RESEARCH ABOUT DÂRMĂNEŞTI VILLAGE ORNITHOFAUNA (ARGEŞ COUNTY, ROMANIA)

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Abstract. During 2009, through monthly monitoring of the avifauna from the built-up areas of Dârmăneşti village located in the hilly area of the Râul Doamnei hydrographical basin, 33 species of birds (belonging to 3 orders) were identified, most of them being residents or summer visitors. 20 species were breeding species; *Passer domesticus* and *Streptopelia decaocto* have had the biggest densities of them. Also, *Passer domesticus* and *Streptopelia decaocto* have had the biggest values regarding the constancy, the dominance and the Dzuba index of ecological significance. During the considered period, the Passeriformes order was always overdominant.

Keywords: ornithofauna, bird activities, built-up areas, Dârmăneşti, Argeş.

Rezumat. Cercetări despre ornitofauna satului Dârmăneşti (judeţul Argeş, România). În anul 2009, prin monitorizări lunare ale avifaunei din zona intravilană a satului Dârmăneşti din zona deluroasă a bazinului hidrografic Râul Doamnei au fost identificate 33 de specii de păsări (aparţinând la trei ordine), majoritatea fiind sedentare sau oaspeţi de vară. 20 de specii au fost clocitoare, *Passer domesticus* şi *Streptopelia decaocto* având dintre ele densităţile cele mai mari. *Passer domesticus* şi *Streptopelia decaocto* au avut şi cele mai mari valori în ceea ce priveşte constanţa, dominanţa şi indicele de semnificaţie ecologică Dzuba. Ordinul Passeriformes a fost întotdeauna supradominant.

Cuvinte cheie: ornitofauna, activitatea păsărilor, intravilan, Dârmăneşti, Argeş.

INTRODUCTION

Research studies regarding the rural settlements avifauna were rarely done at the national level (MUNTEANU, 2000; RANG, 2002; MESTECĂNEANU, 2006; BĂLESCU, 2009 etc.). The reason of this paper is that no comparable study-researches have been performed in the hydrographical basin of the Râul Doamnei, until now. As Dârmăneşti is a typical village of the hilly area, it is probable that its avifauna is similarly to the one of other villages from neighbourhood. The avifauna of the locality is heterogeneous but I focused here only on that from the built-up areas because one of the other habitats will be the subject of the other studies.

MATERIAL AND METHODS

Dârmăneşti village belongs to the locality with the same name, which is situated at ca. 350 m height, in the hilly area, on the Râul Doamnei Valley (Argeş County). It is crossed by the road that links the localities Piteşti and Domneşti. Eastwards there is the hill (541 m maximum height) that separates the Râul Doamnei Valley from the Bratia Valley. Westwards there is the Râul Doamnei Floodplain, with a height of 325 - 344 m. There are orchards and gardens on the sides of the built-up areas – principally, plum trees (*Prunus domestica*), apple trees (*Malus pumila*), and pear trees (*Pyrus communis*), vegetables (*Brassica oleracea*, *Capsicum annuum*, *Solanum lycopersicum*, *Solanum tuberosum*, *Phaseolus vulgaris*, *Allium cepa*, *Daucus carota*, etc.), cereals and fodder plants (*Zea mays*, *Trifolium pratense*, *Medicago sativa*, etc.). The hill is covered with plum and apple orchards, in the lower zone, and with deciduous forest (*Fagus sylvatica*, *Carpinus betulus* and *Quercus* sp.), in the upper one. The floodplain is mainly cultivated with cereals and fodder plants (*Triticum durum*, *Zea mays*, *Trifolium pratense*, *Medicago sativa*, etc.) (Fig. 1).

The observations were performed in 2009, only in the built-up areas, in the morning, when the birds had their maximum activity. One sample was done each month. I used the method of the transect. The track was 1 km long, on the main road of the locality (Fig. 1). The species were visually and auditory identified (by BRUUN et al., 1999). A binocular 10x50 was employed.

