

## BIRD COMMUNITIES OF THE WATER RESERVOIRS AND FISH-PONDS IN THE PARÍŽ CREEK CATCHMENT

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### Abstract

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Ornithological investigation of water reservoirs and fish-ponds were carried out in 2003–2004 in 7 sites. We have identified 109 bird species, 50 of them were bound on water biotopes. Eudominant, dominant or euconstant nesting species bound on water (*Tachybaptus ruficollis*, *Podiceps cristatus*, *Anas platyrhynchos*, *Aythya ferina*, *Fulica atra* and *Acrocephalus arundinaceus*) are characteristic species of water reservoirs of the study area. On the basis of Sørensen-index the species diversity in this biotope type is dependent mainly on the development of water and shore vegetation and relief configuration. The studied sites belong to significant landscape segments substituting the destroyed marsh biotopes.

*Key words:* birds communities, water reservoirs, fish-ponds, Paríž creek catchment

### Introduction

The basin of the Paríž creek catchment is a significant ornithological area of Slovakia. There is one of the most significant ornithological sites of Slovakia - National Nature Reserve Parížske močiare marshes. From ornithological viewpoint it is one of the best studied sites. Their research begun in the second half of the 20<sup>th</sup> century (Trnka et al., 2003) and it also continues. While the ornithologists' attention was pointed at the NNR Parížske močiare marshes for some decades, the ornithofauna of artificial water biotopes (water reservoirs and fish-ponds) built in the basin in the second half of the 20<sup>th</sup> century went unheeded. We have no older data about birds of these sites. Within the frame of the project Evaluwet and Grant project No. 2/5063/25 which aim was to evaluate the river basin with respect of the "bird areas of the Parížske močiare marshes" (Rybanič et al., 2004), in 2003–2004 we studied the ornithofauna of all water reservoirs and fish-ponds of the basin.

## Characteristics of territory

The Paríž creek catchment lies in the depression of the southern part of the Hronská pahorkatina hills, which belongs to the geomorphological district of the Podunajská nížina lowland (Mazúr, Lukniš, 1980) within the complex of the Podunajská pahorkatina hills. It has ca 232.8 km<sup>2</sup>. The catchment area is of a prolonged shape with significantly asymmetrical network of affluents. According to the climate-geographic division (Lapin et al., 2002) the Paríž creek catchment has dry to mild dry lowland climate with two subtypes. The middle part of the Paríž creek alluvium and the right side of the catchment belong to the warm climate subtype with an average rainfall from 530 to 650 mm per year. Average temperature in January is –1 to –4 °C and in July 20.5 to 19.5 °C. The left side of the catchment with more broken relief has a warm climate with an average rainfall from 650 to 750 mm per year with average temperature in July 19.6–18.5 °C and in January from –1.4 to –4 °C. According to Gemeran et al. (1995) of the Paríž creek had a typical river line, mildly meandering character with developed shore stands and floodplain forest. Similarly as the other creeks in Slovakia it was also affected by hydrological adjustments. From the second half of the 20<sup>th</sup> century there are carried out several adjustments affecting its affluents, too.

The whole area is situated in an intensively used agricultural land. The creek is 41.5 km long. Almost its whole part was regulated at the beginning of the sixties of the last century. There are 6 water reservoirs with irrigation function. Their main aim is to accumulate water for large-scale irrigation. Just of the Paríž creek by the village Jasová almost under the spring of the Paríž creek and by the village Dubník have been built two water reservoirs. Next four reservoirs are situated on unnamed affluents of the Paríž creek by the villages Dubník (right-sided affluents), Rúbaň and Svodín (left-sided affluents). Besides them above the village Kamenný Most are the Parížske rybníky fishponds. All these sites are stocked with fish and managed by the Slovak Fishery Association or its local organizations. In 2004 the Jasová and Dubník I. as well as Dubník II. and Parížske rybníky fishponds were in November emptied because of fishing out.

