Avifauna of the River Someş/Szamos[1] valley

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Introduction

The avifauna of the Someş valley was not studied systematically until present time. Only some data with avifaunistical character are published by Antal & Libus 1975, Béldi & Mannsberg 1970, Béres 1977, Filipaşcu 1966, Korodi 1974, Munteanu 1983 from certain parts of the investigated area. The main aim of this study is to elaborate a general survey of the avifauna of the Someş valley and its tributaries and to give an image about the avifauna of this relatively densely populated area as well as a first complete checklist of the Someş valley in order to fix a starting point for future investigations. Special attention was payed to complete the distribution of existing species (Weber, Munteanu, Papadopol 1994) and the avifaunistical list of the Someş valley.

Keywords: avifauna, Someş/Szamos valley

Methods

All data are collected by direct observations during the summer of 1992. The avifaunistical observations were made in each station systematically along the Someşul Rece, Someşul Cald, Someşul Mic, Someşul Mare and the „united" Someş until its confluence with the Tisza river. The avifaunistical list was completed with other occasional data and with those found in literature.

At each station a transect of 1 km length was precisely investigated qualitatively and quantitatively during an hour, using mostly acoustic mode of counting in *Passerinae* species, and the presence and especially all typical signs of breeding avifauna was noted. The whole observation and transect counting was carried out between 2-13 and 18-24 June and repeated between 20 July - 7 August 1992. The localisation of counted 10 ha transects is figured in the attached map. In Hungary it was possible only during the last trip, where the surroundings of Vásárosnamény was investigated even at the confluence of the Someş and the Tisza.

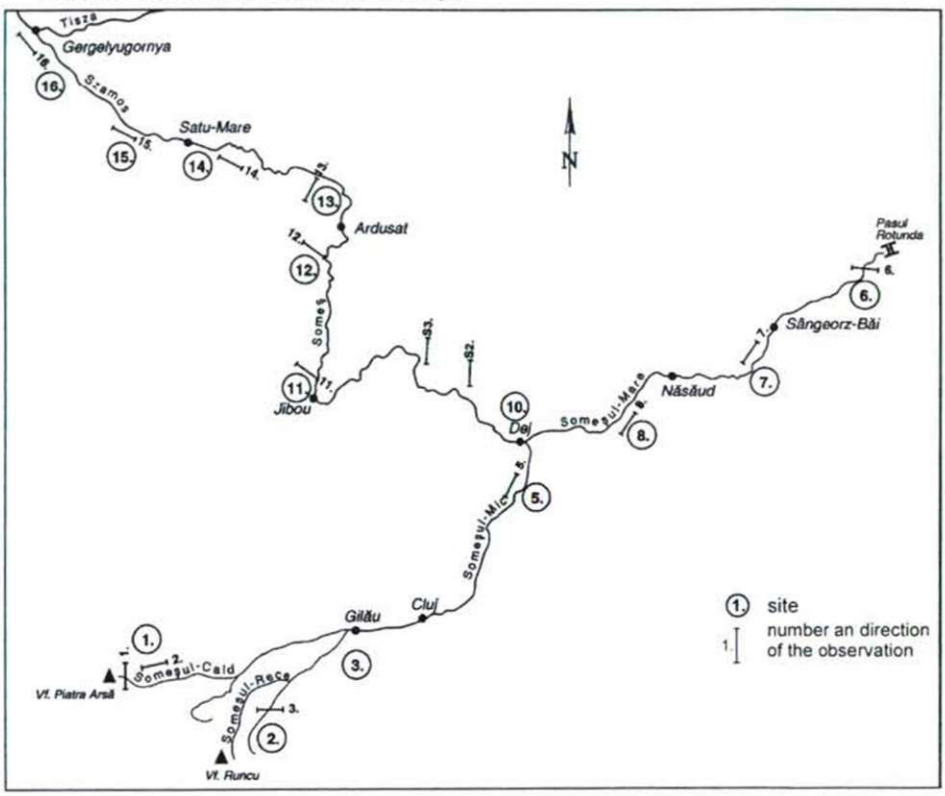
Results

The present avifaunistical checklist of the Someş valley include a number of 226 species with different status. In this number, all observations and avifaunistical information available are included. This number cannot be considered as definitive. Our

[1] The first name is Romanian, and the second Hungarian

list is surely not complete, we miss especially data about migrating and wintering species. The distribution of breeding species at 13 stations and 3 special bird-counting places are summarised in an attached table. We consider as breeding species those from which we collect direct (Figure 1.) and indirect data about breeding (nests, pull, imm., singing, territorial pairs).