RESULTS AND DISCUSSIONS

In the built-up areas from Dârmăneşti village, during 2009, 33 birds species were identified – 8.64% of the species from Romania (MUNTEANU, 1998), that belong to 3 orders and 27 families (Table 1). The list of birds can be larger. Thus, in the previous years, I also observed: *Ardea cinerea*, *Ciconia ciconia*, *C. nigra*, *Anser anser*, *A. albifrons*, *Anas platyrhynchos*, *Aquila chrysaetos*, *A. pomarina*, *A. clanga*, *Circaetus gallicus*, *Buteo buteo*, *Pernis apivorus*, *Accipiter gentilis*, *A. nisus*, *Milvus migrans*, *Circus aeruginosus*, *C. cyaneus*, *C. pygargus*, *Falco peregrinus*, *F. subbuteo*, *F. vespertinus*, *F. tinnunculus*, *Phasianus colchicus*, *Grus grus*, *Columba oenas*, *C. palumbus*, *Streptopelia turtur*, *Cuculus canorus*, *Athene noctua*, *Strix aluco*, *Apus apus*, *A. melba*, *Merops apiaster*, *Upupa epops*, *Picus canus*, *Dendrocopos syriacus*, *D. medius*, *Galerida cristata*, *Alauda arvensis*, *Lullula arborea*, *Anthus trivialis*, *A. spinoletta*, *Motacilla cinerea*, *Lanius collurio*, *L. excubitor*, *Nucifraga caryocatactes*, *Corvus monedula*, *C. frugilegus*, *C. corone cornix*, *Acrocephalus schoenobaenus*, *Regulus regulus*, *R. ignicapillus*, *Ficedula albicollis*, *Phoenicurus phoenicurus*,

Erithacus rubecula, *Turdus torquatus*, *T. viscivorus*, *T. pilaris*, *Parus lugubris*, *Certhia familiaris*, *Fringilla montifringilla*, *Serinus serinus*, *Carduelis chloris*, *C. spinus*, *Loxia curvirostra*, *Emberiza citrinella*, etc., some of them as breeding species (*Athene noctua*, *Lanius collurio*, *Phoenicurus phoenicurus*, *Erithacus rubecula*, *Serinus serinus*, etc.), other in search of food (*Buteo buteo*, *Accipiter gentilis*, *A. nisus*, *Falco subbuteo*, *Corvus corone cornix*, etc.), and others only in migration (*Ciconia ciconia*, *Anser anser*, *A. albifrons*, *Circus aeruginosus*, *C. pygargus*, *Falco vespertinus*, *Grus grus*, *Columba palumbus*, etc.). *Strix aluco*, *Regulus ignicapillus*, *Fringilla montifringilla*, *Carduelis spinus*, etc. were winter visitors. In majority, all these species were accidental species or very rare species.