## Methods

Bird investigation of the water reservoirs of the Paríž creek catchment was carried out in the vegetation period of 2003 (June–November) and 2004 (April–November). We used the methodology applied in the investigation of ornithocoenoses of water reservoirs in the Trnavská pahorkatina hills (Kalivodová, Feriancová-Masárová, 1993) and fishponds of the Žitný ostrov area (Darolová, Kalivodová, 1993; Kalivodová, Darolová, 1995). Birds in single sites were observed always from the same point or the site was passed round always in the same direction. Single sites were studied always in the same time. Birds were observed by the binocular 10x40, 25x70. In order to calculate dominance and frequency birds were counted in each site always from the same point. The investigation was realized in a regular two weeks (April–July) or month intervals (August–November). Only those forest bird species were taken into account which flew to the banks of sites or nested in the narrow belt of shore vegetation of dams. Water bird species communities in single sites as well as in the Trnavská pahorkatina hills were compared by the Sørensen's index.

## Results and discussion

On 7 studied areas of the Paríž creek catchment during a two-years period we have identified 109 bird species (Table 1). It represents 32.05% of recent wild living bird species of Slovakia (Danko et al., 2002). Almost the half of them (45.87%) are water or water bound species. From all recorded species 37 nested at least in one of the studied sites. Nesting of other 14 species is probable, 22 species occurred only in the period of migration and 36 ones flew into the site during the study period from the surroundings. From among the identified species 30 occurred in all studied areas, 13 species of them were water ones. Eight water species (*Tachybaptus ruficollis*, *Podiceps cristatus*, *Anas platyrhynchos*, *Fulica atra*, *Acrocephalus schoenobaenus*, *A. palustris*, *A. arundinaceus*, *Motacilla alba*) nested in all study areas. The species *Emberiza schoeniclus* nested only in 4 sites. Additionally we presume, that *Aythya ferina* nested in 2004 in the water reservoir Jasová and *Circus aeruginosus* in the site Dubník I. From temporarily occurring water species 3 were identified in all study areas (*Phalacrocorax carbo*, *Ardea cinerea*, *Riparia riparia*).

Two species, *Netta rufina* and *Haliaeetus albicilla* appeared only in the Parížske rybníky fishponds.

The most abundant were the species on the water reservoir Jasová (80 species) and Svodín (78), the least in the site Dubník I. (52) and Rúbaň II. (53).

Besides the species *Netta rufina* nested in the Parížske rybníky fishponds in 2003 and 2004, all species were recorded during the fifty years investigation in the site Parížske močiare marshes (Kalivodová, Trnka, 2005). All bird species are protected according to the "Law on nature and landscape protection No. 543/2002" and "Annex No. 6 to Decree No. 24/2003", out of them 17 species are of European significance. They are the following water species: *Ixobrychus minutus*, *Nycticorax nycticorax*, *Egretta alba*, *Ardea purpurea*, *Ciconia ciconia*, *Cygnos olor*, *Aythya nyroca*, *Haliaeetus albicilla*, *Circus aeruginosus*, *C. cyaneus*, *Tringa glareola*, *Sterna hirundo*, *Chlidonias niger* and *Alcedo atthis*. Out of them *Ixobrychus minutus* nested in 2 sites, nesting of the species *Ardea purpurea* and *Circus aeruginosus* was expected in one site.

The ornithocoenosis of the studied water biotopes is characterized by eudominant or dominant and euconstant nesting as well as temporarily occurring water bird species. They are the following nesting species: *Tachybaptus ruficollis*, *Podiceps cristatus*, *Anas platyrhynchos*, *Fulica atra*, *Motacilla alba*, *Acrocephalus schoenobaenus*, *A. palustris* and *A. arundinaceus* and *Aythya ferina* (expected nesting in 1 locality) and the temporarily occurred species *Ardea cinerea*.

The community of water bird species of the water reservoir Parížsky potok creek and the sites in the Trnavská pahorkatina hills (Kalivodová, Feriancová-Masárová, 1993) were compared by the Sørensen's index in order to identify the landscape-ecological significance of single sites (Fig. 1). In both regions altogether were identified 64 water bird species.