Number/ observation station (see Map)



Map

1. Ic Ponor/ Bazarul Someşului
2. Ic Ponor/ Moloh-Rădeasa
3. Blăjoaia/ Someşul Rece
4. Upwards of Cluj
5. Downwards of Gherla
6. Downwards of Şanţ Arinu
7. Downwards of Sângeorz Băi
8. Downwards of Năsăud
9. Ineu/ Cabana Brazilor
S1 Vârful Roşu
10. Downwards of Dej
S2 Dej/ Căşeiu
S3 Căşeiu
11. Someş-Odorhei/ Năpradea
12. Sălsig
13. Downwards of Baia Mare/ Pomi
14. Upwards of Satu Mare
15. Downwards of Satu Mare/ Vetiş
16. Vásárosnamény/ Hungary

Station	1	2	3	4	5	6	7	8	9	S1	10	S2	S3	11	12	13	14	15	16
No.of breeding species	9	16	17	8	15	22	33	14	17	3	13	6	10	7	9	9	14	15	16

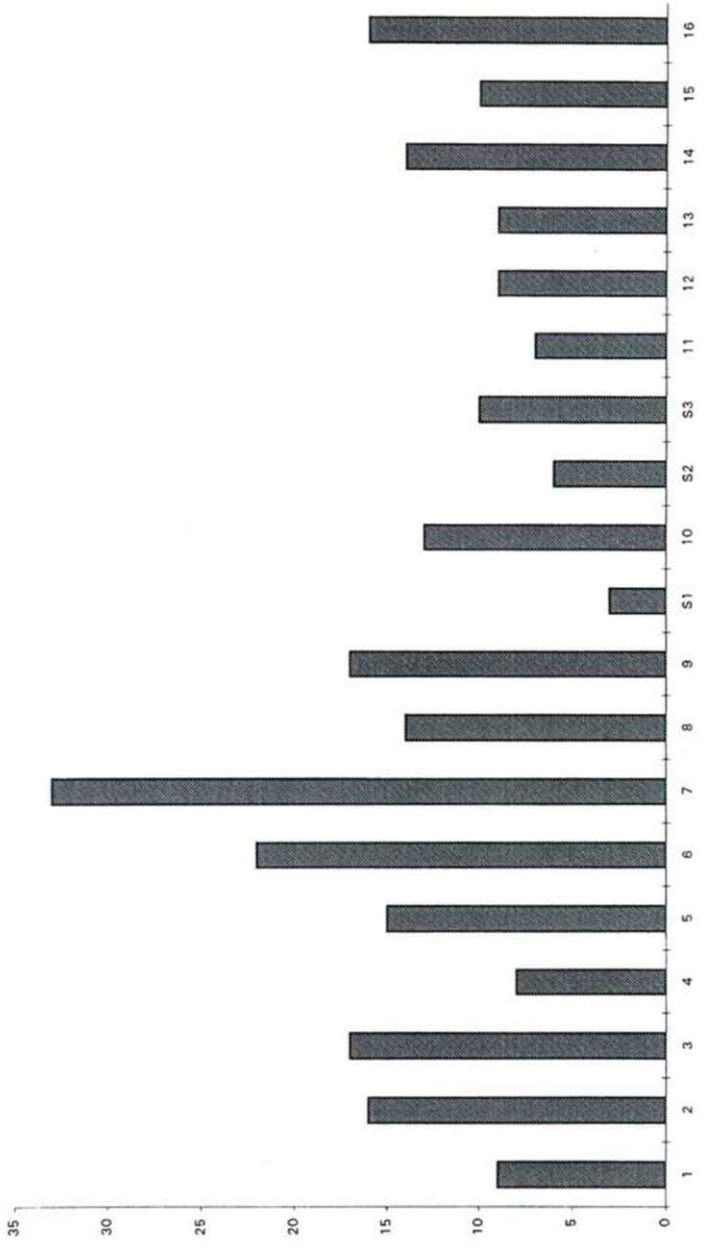


Figure 1. Number of breeding species

Transect 1.

Ic Ponor/ Bazarul Someşului

River bed, very abrupt stoneslopes, 60 years old spruce forest at the upper parts of the slope.