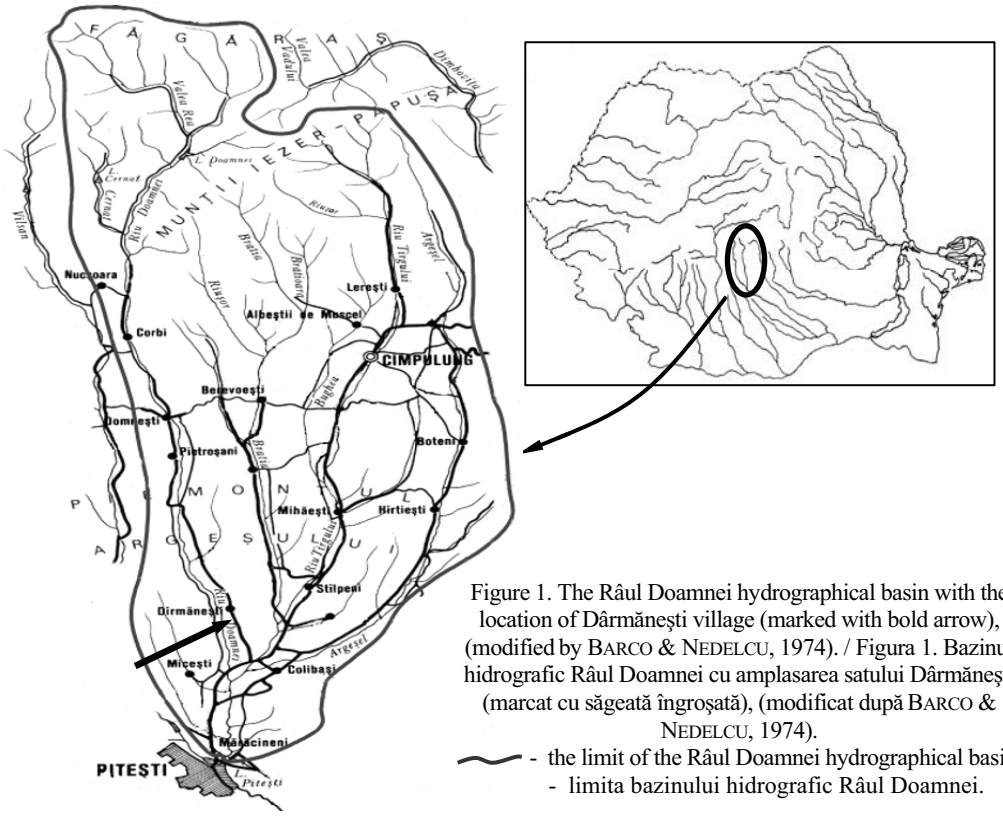

Figure 1. The Râul Doamnei hydrographical basin with the location of Dârmăneşti village (marked with bold arrow), (modified by BARCO & NEDELCU, 1974). / Figura 1. Bazinul hidrografic Râul Doamnei cu amplasarea satului Dârmăneşti (marcat cu săgeată îngroşată), (modificat după BARCO & NEDELCU, 1974).
- the limit of the Râul Doamnei hydrographical basin;
- limita bazinului hidrografic Râul Doamnei.

Comparatively, the avifauna of Stoeneşti locality, from Olt (an adjacent county of Argeş), during 2007 - 2009, numbered 93 species (but there were included all species observed in the perimeter of the locality: settlements, wetlands, agricultural areas, forests), (BĂLESCU, 2009). A part of the species identified at Dârmăneşti village during 2009 were observed in Stoeneşti, too (*Streptopelia decaocto*, *Picus viridis*, *Dendrocopos major*, *Hirundo rustica*, *Delichon urbica*, *Motacilla alba*, *Oriolus oriolus*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pica pica*, *Troglodytes troglodytes*, *Sylvia atricapilla*, *Parus caeruleus*, *P. major*, *Passer domesticus*, *P. montanus*, *Fringilla coelebs* and *Carduelis carduelis*). I mention that the locality Stoeneşti is in the plain area and the village Dârmăneşti is in the hilly area.

On the other hand, within the built-up areas of the Piatra Craiului Mountains, during May - July (2004), 48 species of birds were identified (MESTECĂNEANU, 2006), more than double, relatively to the 22 species identified in Dârmăneşti in the same period of 2009. This diversity is the result of the various surrounding habitats and of the longer time of field observations. 28 species are common to both studies (*Picus viridis*, *Dendrocopos major*, *Hirundo rustica*, *Delichon urbica*, *Motacilla alba*, *Sturnus vulgaris*, *Garrulus glandarius*, *Pica pica*, *Troglodytes troglodytes*, *Sylvia atricapilla*, *S. curruca*, *Phylloscopus collybita*, *Phoenicurus ochruros*, *Turdus merula*, *T. philomelos*, *Parus palustris*, *P. caeruleus*, *P. ater*, *P. major*, *Aegithalos caudatus*, *Sitta europaea*, *Passer domesticus*, *P. montanus*, *Fringilla coelebs*, *Pyrrhula pyrrhula*, *Coccothraustes coccothraustes*, *Carduelis carduelis* and *Emberiza citrinella*).

In the hydrographical mountain basin of the Bistrița Moldovenească River (MUNTEANU, 2000), the anthropogenic avifauna (from villages and cities, alpine blanks, pastures and crops, gardens with fruit trees, hedges, abrupt banks, stagnant waters and coniferous plantations) comprised 150 bird species. Specific to the settlements were: *Ciconia ciconia*, *Streptopelia decaocto*, *Athene noctua*, *Apus apus*, *Dendrocopos major, D. syriacus*, *Hirundo rustica*, *Delichon urbica*, *Motacilla alba*, *Lanius collurio*, *Sturnus vulgaris*, *Corvus monedula*, *Sylvia curruca*, *Muscicapa striata*, *Phoenicurus ochruros*, *Turdus merula*, *Parus major, Passer domesticus*, *P. montanus*, *Coccothraustes coccothraustes*, *Fringilla coelebs, Serinus serinus*, *Carduelis chloris*, *C. carduelis*, etc.