On the basis of calculation it can be stated that in the Paríž creek catchment similarity is shown in the water reservoir Jasová and Dubník I, Jasová and Svodín, Dubník I and Rúbaň

Table 1. Birds of the water reservoirs in the Paríž creek catchment

Water reservoir	Jasová			Dubník I.			Dubník II.			Růžná I.			Růžná II.			Svodín			Parčíské rybníky fish ponds		
	C	D	F	C	D	F	C	D	F	C	D	F	C	D	F	C	D	F	C	D	F
Area	23.50 ha			14.20 ha			19.68 ha			9.75 ha			17.83 ha			14.07 ha			36.00 ha		
<i>Tachybaptus ruficollis</i>	B	1.50	80	B	2.52	66	B	0.89	25	B	0.39	11	B	0.26	12.5	B	1.49	63	B	0.48	45.4
<i>Podiceps cristatus</i>	B	4.70	100	B	11.61	83	B	15.89	100	B	5.85	66	B	3.38	50	B	9.60	63	B	2.82	100
<i>Podiceps nigricollis</i>	M	0.40	10				G	2.97	50	G	0.39	11	G	0.26		M	0.49	18	M	0.11	9.0
<i>Phalacrocorax carbo</i>	B	0.30	20	pB	5.05	83	G	0.14	12	B	0.78	22	G	0.26	12.5	G	0.66	27	G	0.85	45.4
<i>Isobrychus minutus</i>	M	0.20	20				G	0.14	12	B	0.78	22	G	0.26		G	0.49	27	G	0.18	27.2
<i>Nycticorax nycticorax</i>	G	0.40	10				G	1.63	62	G	0.78	22	G	0.26		G	2.31	63	G	1.44	72.7
<i>Egretta alba</i>	G	0.90	40	G	0.50	16	G	3.12	75	G	4.29	66	G	0.52	25	G	1.15	27	G	1.89	100
<i>Ardea cinerea</i>	G	0.10	10	pB	1.01	33	G	0.14	12	G	0.39	11							G	0.33	9
<i>Ardea purpurea</i>	G	0.10	10				B	0.89	50	G	0.39	11							G	0.33	9
<i>Ciconia ciconia</i>							M	0.14	12										G	2.97	100
<i>Cygnus olor</i>	B	1.80	50	B	2.52	50															
<i>Anser anser</i>																					
<i>Anas penelope</i>																					
<i>Anas strepera</i>	M	0.20	10				M	0.29	12										M	0.11	9.0
<i>Anas crecca</i>	M	0.60	20																M	0.40	18.1
<i>Anas platyrhynchos</i>	B	26.50	100	pB	2.02	33	B	22.28	75	B	1.95	11	B	3.38	37.5	B	3.47	63	B	4.12	100
<i>Anas querquedula</i>	G	2.60	40				G	1.48	25				G	0.26	12.5	M	4.96	9	M	2.26	27.2
<i>Anas chrypeata</i>	M	0.40	20				M	0.74	25										M	0.55	9
<i>Netta rufina</i>																			B	0.48	18.1
<i>Aythya ferina</i>	pB	7.80	60	M	1.51	16	M	2.08	37	M	0.78	11	M	0.26	12.5	G	0.66	9	G	1.11	18.1
<i>Aythya nyroca</i>	M	0.20	10																M	0.33	9
<i>Aythya fuligula</i>	pB	2.80	50				G	1.18	25	M	1.17	11	M	2.34	12.5	M	0.16	9	G	0.26	18.1
<i>Haliaeetus albicilla</i>																			G	0.03	9
<i>Circus aeruginosus</i>																					
<i>Circus cyaneus</i>	G	0.50	30	pB	1.51	33	G	0.14	12	G	0.39	11	G	0.26	12	G	1.32	54	G	0.37	63.6
<i>Buteo buteo</i>	M	0.10	10				G	0.14	12	G	0.39	11	G	0.26	12	G	0.16	9	G	0.18	36.3
<i>Falco tinnunculus</i>	G	0.10	10	G	0.50	16	G	0.14	12	G	0.39	11	G	0.26	12	G	0.49	27	G	0.03	9
<i>Falco subbuteo</i>																			G	0.16	9
<i>Phasianus colchicus</i>	G	0.40	40	G	1.01	33				G	1.95	33	G	0.26	12	G	0.16	9	G	0.03	9
<i>Rallus aquaticus</i>																			G	0.03	9
<i>Gallinula chloropus</i>	B	0.50	30	B	1.51	16	B	0.14	12										B	0.07	18.1
<i>Fulica atra</i>	B	8.40	100	B	1.51	33	B	22.58	100	B	4.68	55	B	2.86	37	B	6.64	63	B	68.76	100
<i>Charadrius dubius</i>	M	0.20	10																M	0.03	9
<i>Vanellus vanellus</i>	G	0.30	10	G	2.02	16				M	1.95	11	G	0.78	12				M	0.03	9
<i>Gallinago gallinago</i>																					
<i>Tringa erythropus</i>	M	0.10	10																M	0.03	9
<i>Tringa ochropus</i>																			M	0.11	9
<i>Tringa glareola</i>																			M	0.07	18.1
<i>Actitis hypoleucos</i>	M	0.30	20				M	0.14	12	M	0.78	11	M	0.52	12	M	0.66	9	M	0.07	18.1

