundinaceus</i>
16	<i>Gallinago gallinago</i>	<i>Acrocephalus palustris</i>
17	<i>Numenius arquata</i>	<i>Locustella fluviatilis</i>
18	<i>Tringa nebularia</i>	<i>Motacilla flava</i>
19	<i>Tringa ochropus</i>	<i>Motacilla alba</i>
20	<i>Tringa glareola</i>	<i>Emberiza schoeniclus</i>
21	<i>Croicocephalus ridibundus</i>	
22	<i>Larus canus</i>	
23	<i>Larus fuscus</i>	
24	<i>Chlidonias hybrida</i>	

Some of the breeding species are strictly dependant of the river or riverbanks habitats: *Anas platyrhynchos*, *Charadrius dubius*, *Actitis hypoleucos*, *Alcedo atthis*, *Remiz pendulinus*, *Riparia riparia*, *Acrocephalus*

palustris. These species have different requirements for nesting habitats provided by Someș River summarized in Table. 4.

Tab.4
Nesting habitats preferences of aquatic species dependent on the Someș river.

Nr.	Species	Preferred nesting habitat
1	<i>Anas platyrhynchos</i>	- banks covered with abundant vegetation
2	<i>Charadrius dubius</i>	- low islands and beaches of sand or gravel
3	<i>Actitis hypoleucos</i>	- low muddy or sandy shores, partially covered with vegetation
4	<i>Alcedo atthis</i>	- steep banks
5	<i>Remiz pendulinus</i>	- meadow forests
6	<i>Riparia riparia</i>	- steep banks
7	<i>Acrocephalus palustris</i>	- reed beds, reed mixed with shrubs, abundant herbaceous vegetation in combination with bushes

The distribution of these species depends on the presence of preferred habitats. *Anas platyrhynchos*, *Actitis hypoleucos*, și *Acrocephalus palustris* have a relatively uniform distribution along the river. The habitats preferred by both species are widespread. *Charadrius dubius*, *Alcedo atthis* și *Riparia riparia* are unevenly distributed, being present in areas with suitable habitats: islands and low-lying beaches or steep banks.

Conclusions

During 2010 -2015 on the Someș River section belonging to Salaj County and adjacent areas 126 bird species were spotted and identified. The 126 identified species belong to 17 orders și 43 families. Most of the species belong to the order Passeriformes with 62 species (49.2%), followed by Charadriiformes, with 13 species (10.3%), Accipitriformes with 10 species (7.9%) and Anseriformes 8 species (6.3%)

Of all the identified species, best represented are aquatic or wetland habitats dependent species with 44 (34.92%), and woodland habitats characteristic species 42 (33.33%) followed by open land or agricultural habitats related species and 26 (20, 63%).

Of the aquatic species characteristic of the study area are euconstants: *Anas platyrhynchos*, *Ardea cinerea*, *Actitis hypoleucos*, *Alcedo atthis*, *Motacilla alba*; constants: *Ciconia ciconia*, *Casmerodius albus*, *Charadrius dubius*, *Riparia riparia*, *Acrocephalus palustris*.

24 of the aquatic species are winter or passage species, and 20 species are breeding in habitats provided by the Someș River or river floodplain. 7 of these species are strictly dependant of the river or riverbanks habitats: *Anas platyrhynchos*, *Charadrius dubius*, *Actitis hypoleucos*, *Alcedo atthis*, *Remiz pendulinus*, *Riparia riparia*, *Acrocephalus palustris*. The distribution of these species along the river depends on the presence of preferred habitats.

Due to the number of species identified (126), of which many aquatic and wetland species (44), with 25 of the inventoried species being listed in Annex I of the Birds Directive (Annex 1), Someș River can be considered an essential element for biodiversity conservation of the area.

Annex nr. 1- Synopsis of species inventoried

Constancy:

E- euconstants(76- 100%); C- constants(51- 75%); Ac- accessory(26- 50%); A- accidentals(1- 25%) ;

Phenology: (Bruun et al. 1999).