The anthropogenic ecosystem of the middle basin of the Siret River sheltered 105 birds' species, many typical for human settlements: *Ciconia ciconia*, *Streptopelia decaocto*, *Athene noctua*, *Hirundo rustica*, *Delichon urbica*, *Passer domesticus*, etc. (RANG, 2002).

Table 1. The taxonomic distribution of the avifauna observed within the built-up areas of Dârmăneşti village, during 2009, comparatively with the situation at the national level. / Tabel 1. Distribuția pe unități taxonomice a avifaunei observată în intravilanul satului Dârmăneşti în anul 2009, comparativ cu cea a ornitofaunei României.

Taxonomic unit	Romania	Dârmăneşti village	Weight (%)
Number of orders	19	3	15.79
Number of families	64	27	42.19
Number of species	382	33	8.64

Of the observed species (Table 2), regarding the phenology, 13 (39.39%) were resident (R), 1 (3.03%) was partial migratory (PM), 4 (12.12%) were winter visitors (WV), 10 (30.30%) were summer visitors (SV), 3 (9.09%) were species of passage (P) and 2 (6.06%) were accidental species (Ac). A species can belong to many phenological categories, but I took into consideration only their main category. The habitat provided the diet for the birds along the year, but preponderantly in its warm period, as suggested by the big percentage of the residents and summer visitors. However, the raised weight of the winter visitors shows that a series of birds found here good life conditions in this season. I mention that *Troglodytes troglodytes* and *Parus palustris* were considered winter visitors, despite the fact that, in other years, they were residents and *Parus ater* was catalogued as accidental bird, although, in other years, it was a frequent species.

The majority of the species (*Dendrocopos major, Sylvia curruca*, *Turdus philomelos*, *Parus palustris*, *Sitta europaea* etc.) have a diet that consists principally in insects and other small invertebrates and few species (*Pyrrhula pyrrhula* and *Carduelis carduelis*) are predominantly granivorous. Many species have a varied food, they being omnivorous (*Streptopelia decaocto*, *Garrulus glandarius*, *Passer domesticus*, *Coccothraustes coccothraustes*, etc.).

Table 2. The monthly occurrence of the bird species identified within the built-up areas of Dârmăneşti village, during 2009, and their phenology. / Tabel 2. Prezența lunară în observații a speciilor de păsări identificate în intravilanul satului Dârmăneşti în anul 2009 şi fenologia acestora.

No.	Species	Month												Phenology in the studied area	Observations
		Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.		
1	*Streptopelia decaocto*	■	■	■	■	■	■	■	■	■	■	■	■	R	
2	*Picus viridis*								■					Ac	1 i., on August 8
3	*Dendrocopos major*	■	■			■		■	■				■	R	
4	*Dendrocopos minor*		■										■	WV	
5	*Hirundo rustica*				■	■	■	■	■					SV	
6	*Delichon urbica*						■	■	■					SV	
7	*Motacilla alba*					■	■	■						SV	
8	*Oriolus oriolus*				■	■	■	■						SV	
9	*Sturnus vulgaris*			■	■	■	■			■				SV	
10	*Garrulus glandarius*							■					■	R	
11	*Pica pica*	■		■	■		■		■	■		■		R	
12	*Corvus corax*								■			■		R	
13	*Troglodytes troglodytes*		■											WV	1 i., on February 8
14	*Prunella modularis*										■			P	
15	*Sylvia atricapilla*					■								SV	1 i., on May 31
16	*Sylvia curruca*				■		■							SV	
17	*Phylloscopus collybita*							■						SV	1 i., on July 11
18	*Phoenicurus ochruros*				■	■	■	■	■					SV	
19	*Turdus merula*		■			■	■				■			PM	
20	*Turdus philomelos*						■							SV	5 i., on June 27
21	*Parus palustris*		■											WV	1 i., on February 8
22	*Parus caeruleus*	■	■	■	■		■	■		■		■	■	R	
23	*Parus ater*									■				Ac	2 i., on September 12
24	*Parus major*	■	■	■	■	■	■	■	■	■	■	■	■	R	
25	*Aegithalos caudatus*								■					R	1 i., on August 8
26	*Sitta europaea*	■				■	■	■	■	■	■	■	■	R	
27	*Passer domesticus*	■	■	■	■	■	■	■	■	■	■	■	■	R	
28	*Passer montanus*		■	■	■	■	■	■		■	■		■	R	
29	*Fringilla coelebs*			■	■				■				■	P	
30	*Pyrrhula pyrrhula*												■	WV	6 i., on 13 December
31	*Coccothraustes coccothraustes*	■					■						■	R	
32	*Carduelis carduelis*				■			■	■	■		■	■	R	
33	*Emberiza citrinella*			■					■					P	

Legend: R – resident species, PM – partial migratory species, WV – winter visitors, SV – summer visitors, P – passage species, Ac – accidental species, i. – individual(s).