Table 1. (Continued)

Water reservoir	Jasová			Dubník I.			Dubník II.			Růžbaň I.			Růžbaň II.			Svodín			Parižské rybníčky fish ponds		
	C	D	F	C	D	F	C	D	F	C	D	F	C	D	F	C	D	F	C	D	F
Area	23,50 ha			14,20 ha			19,68 ha			9,75 ha			17,83 ha			14,07 ha			36,00 ha		
Species	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
<i>Larus ridibundus</i>	-	-	-	-	-	-	G	0.39	11	-	-	-	-	-	-	-	-	-	G	1.11	18.1
<i>Sterna hirundo</i>	-	-	-	-	-	-	M	0.29	12	-	-	-	-	-	-	-	-	-	M	0.14	9
<i>Chlidonias niger</i>	-	-	-	-	-	-	M	0.14	12	-	-	-	-	-	-	-	-	-	M	0.14	9
<i>Columba livia f. domest.</i>	-	-	-	-	-	-	G	1.95	33	-	-	-	-	-	-	-	-	-	G	0.22	36.3
<i>Columba palumbus</i>	B	1.00	40	G	1.01	16	B	0.78	11	B	0.26	12	G	0.49	9	-	-	-	G	0.22	36.3
<i>Streptopelia decaocto</i>	G	0.10	10	G	2.02	66	B	0.44	25	B	0.78	22	B	0.78	27	G	0.49	27	G	0.11	18.1
<i>Streptopelia turtur</i>	B	1.10	70	G	0.50	16	B	0.14	12	G	0.78	11	B	0.52	25	G	0.49	18	G	0.03	9
<i>Cuculus cantorus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Anas apus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Alcedo atthis</i>	G	0.10	10	G	0.50	16	-	-	-	G	0.78	22	G	0.36	12	G	0.16	9	G	0.03	9
<i>Jynx torquilla</i>	M	0.10	10	-	-	-	G	0.14	12	-	-	-	M	0.26	12	-	-	-	-	-	-
<i>Picus viridis</i>	-	-	-	-	-	-	-	-	-	-	-	-	G	0.26	12	G	0.66	27	-	-	-
<i>Dryocopus martius</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Dendrocopos major</i>	B	0.20	10	G	0.50	16	B	0.14	12	G	1.17	33	-	-	-	G	0.49	27	-	-	-
<i>Dendrocopos syriacus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Dendrocopos minor</i>	G	0.10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Riparia riparia</i>	G	1.90	30	G	1.01	16	G	0.44	12	G	0.78	11	G	0.52	12	G	0.66	9	G	0.07	9
<i>Hirundo rustica</i>	G	3.40	50	G	11.61	50	G	1.48	37	G	8.20	66	G	8.07	50	G	5.29	54	G	1.26	45.4
<i>Delichon urbica</i>	G	2.20	40	G	9.09	50	G	2.08	37	G	6.25	55	G	14.84	62.5	G	4.13	45	G	1.59	54.4