Nr.	Species	Abundance	Dominance (%)
1.	Troglodytes troglodytes	7	24.13
2.	Erithacus rubecula	5	17,24
3.	Phylloscopus collybita	4	13,79
4.	Motacilla cinerea	6	20,68
5.	Cinclus cinclus	2	6,89
6.	Parus caeruleus	2	6,89
7.	Pyrhulla pyrhulla	1	3,44
8.	Fringilla coelebs	1	3,44
9.	Turdus merula		
Total		29	100

Transect 2.

Ic Ponor/ Moloh-Rădeasa

Left riverside, stony slope from the riverbed, moderately steep, predominantly with spruce-wood, few beech at the slope, moderately grazed pasture at the top.

Nr.	Species	Abundance	Dominance (%)
1.	Parus ater	16	28,07
2.	Parus cristatus	18	31,57
3.	Parus caeruleus	6	10,52
4.	Nucifraga caryocatactes	4	7,01
5.	Regulus regulus	6	10,52
6.	Phylloscopus collybita	3	5,26
7.	Troglodytes troglodytes	2	3,5
8.	Erithacus rubecola	2	3,5
9.	Loxia recurvirostra	2	3,5
10.	Motacilla cinerea	4	7,01
11.	Cinclus cinclus	2	3,5
12.	Falco tinunculus	1	1,75
13.	Fringilla coelebs	1	1,75
14.	Phylloscopus trochillus	1	1,75
15.	Turdus viscivorus	1	1,75
16.	Dryocopus martius	1	1,75
17.	Pyrhulla pyrhulla	3	5,26
Total		57	100

Transect 3.
Blăjoaia/ Someşul Rece
60 years old spruce forest at the slopes, 20 % moderately grazed pasture.

Nr.	Species	Abundance	Dominance (%)
1.	Fringilla coelebs	6	8,21
2.	Parus ater	14	19,17
3.	Regulus regulus	10	13,69
4.	Turdus viscivorus	7	9,58
5.	Hirundo rustica	8	10,95
6.	Motacilla alba	4	5,44
7.	Parus caeruleus	7	9,58
8.	Pyrhulla pyrhulla	3	4,1
9.	Phoenicuros ochrulus	2	2,72
10.	Dendrocopos major	2	2,72
11.	Nucifraga caryocatactes	1	1,36
12.	Lanius collurio	2	2,72
13.	Muscicapa striata	2	2,72
14.	Phylloscopus trochillus	2	2,72
15.	Phylloscopus collybita	1	1,36
16.	Garrulus glandarius	1	1,36
17.	Buteo buteo	1	1,36
Total		73	100

Transect 5.
Gherla
Left riverside, sparsely forested riverbank, agricultural area in the valley, 20 years old oak-, beech- and maple trees at the slopes.

Nr.	Species	Abundance	Dominance (%)
1.	Fringilla coelebs	7	23,33
2.	Parus major	5	16,66
3.	Parus caeruleus	4	13,33
4.	Coccothraustes coccothraustes	2	6,66
5.	Sitta europaea	2	6,66
6.	Sylvia atricapilla	1	3,33
7.	Dendrocopos major	1	3,33
8.	Emberiza citrinella	1	3,33
9.	Lanius collurio	1	3,33
10.	Erithacus rubecula	1	3,33
11.	Turdus merula	1	3,33
12.	Turdus philomelus	1	3,33
13.	Carduelis chloris	1	3,33
14.	Garrulus glandarius	1	3,33
15.	Falco tinnunculus	1	3,33
Total		57	100

Transect 7.
Sângiorz Băi
Agricultural area, both slopes partly covered by beech- and pinewood, and partly by pasture.

Nr.	Species	Abundance	Dominance (%)
1.	Phylloscopus collybita	8	12,88
2.	Parus major	8	12,88
3.	Aegithalus caudatus	2	3,22
4.	Fringilla coelebs	2	3,22
5.	Turdus pilaris	2	3,22
6.	Carduelis cannabina	2	3,22
7.	Carduelis chloris	2	3,22
8.	Motacilla alba	3	4,83
9.	Parus caeruleus	3	4,83
10.	Carduelis carduelis	2	3,22
11.	Lanius collurio	2	3,22
12.	Passer domesticus	2	3,22
13.	Saxicola rubetra	2	3,22
14.	Corvus cornix	2	3,22
15.	Parus palustris	1	1,61
16.	Sylvia borin	1	1,61
17.	Sylvia atricapilla	1	1,61
18.	Oenanthe oenanthe	1	1,61
19.	Pica pica	1	1,61
20.	Phylloscopus trochilus	1	1,61
21.	Anthus trivialis	1	1,61
22.	Sitta europaea	1	1,61
23.	Emberiza citrinella	1	1,61
24.	Garrulus glandarius	1	1,61
25.	Erithacus rubecula	1	1,61
26.	Troglodytes troglodytes	1	1,61
27.	Parus palustris	1	1,61
28.	Turdus philomelos	1	1,61
29.	Turdus merula	1	1,61
30.	Picus viridis	1	1,61
31.	Dendrocopos major	1	1,61
32.	Accipiter gentilis	1	1,61
33.	Buteo buteo	1	1,61
34.	Falco tinnunculus	1	1,61
Total		62	100