Legendă: R – specie sedentară, PM – specie parțial migratoare, WV – oaspeți de iarnă, SV – oaspeți de vară, P – specii de pasaj, Ac – specii accidentale, i. – specii individuale.

The monthly number of the registered species and the monthly number of the registered individuals confirm the fact stated at the phenology that the warm period of the year was the most favourable for the observed bird species. So, from April to August, the number of species was always over 10 and the number of the individuals was always over 63, with the maximum in June (17 species, respectively 165 individuals). December was noticeable, because then a significant increase of the species number and of the individuals observed number was recorded, due to the increasing of both the individuals' number of the present species and of the other species, especially, species of Fringillidae, that, used the existing food supply and then left (Tables 2 and 3).

Table 3. The monthly and general repartition of the species and observed individual number. / Tabel 3. Repartiția lunară şi pe întreaga perioadă a anului 2009 a numărului de specii şi de exemplare observate.

Month	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.	Period
Number of species	8	10	9	13	13	17	15	15	10	7	8	14	33
Number of individuals	40	77	63	64	126	165	141	97	60	54	46	113	1046

Because Dârmăneşti village is in the vicinity of the forest from the hilly area, the major part of the identified species are typical for the woodland (*Picus viridis*, *Dendrocopos major*, *D. minor*, *Oriolus oriolus*, *Sturnus vulgaris*, *Garrulus glandarius*, *Corvus corax*, *Troglodytes troglodytes*, *Prunella modularis*, *Sylvia atricapilla*, *S. curruca*, *Phylloscopus collybita*, *Turdus merula*, *T. philomelos*, *Parus palustris*, *P. caeruleus*, *P. ater*, *P. major*, *Aegithalos caudatus*, *Sitta europaea*, *Fringilla coelebs*, *Pyrrhula pyrrhula*, *Coccothraustes coccothraustes*, *Carduelis carduelis* and *Emberiza citrinella*). Only 5 species (*Streptopelia decaocto*, *Hirundo rustica*, *Delichon urbica*, *Passer domesticus,* and *Passer montanus*) are characteristic for human settlements. *Motacilla alba* lives in human settlements and on the shores of the waters, *Pica pica* in open areas with scattered trees, and *Phoenicurus ochruros* in rocky areas (RADU, 1984; MUNTEANU, 2000).

Streptopelia decaocto has had the biggest number of individuals in June (12 individuals) and the least number of individuals in October and November (1 individual), less than 4 observed individuals being in winter. *Hirundo rustica*, from April to August, when it was observed, has had the maximum number of observed individuals in August (18 individuals), in passage (because the main passage from September was not intercepted). Also, a secondary maximum was in June (14 individuals), because of the young birds appearance. In the case of *Passer domesticus*, the number of individuals varied more evidently, its minimum being in April (24 individuals) and its maximum in July (85 individuals, mainly, young birds) (Fig. 2). These variations of the individuals are approximated, because the birds are often hidden and cannot be correctly counted.

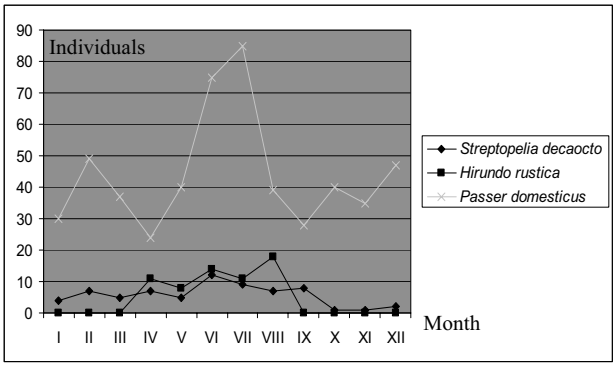

Figure 2. The monthly variation of the individuals number for some species of birds. / Figura 2. Variația lunară a efectivelor unor specii de păsări.