<i>Anthus trivialis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Monticola flava</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Monticola alba</i>	B	0.60	10	B	0.50	16	B	0.29	12	B	1.56	22	B	3.12	50	B	1.82	45	B	0.03	9
<i>Troglodytes troglodytes</i>	pB	0.10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Erithacus rubecula</i>	G	0.20	20	G	0.50	16	B	0.29	12	-	-	-	-	-	-	G	0.16	9	-	-	-
<i>Luscinia megarhynchos</i>	B	1.40	50	B	1.1	16	B	0.44	37	B	2.34	55	G	0.26	12	G	0.49	18	-	-	-
<i>Phoenicurus ocherurus</i>	G	0.10	10	-	-	-	G	0.14	12	-	-	-	-	-	-	B	0.82	27	G	0.07	18.1
<i>Saxicola torquata</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Turdus merula</i>	B	0.20	20	B	1.01	33	B	0.29	25	B	1.56	33	B	0.78	25	B	0.66	9	-	-	-
<i>Turdus philomelos</i>	G	0.20	20	G	0.50	16	B	0.14	12	G	0.39	11	G	0.26	12	B	1.32	54	G	0.03	9
<i>Locustella fluviatilis</i>	pB	0.10	10	B	1.51	33	-	-	-	-	-	-	-	-	-	pB	0.16	9	G	0.03	9
<i>Locustella luscinioides</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	pB	0.16	9	G	0.11	9
<i>Acroceph.</i>	B	0.40	30	B	1.51	33	B	0.29	12	B	1.17	11	pB	0.52	25	B	0.66	18	B	0.44	18
<i>schoenobaenus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Acrocephalus palustris</i>	B	0.20	20	B	1.01	16	B	0.29	12	B	1.17	11	B	0.26	12	B	0.49	18	B	0.07	9
<i>Acrocephalus scirpaceus</i>	B	0.30	40	B	1.01	16	B	0.29	12	B	0.78	22	B	0.26	12	B	0.49	18	B	0.07	18
<i>Acroceph. arundinaceus</i>	B	0.80	30	B	5.55	50	B	1.48	25	B	2.73	22	B	1.30	37	B	2.31	45	B	0.59	36
<i>Hippoboscus icterina</i>	pB	0.10	10	-	-	-	-	-	-	M	0.39	11	-	-	-	pB	0.33	18	-	-	-
<i>Sylvia curruca</i>	G	0.20	20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Sylvia communis</i>	B	0.50	30	-	-	-	B	0.14	12	-	-	-	-	-	-	B	0.49	18	-	-	-
<i>Sylvia borin</i>	pB	0.30	20	pB	0.50	16	-	-	-	G	0.39	11	-	-	-	pB	0.33	9	-	-	-
<i>Sylvia atricapilla</i>	B	0.80	60	B	1.01	33	B	0.44	25	B	0.78	22	B	0.26	12	B	0.99	36	G	0.11	9

Table 1. (Continued)