Transect 8.
Năsăud .
Riversides with willow and alder bushes, agricultural area in the valley, pasture covered the slopes and the wooded hilltops.

Nr.	Species	Abundance	Dominance (%)
1.	Carduelis carduelis	6	13,04
2.	Parus major	4	8,68
3.	Motacilla alba	4	8,68
4.	Passer domesticus	16	34,78
5.	Pica pica	2	4,34
6.	Corvus cornix	2	4,34
7.	Lanius collurio	2	4,34
8.	Troglodytes troglodytes	2	4,34
9.	Oriolus oriolus	2	4,34
10.	Parus major	1	2,17
11.	Parus caeruleus	1	2,17
12.	Saxicola rubetra	1	2,17
13.	Dendrocopos major	1	2,17
14.	Turdus merula	1	2,17
15.	Buteo buteo	1	2,17
Total		46	100

Transect 9.
Ineu/ Cabana Brazilor
Alpine limit of forest and alpine pasture, 1000-1400 m altitude, some buildings, pygmy pine and juniper thickets .

Nr.	Species	Abundance	Dominance (%)
1.	Anthus spinoletta	8	9,6
2.	Parus ater	18	19,2
3.	Regulus regulus	15	18
4.	Motacilla alba	15	14,4
5.	Carduelis cannabina	12	7,2
6.	Fringilla coelebs	6	7,2
7.	Lanius collurio	6	2,4
8.	Loxia curvirostra	2	3,6
9.	Turdus torquatus	3	3,6
10.	Prunella collaris	3	2,4
11.	Nucifraga caryocatactes	2	1,2
12.	Oenanthe oenanthe	1	1,2
13.	Corvus corax	1	1,2
14.	Falco tinnunculus	1	1,2
15.	Serinus serinus	1	1,2
16.	Phoenicurus ochrulus	1	1,2
17.	Buteo buteo	1	1,2
Total		83	100

Transect S1.
Vârful Roşu
Alpine pasture, 1200- 1400 m altitude, *Rhododendron*, pygmy pine and juniper thickets, extremely overgrazed, some abrupt vertical stoneslopes and walls.

Nr.	Species	Abundance	Dominance (%)
1.	Prunella collaris	2	16,66
2.	Anthus spinoletta	10	83,34
Total		12	100

Transect S2.
Dej/ Căşeiu.
River valley, intensive agricultural area, sparsely bushed line along the riverside, scarce pasture, heavy polluted water, big rubblebanks in the riverbed.

Nr.	Species	Abundance	Dominance (%)
1.	Charadrius dubius	2	6,24
2.	Tringa hypoleucos	1	3,12
3.	Parus major	4	12,5
4.	Motacilla alba	2	6,24
5.	Sylvia communis	1	3,12
6.	Passer domesticus	22	68,73
Total		32	100

* Ardea cinerea 3 ind. not nesting

Transect S3.
Căşeiu.
River valley with small bushline at both riversides, intensive agriculture in the valley, some abrupt walls at both riversides.

Nr.	Species	Abundance	Dominance (%)
1.	Motacilla alba	1	11,11
2.	Streptopelia decaocto	2	22,22
3.	Columba palumbus	1	11,11
4.	Oriolus oriolus	1	11,11
5.	Picus viridis	1	11,11
6.	Sturnus vulgaris	3	33,33
Total		9	100

* Alcedo atthis 1 ind. not nesting
* Ciconia ciconia 1 ind. not nesting

Transect 11.
Someş-Odorhei/ Năpradea.
Treeless or very scarcely bushed riversides, few old willow trees, big rubblebanks, intensive agriculture in the whole valley.

Nr.	Species	Abundance	Dominance (%)
1.	Passer montanus	8	38,08
2.	Motacilla alba	5	23,8
3.	Carduelis carduelis	4	19,04
4.	Carduelis cannabina	2	9,52
5.	Emberiza citrinella	1	4,76
6.	Charadrius dubius	1	4,76
Total		21	100

Transect 12.
Sălsig.
Few willow trees and willow-thicket at right riverside, big rubblebanks, intensive agricultural area.