According to the methodology of the Atlas of the Romanian Breeding Birds (MUNTEANU et al., 2002), 20 species were breeding: 17 species (85%) – certainly breeding and 3 species (15%) – probably breeding. The biggest density was registered by *Passer domesticus* (2.16 pairs/ha). It was followed by: *Streptopelia decaocto* (0.50 pairs/ha), *Hirundo rustica* (0.36 pairs/ha), *Parus major* (0.35 pairs/ha), *Sturnus vulgaris* (0.30 pairs/ha), *Delichon urbica* (0.25 pairs/ha) and *Phoenicurus ochruros* (0.20 pairs/ha). The densities of the other species were smaller. The density of all species was 5.14 pairs/ha (Table 4).

Regarding the ecological indexes (Table 5), depending on the constancy, 3 species (9.09%, *Streptopelia decaocto*, *Parus major*, and *Passer domesticus*) were euconstant species (C4), 4 species (12.12%, *Pica pica*, *Parus caeruleus*, *Sitta europaea*, and *Passer montanus*) were constant species (C3), 8 species (24.24%, *Dendrocopos major*, *Hirundo rustica*, *Oriolus oriolus*, *Sturnus vulgaris*, etc.) were accessories species (C2) and 18 species (54.55%, *Picus viridis*, *Dendrocopos minor*, *Delichon urbica*, *Motacilla alba*, *Garrulus glandarius*, etc.) were accidental species (C1).

Depending on the dominance, 1 species (3.03%, *Passer domesticus*) was eudominant species (D5), 3 species (9.09%, *Streptopelia decaocto*, *Hirundo rustica*, and *Parus major*) were dominant species (D4), 6 species (18.18%, *Sturnus vulgaris*, *Parus caeruleus*, *Carduelis carduelis* etc.) were subdominant species (D3), 2 species (6.06%, *Turdus*

merula and *Fringilla coelebs*) were recedent species (D2) and 21 species (63.64%, *Troglodytes troglodytes*, *Turdus philomelos*, *Aegithalos caudatus*, *Coccothraustes coccothraustes*, *Emberiza citrinella*, etc.) were subrecedent species (D1).

Depending on the Dzuba index of ecological signification, 1 species (3.03%, *Passer domesticus*) was eudominant species (W5), 2 species (6.06%, *Streptopelia decaocto* and *Parus major*) were dominant species (W4), 6 species (18.18%, *Hirundo rustica*, *Sturnus vulgaris*, *Passer montanus*, etc.) were subdominant species (W3), 8 species (24.24%, *Oriolus oriolus*, *Pica pica*, *Phoenicurus ochruros*, *Fringilla coelebs*, etc.) were recedent species (W2) and 16 species (48.48%, *Picus viridis*, *Dendrocopos minor*, *Motacilla alba*, *Corvus corax*, *Prunella modularis*, *Parus ater*, etc.) were subrecedent species (W1).

Table 4. The densities of the breeding bird species observed during 2009 in Dârmăneşti village. / Tabel 4. Densitatea speciilor de păsări cuibăritoare observate în anul 2009 în satul Dârmăneşti.

No.	Species	Density (pairs/ha)	Breeding
1	*Streptopelia decaocto*	0.50	CB
2	*Dendrocopos major*	0.04	CB
3	*Hirundo rustica*	0.36	CB
4	*Delichon urbica*	0.25	CB
5	*Motacilla alba*	0.10	CB
6	*Oriolus oriolus*	0.06	CB
7	*Sturnus vulgaris*	0.30	CB
8	*Pica pica*	0.05	CB
9	*Sylvia atricapilla*	0.02	PB
10	*Sylvia curruca*	0.05	CB
11	*Phylloscopus collybita*	0.02	PB
12	*Phoenicurus ochruros*	0.20	CB
13	*Turdus merula*	0.13	CB
14	*Turdus philomelos*	0.10	PB
15	*Parus caeruleus*	0.11	CB
16	*Parus major*	0.35	CB
17	*Sitta europaea*	0.10	CB
18	*Passer domesticus*	2.16	CB
19	*Passer montanus*	0.16	CB
20	*Carduelis carduelis*	0.08	CB

Legend: CB – certainly breeding species, PB – probable breeding species.
Legendă: CB – specii clocitoare, PB – specii probabil clocitoare.

Table 5. The ecological indexes of the avifauna. / Tabel 5. Indicii ecologici ai avifaunei.