Water reservoir	Jasová			Dubník I.			Dubník II.			Růbaň I.			Růbaň II.			Svodín			Parižské rybníky fish ponds		
	C	D	F	C	D	F	C	D	F	C	D	F	C	D	F	C	D	F	C	D	F
Area	23.50 ha			14.20 ha			19.68 ha			9.75 ha			17.83 ha			14.07 ha			36.00 ha		
Species	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]	[%]
<i>Phylloscopus sibilatrix</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Phylloscopus collybita</i>	M	0.10	10	-	-	-	B	0.14	12	G	0.39	11	G	0.26	12	G	0.33	18	-	-	-
<i>Phylloscopus trochilus</i>	pB	0.20	20	-	-	M	0.29	12	G	0.39	11	G	0.26	12	pB	0.66	36	-	-	-	-
<i>Muscicapa striata</i>	-	-	-	G	1.01	16	-	-	-	G	0.39	11	-	-	-	-	-	-	-	-	-
<i>Ficedula albicollis</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Ficedula hypoleuca</i>	M	0.10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Panurus biarmicus</i>	pB	0.20	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Agredaltes caudatus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Parus palustris</i>	pB	0.10	10	G	1.01	33	G	0.14	12	G	0.78	22	G	0.26	12	B	0.82	36	-	-	-
<i>Parus caeruleus</i>	B	0.80	40	B	0.50	16	B	0.14	12	G	0.39	11	B	0.52	12	B	0.82	36	-	-	-
<i>Parus major</i>	B	0.80	40	B	1.01	33	B	0.44	37	B	1.56	33	G	0.78	25	B	1.49	45	G	0.03	9
<i>Sitta europaea</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Remiz pendulinus</i>	pB	0.10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Oriolus oriolus</i>	B	0.90	50	B	1.01	33	G	0.44	25	pB	0.39	11	B	1.04	40	G	0.33	9	G	0.07	9
<i>Lanius collurio</i>	B	0.20	10	-	-	-	B	0.29	12	G	0.39	11	B	1.30	25	G	0.16	9	G	0.03	9
<i>Garrulus glandarius</i>	G	0.40	40	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Pica pica</i>	B	0.50	40	G	0.50	16	B	0.14	12	-	-	-	-	-	-	-	-	-	-	-	-
<i>Corvus frugilegus</i>	G	0.70	50	G	0.50	16	G	0.14	12	G	0.39	11	-	-	-	-	-	-	-	-	-
<i>Corvus corone</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Starnus vulgaris</i>	B	6.00	30	B	2.02	16	B	4.45	25	B	11.32	44	G	39.32	50	G	21.03	36	G	0.07	18
<i>Passer domesticus</i>	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Passer montanus</i>	G	6.30	70	B	5.55	66	B	3.86	50	G	4.29	22	G	1.87	37	G	2.64	36	G	1.70	45
<i>Fringilla coelebs</i>	G	0.20	20	G	0.50	16	B	0.14	12	B	2.34	44	G	0.26	12	B	1.49	54	G	0.07	18
<i>Serinus serinus</i>	B	0.30	30	G	1.01	33	B	0.14	12	B	1.95	44	G	0.26	12	B	0.82	27	G	0.03	9
<i>Chloris chloris</i>	B	0.70	50	G	1.01	16	G	0.59	37	G	1.17	33	G	0.26	12	G	1.82	45	-	-	-
<i>Carduelis carduelis</i>	B	0.90	50	G	1.51	16	B	0.29	12	G	0.39	11	B	1.04	25	G	1.65	27	-	-	-
<i>Carduelis cannabina</i>	G	0.30	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Coccothraustes</i>	G	0.10	10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<i>Emberiza citrinella</i>	G	0.40	40	B	2.52	16	G	0.14	12	G	0.78	22	G	1.04	37	B	0.16	9	G	0.11	27
<i>Emberiza schoeniclus</i>	B	0.40	40	B	2.52	50	G	0.59	25	B	1.17	22	M	0.26	12	M	1.15	27	G	0.07	9

Legend: C – coenological relevance, D – dominance, F – frequency, B – breeding, pB – probably breeding, G – guest, M – migrant