S- sedentary; OV- summer visitors; P- pasage; OI- winter visitors; MP- partial migratory

Ecology:

PR- coniferous forest; PF- deciduous forest; A- aquatic; AL- agricultural and human ecosystems; U- ubicvist

A.I. – Anex I, Birds Directive

Nr.	Species	Abundance	Constancy		Ecology	Phenology	Annex.I
			C (%)	C			
1	<i>Perdix perdix</i>	13	14	A	AL	S	
2	<i>Coturnix coturnix</i>	6	23	A	AL	OV	
3	<i>Phasianus colchicus</i>	47	95	E	PF	S	
4	<i>Anser albifrons</i>	80	14	A	A	OI	
5	<i>Anas penelope</i>	9	4	A	A	P,OI	
6	<i>Anas platyrhynchos</i>	394	95	E	A	MP,OI	
7	<i>Anas acuta</i>	1	4	A	A	P, OI	
8	<i>Anas querquedula</i>	20	9	A	A	OV, P	
9	<i>Anas crecca</i>	32	23	A	A	P,OI,OV	
10	<i>Bucephala clangula</i>	4	9	A	A	OI	
11	<i>Mergus merganser</i>	54	23	A	A	OI	

12	<i>Gavia arctica</i>	1	4	A	A	OI	
13	<i>Tachybaptus ruficollis</i>	4	9	A	A	OV, RI	
14	<i>Ciconia nigra</i>	4	19	A	A	OV	+
15	<i>Ciconia ciconia</i>	27	52	C	A	OV	+
16	<i>Nycticorax nycticorax</i>	1	4	A	A	OV	+
17	<i>Ardea cinerea</i>	140	100	E	A	OV, RI	
18	<i>Ardea purpurea</i>	6	9	A	A	OV	+
19	<i>Casmerodius albus</i>	41	71	C	A	OV, RI	+
20	<i>Egretta garzetta</i>	1	4	A	A	OV	+
21	<i>Phalacrocorax carbo</i>	1195	47	Ac	A	OV, RI	+
22	<i>Pandion haliaetus</i>	1	4	A	A	P	+
23	<i>Pernis apivorus</i>	4	14	A	PF	OV	+
24	<i>Circus aeruginosus</i>	10	23	A	A	OV, RI	+
25	<i>Circus cyaneus</i>	2	9	A	PF	OI	+
26	<i>Circus macrourus</i>	2	9	A	AL	P, OV	+
27	<i>Accipiter nisus</i>	14	33	Ac	U	S, OI	
28	<i>Accipiter gentilis</i>	8	38	Ac	U	S	
29	<i>Buteo buteo</i>	74	100	E	U	MP	
30	<i>Buteo lagopus</i>	3	14	A	AL	OI	
31	<i>Aquila pomarina</i>	3	14	A	PF	OV	+
32	<i>Falco tinnunculus</i>	23	66	C	U	MP	
33	<i>Falco subbuteo</i>	1	9	A	PF	OV	
34	<i>Crex crex</i>	1	4	A	AL	OV	+
35	<i>Gallinula chloropus</i>	1	4	A	A	OV	
36	<i>Fulica atra</i>	1	4	A	A	MP	
37	<i>Vanellus vanellus</i>	79	28	Ac	A	OV	
38	<i>Charadrius dubius</i>	129	61	C	A	OV	
39	<i>Gallinago gallinago</i>	2	4	A	A	P, OV	
40	<i>Numenius arquata</i>	1	4	A	A	OV	
41	<i>Tringa nebularia</i>	40	47	Ac	A	P	
42	<i>Tringa ochropus</i>	14	23	A	A	P, OI	
43	<i>Tringa glareola</i>	4	9	A	A	P, OI	+
44	<i>Actitis hypoleucos</i>	96	85	E	A	OV	
45	<i>Croicocephalus ridibundus</i>	8	14	A	A	MP	
46	<i>Larus canus</i>	1	4	A	A	OI	
47	<i>Larus fuscus</i>	1	4	A	A	P, OI	
48	<i>Sterna hirundo</i>	11	23	A	A	OV	+
49	<i>Chlidonias hybrida</i>	2	4	A	A	OV	+
50	<i>Columba livia dom.</i>	138	38	Ac	AL	S	
51	<i>Columba palumbus</i>	61	66	C	U	OV, RI	
52	<i>Streptopelia turtur</i>	16	28	Ac	PF	OV	
53	<i>Streptopelia decaocto</i>	39	61	C	AL	S	
54	<i>Cuculus canorus</i>	49	52	C	PF	OV	
55	<i>Strix aluco</i>	1	4	A	PF	S	
56	<i>Alcedo atthis</i>	60	100	E	A	MP	+
57	<i>Merops apiaster</i>	159	57	C	AL	OV	
58	<i>Upupa epops</i>	7	28	Ac	AL	OV	
59	<i>Dendrocopos minor</i>	1	4	A	PF	S	
60	<i>Dendrocopos medius</i>	1	4	A	PF	S	+
61	<i>Dendrocopos syriacus</i>	4	19	A	PF	S	+
62	<i>Dendrocopos major</i>	44	100	E	PF	S	
63	<i>Picus viridis</i>	14	52	C	PF	S	
64	<i>Picus canus</i>	7	33	Ac	PF	S	+