No.	Species	Constancy	Category of constancy	Dominance	Category of dominance	Dzuba index of ecological signification	Category of Dzuba index of ecological signification
1	*Streptopelia decaocto*	100.00	C4	6.50	D4	6.501	W4
2	*Picus viridis*	8.33	C1	0.10	D1	0.008	W1
3	*Dendrocopos major*	50.00	C2	0.86	D1	0.430	W2
4	*Dendrocopos minor*	16.67	C1	0.19	D1	0.032	W1
5	*Hirundo rustica*	41.67	C2	5.93	D4	2.470	W3
6	*Delichon urbica*	25.00	C1	1.05	D1	0.263	W2
7	*Motacilla alba*	25.00	C1	0.38	D1	0.096	W1
8	*Oriolus oriolus*	33.33	C2	0.57	D1	0.191	W2
9	*Sturnus vulgaris*	41.67	C2	4.88	D3	2.032	W3
10	*Garrulus glandarius*	16.67	C1	0.19	D1	0.032	W1
11	*Pica pica*	58.33	C3	1.05	D1	0.613	W2
12	*Corvus corax*	16.67	C1	0.19	D1	0.032	W1
13	*Troglodytes troglodytes*	8.33	C1	0.10	D1	0.008	W1
14	*Prunella modularis*	8.33	C1	0.19	D1	0.016	W1
15	*Sylvia atricapilla*	8.33	C1	0.10	D1	0.008	W1
16	*Sylvia curruca*	16.67	C1	0.19	D1	0.032	W1
17	*Phylloscopus collybita*	8.33	C1	0.10	D1	0.008	W1
18	*Phoenicurus ochruros*	41.67	C2	2.20	D3	0.916	W2
19	*Turdus merula*	41.67	C2	1.24	D2	0.518	W2
20	*Turdus philomelos*	8.33	C1	0.48	D1	0.040	W1
21	*Parus palustris*	8.33	C1	0.10	D1	0.008	W1
22	*Parus caeruleus*	75.00	C3	2.49	D3	1.864	W3
23	*Parus ater*	8.33	C1	0.19	D1	0.016	W1
24	*Parus major*	100.00	C4	9.08	D4	9.082	W4
25	*Aegithalos caudatus*	8.33	C1	0.10	D1	0.008	W1
26	*Sitta europaea*	75.00	C3	2.58	D3	1.936	W3

27	*Passer domesticus*	100.00	C4	50.57	D5	50.574	W5
28	*Passer montanus*	75.00	C3	3.06	D3	2.294	W3
29	*Fringilla coelebs*	33.33	C2	1.34	D2	0.446	W2
30	*Pyrrhula pyrrhula*	8.33	C1	0.57	D1	0.048	W1
31	*Coccothraustes coccothraustes*	25.00	C1	1.05	D1	0.263	W2
32	*Carduelis carduelis*	50.00	C2	2.20	D3	1.099	W3
33	*Emberiza citrinella*	16.67	C1	0.19	D1	0.032	W1

Legend: C1 - accidental species, C2 - accessory species, C3 - constant species, C4 - euconstant species; D1 - subrecedent species, D2 - recedent species, D3 - subdominant species, D4 - dominant species, D5 - eudominant species, W1 - subrecedent species, W2 - recedent species, W3 - subdominant species, W4 - dominant species, W5 - eudominant species.
Legendă: C1 - specii accidentale, C2 - specii accesorii, C3 - specie constantă, C4 – specie euconstantă, D1 - specie subrecedentă, D2 - specie recedentă, D3 - specie subdominantă, D4 - specie dominantă, D5 - specie eudominantă, 1 – specie subrecedentă, W2 - specie recedentă, W3 - specie subdominantă, W4 – specie dominantă, W5 - specie eudominantă.

The ecological diversity was small (2.04, respectively 3.60), the bird coenose being relatively unstable. The small values of evenness (0.58, respectively 0.11) show that the ecosystem was characterized by a great inequitability regarding the species distribution (Table 6). The differences between values consist in the fact that the Shannon-Wiener index takes in account both the number of species and the number of individuals of each species and the Simpson index takes in account the number of individuals of each species in relationship with the number of individuals of all observed species.

Table 6. The ecological diversity and the evenness of the avifauna observed in Dârmăneşti village. / Tabel 6. Diversitatea ecologică şi echitabilitatea avifaunei observată în satul Dârmăneşti.