Nr.	Species	Abundance	Dominance (%)
1.	Passer montanus	10	40
2.	Passer domesticus	6	24
3.	Carduelis carduelis	4	16
4.	Motacilla alba	2	8
5.	Galerida cristata	1	4
6.	Phasianus colchicus	1	4
7.	Charadrius dubius	1	4
Total		25	100

* Egretta alba 1 ind. not nesting
* Ardea cinerea 1 ind. not nesting
breeding col. in Agrişu de Jos

Transect 13.
Downwards Baia Mare/ Pomi
Left riverside, intensive agriculture, willow-bushes along the riverside, big rubblebanks, some extremely overgrazed pasture.

Nr.	Species	Abundance	Dominance (%)
1.	Carduelis cannabina	3	16,65
2.	Passer montanus	4	22,2
3.	Sylvia atricapilla	2	11,1
4.	Motacilla alba	2	11,1
5.	Parus major	2	11,1
6.	Pica pica	2	11,1
7.	Lanius collurio	1	5,55
8.	Galerida cristata	1	5,55
9.	Charadrius dubius	1	5,55
Total		18	100

Transect 15.
Satu Mare/ Vetiş.
Big sand and rubblebanks, few willow bushes at both riversides, in some places abrupt riversides, agricultural area. The riverbank is partly used as a beach and camping site by people.

Nr.	Species	Abundance	Dominance (%)
1.	Alcedo atthis	1	6,66
2.	Falco tinnunculus	1	6,66
3.	Tringa hypoleucos	1	6,66
4.	Charadrius dubius	1	6,66
5.	Acrocephalus palustris	1	6,66
6.	Pica pica	1	6,66
7.	Sturnus vulgaris	7	46,62
8.	Streptopelia decaocto	2	13,33
Total		15	100

* Larus ridibundus 400 ind.

Transect 16.
Vásárosnamény .
Wooded riversides, gallery forest at the confluence of the Someş and theTisza, some sandbanks, right riverside partly covered by weekend cottages, garden-zone, beach. Intensive agricultural area.

Nr.	Species	Abundance	Dominance (%)
1.	Passer montanus	18	23,58
2.	Parus major	15	19,65
3.	Carduelis carduelis	6	7,86
4.	Carduelis chloris	5	6,55
5.	Parus caeruleus	5	6,55
6.	Acrocephalus palustris	3	3,93
7.	Phylloscopus collybita	3	3,93
8.	Oriolus oriolus	2	2,62
9.	Fringilla coelebs	2	2,62
10.	Columba palumbus	2	2,62
11.	Streptopelia turtur	2	2,62
12.	Aegithalos caudatus	2	2,62
13.	Pica pica	2	2,62
14.	Alcedo atthis	1	1,31
15.	Tringa hypoleucos	1	1,31
16.	Charadrius dubius	1	1,31
17.	Motacilla alba	1	1,31
18.	Muscicapa striata	1	1,31
19.	Sitta europaea	1	1,31
20.	Dendrocopos major	1	1,31
21.	Lanius collurio	1	1,31
22.	Motacilla flava	1	1,31
23.	Turdus philomelos	1	1,31
24.	Hippolais icterina	1	1,31
25.	Ciconia ciconia	1	1,31
26.	Hirundo rustica	22	28,82
27.	Sturnus vulgaris	20	26,2
28.	Streptopelia decaocto	15	19,65
Total		76	100

The avifauna of the Someş valley is typical of the studied area (North-Transylvania). Excepting the upper, montane, scarcely populated beech-spruce forests, a part of the river valley and its tributaries, the anthropogenic activity affects in high degree the natural biotopes, i.e. the whole valley is intensively used by agriculture. The intensive agricultural exploitation and dense population affects heavily on the natural habitats and also on the avifauna along the river. Higher abundance level is reached only in the upper, montane part of the Someş valley and at its confluence with the Tisza river.

Considering all published data available – Antal & Libus 1975 (43 species), Béldi & Mannsberg 1970 (92 species), Béres 1977 (222 species), Filipaşcu 1966 (113 species), Korodi 1974 (148 species), Munteanu 1989 (87 species) – and including our own observations of summer 1992, the avifauna of the Someş valley contains 226 species. Among these species there are a few species extinct and from Romania, , e.g. *Aegypius monachus*, *Gyps fulvus*. Taking into consideration the new water accumulation at the Someş river and their attraction for waterbirds, this list will surely be increase in the future.