65	<i>Lanius collurio</i>	51	66	C	AL	OV	+
66	<i>Lanius minor</i>	3	9	A	AL	OV	+
67	<i>Lanius excubitor</i>	12	42	Ac	AL	MP, OI	
68	<i>Oriolus oriolus</i>	90	61	C	PF	OV	
69	<i>Garrulus glandarius</i>	72	95	E	PF	S	
70	<i>Pica pica</i>	149	95	E	U	S	
71	<i>Corvus monedula</i>	219	33	Ac	AL	S	
72	<i>Corvus frugilegus</i>	263	47	Ac	AL	S	
73	<i>Corvus cornix</i>	152	95	E	U	S	
74	<i>Corvus corax</i>	28	66	C	U	S	
75	<i>Poecile palustris</i>	8	14	A	PR,PF	S	
76	<i>Parus major</i>	91	85	E	PF	S	
77	<i>Cyanistes caeruleus</i>	61	80	E	PF	S	
78	<i>Remiz pendulinus</i>	6	19	A	A	MP	
79	<i>Galerida cristata</i>	14	28	Ac	AL	S	
80	<i>Lullula arborea</i>	5	23	A	PF	OV	+
81	<i>Alauda arvensis</i>	66	57	C	AL	MP	
82	<i>Riparia riparia</i>	150	57	C	A	OV	
83	<i>Hirundo rustica</i>	149	57	C	AL	OV	
84	<i>Delichon urbicum</i>	44	19	A	AL	OV	
85	<i>Aegithalos caudatus</i>	102	76	E	PF	S	
86	<i>Phylloscopus trochilus</i>	2	4	A	PF	P, OV	
87	<i>Phylloscopus collybita</i>	53	71	C	PF	OV	
88	<i>Phylloscopus sibilatrix</i>	1	4	A	PF	OV	
89	<i>Acrocephalus arundinaceus</i>	2	4	A	A	OV	
90	<i>Acrocephalus palustris</i>	309	61	C	A	OV	
91	<i>Locustella fluviatilis</i>	3	9	A	A	OV	
92	<i>Sylvia atricapilla</i>	47	66	C	PF	OV	
93	<i>Sylvia borin</i>	2	9	A	PF	OV	
94	<i>Sylvia communis</i>	31	61	C	PF	OV	
95	<i>Sylvia curruca</i>	51	66	C	PF	OV	
96	<i>Troglodytes troglodytes</i>	15	42	Ac	PF	OV	
97	<i>Sitta europaea</i>	13	52	C	PF	S	
98	<i>Certhia familiaris</i>	3	14	A	PF	S	
99	<i>Sturnus vulgaris</i>	735	80	E	AL	MP	
100	<i>Turdus merula</i>	29	85	E	PF	MP	
101	<i>Turdus pilaris</i>	364	90	E	AL	MP,OI	
102	<i>Turdus philomelos</i>	19	52	C	PR,PF	OV	
103	<i>Turdus viscivorus</i>	1	2	A	PR,PF	MP	
104	<i>Erithacus rubecula</i>	27	61	C	U	OV, RI	
105	<i>Luscinia megarhynchos</i>	67	61	C	PF	OV	
106	<i>Phoenicurus ochruros</i>	4	14	A	U	OV	
107	<i>Saxicola rubetra</i>	2	9	A	U	OV	
108	<i>Saxicola torquatus</i>	16	28	Ac	AL	OV	
109	<i>Muscicapa striata</i>	1	4	A	PF	OV	
110	<i>Passer domesticus</i>	79	47	Ac	AL	S	
111	<i>Passer montanus</i>	189	100	E	AL	S	
112	<i>Motacilla flava</i>	6	19	A	A	OV	
113	<i>Motacilla alba</i>	73	80	E	A	OV	
114	<i>Anthus campestris</i>	1	4	A	AL	OV	+
115	<i>Anthus trivialis</i>	8	23	A	PF	OV	
116	<i>Fringilla coelebs</i>	153	90	E	U	MP	
117	<i>Serinus serinus</i>	6	14	A	PF	OV	
118	<i>Carduelis chloris</i>	39	57	C	PF	S	

119	<i>Carduelis spinus</i>	129	19	A	PR	MP,OI	
120	<i>Carduelis carduelis</i>	199	80	E	PF	S, OI	
121	<i>Carduelis cannabina</i>	82	52	C	PF	MP	
122	<i>Pyrrhula pyrrhula</i>	13	14	A	PR	S	
123	<i>Coccothraustes c.</i>	64	42	Ac	PF	S	
124	<i>Miliaria calandra</i>	7	23	A	AL	MP	
125	<i>Emberiza citrinella</i>	23	47	Ac	AL	S	
126	<i>Emberiza schoeniclus</i>	21	19	A	A	MP	

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