Index	Shanon Wiener index	Hsmax	Shanon Wiener evenness	Simpson index (1/λ)	S	Simpson evenness
Value	2.04	3.50	0.58	3.60	34.04	0.11

I calculated the index of relation for all birds orders (KELEMEN & SZOMBATH, 1975; GACHE, 2002). The value of the static axis (As) is 33.33, and the value of the axis of dominancy (Ad) is 66.66.

Every season, the Passeriformes order was overdominant and the other orders were complementary (Table 7, Fig. 3). Considering the global participation of the orders to the coenose, again the Passeriformes order was overdominant and the other two orders (Ciconiiformes and Passeriformes) were complementary (Table 7, Fig. 4).

Table 7. The values of the index of relation of the bird orders identified in Dârmăneşti village, during 2009. / Tabel 7. Valorile indicelui de relație al ordinelor de păsări identificate în satul Dârmăneşti în anul 2009.

Orders	Prevernal	Vernal	Aestival	Serotinal	Autumnal	Hiemal	Period
Columbiformes	9.45	3.97	6.86	9.55	1.85	5.26	6.56
Piciformes	0.00	1.59	0.65	1.27	0.00	2.26	1.16
Passeriformes	90.55	94.44	92.48	89.17	98.15	92.48	92.28

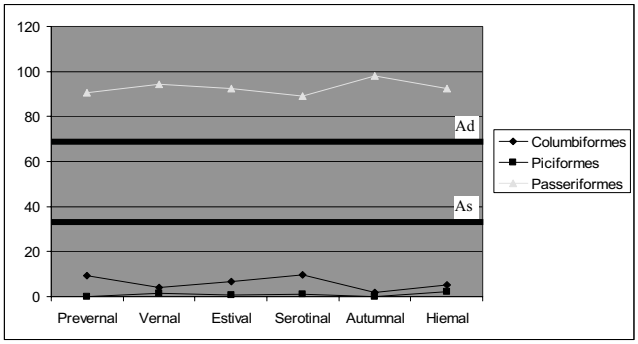

Figure 3. The seasonal dynamics of the orders of birds observed during 2009 in Dârmăneşti village. / Figura 3. Dinamica sezonieră a ordinelor de păsări observate în satul Dârmăneşti în anul 2009.

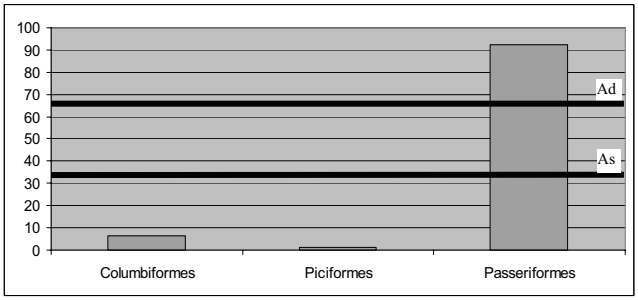

Figure 4. The global participation of the orders to the bird coenose observed during 2009 in Dârmăneşti village. / Figura 4. Participarea medie globală a ordinelor la populația de păsări observată în anul 2009 în satul Dârmăneşti.

CONCLUSIONS

The following conclusions can be drawn:

- during 2009, within the built-up areas of Dârmăneşti village, with a single field observation each month performed using the transect method on 1 km long track, 33 birds species were identified, but the list of species can be longer;

- in majority, the species were residents or summer visitors;
- most species and observed individuals were recorded in June; the least species were registered in October and the least number of individuals in January;
- the maximum of the individuals number for *Streptopelia decaocto* and *Passer domesticus* was in June, respectively July, after the young abandoned the nests; in the case of *Hirundo rustica*, the maxim was in August, in the passage period;
- 20 species were observed as breeding;
- *Passer domesticus* (2.16 pairs/ha) and *Streptopelia decaocto* (0.50 pairs/ha) had the bigger densities;
- the density: 5.14 pairs/ha for all birds;
- regarding the constancy, the dominance and the Dzuba index, the accidental species and the subrecedent species were preponderant;
- the ecological diversity of the birds was reduced, the ecosystem being characterised by a big unevenness regarding the distribution of the individuals per species;
- each period, the order Passeriformes was overdominant and the other orders were complementary.

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