The species abundance and dominance level varies in each studied transect. Natural habitats, especially beech- and sprucewood, but also areas with smaller anthropogenic impact in the middle reaches of the Someş river accommodate a numerous bird species in high abundance. In some cases the extensive agricultural use of land has not a negative influence on the avifauna; moreover in special instances and places the anthropogenic activities contribute to an increased biodiversity of vegetation and better breeding and feeding conditions for some bird species. Nevertheless intensively exploited agricultural areas, especially in the middle reaches of the Someş valley, contain barely poor avifauna, with a few species and reduced number of some common species. The abundance varies from a minimum of 9 breeding pairs of 6 species in 10 ha, found in transect Căşeiu, to a maximum met in transect Ineu-Cabana Brazilor with 83 pairs of 17 species and in transect Vásárosnamény with 76 pairs of 28 species of breeding birds.

Our results, comprising between the values of 290-830 pairs/km^2, found in montane regions, exceed the limits given by Munteanu (1989) for beech- and sprucewood in Bihar Mountains and are alike to those reported from Vlădeasa Mountain. There are no quantitative data available for comparative studies on the middle and, partly on the lower section of the Someş valley.

In the spring area of all Someş tributaries the human impact is relatively low. These mostly woody areas have just a small number of inhabitants and a very low population density. With a few exceptions, in such hardly disturbed and mostly natural habitats a typical -but not special- montane bird fauna occurs. Among the more interesting species, we mention especially *Ciconia nigra, Aquila chrysaetos, Aquila heliaca, Aquila pomarina, Hieraetus pennatus, Circaetus gallicus, Tetrao urogallus, Tetrastes bonasia, Scolopax rusticola, Glaucidum passerinum, Aegolius funereus, Bubo bubo, Strix uralensis, Picoides tridactylus, Anthus spinoletta, Motacilla cinerea, Nucifraga caryocatactes, Cinclus cinclus, Prunella collaris, Ficedula parva*, etc., which are

present with considerable populations in some parts. Unfortunately, in the last few decades, some important sections of the Someş valley were transformed from natural flowing river into water catchment basins. In the same time, the populations of some bird species typical of the riverbed, as *Charadrius dubius, Tringa hypoleucos, Cinclus cinclus, Motacilla cinerea,* decreased significantly. On the other hand, the existence of large free water surfaces and a better food supply attracts waterfowls in higher number in, especially *Podicipinae, Ardeinae, Larinae* and *Anatinae*, among which we can expect some new species for the hilly and montane region.

In the middle section of the Someş valley we met a relative heavy anthropogenic impact on the natural environment, realized especially in intensive agricultural use, overgrazing and also in water pollution. The breeding bird population was relative small, containing a reduced species spectrum and dominating by some common, ubiquitous and widespread species. Relatively natural habitats, such as bush- and wood strip, trees, extensive pasture- and grassland remained only in small areas, intercalating among agricultural lands, where we could find some interesting bird species, e.g. *Pernis apivorus, Falco subbuteo, Perdix perdix, Coturnix coturnix, Crex crex, Otus scops, Athene noctua, Alcedo atthis, Merops apiaster, Upupa epops, Lanius collurio, Oriolus oriolus, Sylvia nisoria, Saxicola rubetra, Saxicola torquata, Parus lugubris* . The big sand- and rubblebanks in the middle and upper sections of the Someş valley were populated by relatively strong population of *Charadrius dubius* and *Tringa hypoleucos*.

In the lower zone of the Someş valley, as it is well demonstrated by transect 16 (Vásárosnamény), the rich bird population were strictly linked to the existence of bushy- or wooded areas. Also in this part of the Someş valley a relatively large population of *Ciconia ciconia* were found. It is also well known, that the north-western part of Romania is an important migrating route of some bird species. These routes have a decreasing importance in the last half century for *Grus grus*. Much intensive observations about migration of *Passerinae*, and also of waterfowl and *Limicolae* started only some years ago.

Conclusions

The changes in large parts of the Someş riverside had important influences upon the avifauna, species diversity and population largeness. The deforestation, construction of catchment basins, intensive agriculture in the neighbourhood of the river bed, drainage, river regulation, water pollution, and also cutting and clearing from bushes and trees along the river bed changed the whole area and endangered the whole population of bird species. The increasing anthropogenic impact along the Someş valley became strongly connected with loss of biodiversity and particularly with the loss of highly specialised bird species.

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