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	X															
2	<b>76.9</b>	X														
3	70	70.8	X													
4	73.6	<b>75.5</b>	60.6	X												
5	74.5	71.7	56.6	69.2	X											
6	<b>85.2</b>	73.4	62.8	58.8	60.0	X										
7	22.2	12.5	14.2	16.0	21.0	13.7	X									
8	17.1	17.3	10.7	12.0	15.7	10.3	<b>75.0</b>	X								
9	<b>76.1</b>	66.6	55.2	47.3	36.8	30.43	14.8	9.6	X							
10	57.1	50.0	45.1	40.0	44.0	31.4	16.6	17.6	45.4	X						
11	51.1	34.7	34.4	44.0	29.0	33.3	25.0	27.2	35.4	58.8	X					
12	64.9	35.4	43.1	40.0	39.1	37.0	8.8	6.6	49.0	34.7	24.4	X				
13	73.6	50.0	53.7	47.0	51.7	54.2	11.5	12.0	64.7	44.8	44.0	42.8	X			
14	46.5	40.9	30.0	33.3	18.9	33.3	15.3	16.6	35.4	55.5	69.2	22.2	44.0	X		
15	50.9	25.8	30.5	37.5	31.0	29.7	21.0	15.7	35.1	56.5	36.3	33.3	46.6	42.8	X	
16	46.8	34.6	34.3	12.0	47.8	33.3	26.6	20.0	35.2	52.3	52.9	27.6	37.9	33.3	47.8	X

Fig. 1. Comparison of water bird species communities of the water reservoirs by the Sorensens index in the Paríž creek catchment (Hronská pahorkatina hills) with the sites in the Trnavská pahorkatina hills. Paríž creek area; 1 – Jasová, 2 – Dubník 1, 3 – Dubník 2, 4 – Růbaň 1, 5 – Růbaň 2, 6 – Svodín, 7 – Trnavská pahorkatina hills, 8 – Viničné, 9 – Šenkvice, 10 – Blatné, 11 – Vištuk, 12 – Ronava, 13 – Budmerice, 14 – Dolany, 15 – Suchá nad Parnou, 16 – Boleráz, 17 – Dubové.

I. Between the both regions similarity is shown only in the water reservoir Jasová and Blatné (more than 75% similarity). The water reservoir Jasová shows with other eight sites more than 50% similarity. Comparing the other sites we can state that two water reservoirs in the Trnavská pahorkatina hills are totally different (Viničné, Šenkvice). On the basis of comparison of sites it can be stated that the greatest influence on the composition of bird communities has the volume and quality of reed stands offering the possibility of nesting. The volume and age of the site is not a deciding factor. In the period of our investigation the site Viničné and Šenkvice in the Trnavská pahorkatina hills has no reed and shore stands.

## Conclusion

In six water reservoirs and a fish pond in the Paríž creek catchment area in the Hronská pahorkatina hills we identified 109 bird species. Half of them belongs to water and water bound species. 37 species nested at least in one of the studied area, nesting of other 14 species is probable, 22 ones appeared only in the migration period and 36 species fled in from the neighbouring areas. Characteristical species of water reservoirs of the study area are eudominant and dominant or also euconstant water and to water bound nesting species *Tachybaptus ruficollis*, *Podiceps cristatus*, *Anas platyrhynchos*, *Aythya ferina*, *Fulica atra* a *Acrocephalus arundinaceus*. Species diversity in this biotope is dependent mainly on the development of reed and shore vegetation. Single sites are less similar, therefore it can be stated that in spite of their nearness each of them has its own ornithocoenosis. The sites in the Paríž creek catchment in the Hronská pahorkatina hills and the sites of the Trnavská pahorkatina hills are less similar. This fact is probably influenced either by different quality and volume of reed and shore stands and either by geographical location.

Translated by Katalin Kis-Csáji

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**Kalivodová E.: Vtácie spoločenstvá vodných nádrží a rybníkov povodia potoka Paríž.**

Práca prezentuje výsledky dvojročného ornitologického výskumu vodných biotopov v povodí potoka Paríž, kde sa nachádza 6 retenčných vodných nádrží a jedna lokalita chovných rybníkov. Zatiaľ čo ornitofauna Národnej prírodnej rezervácie Parížske močiare, nachádzajúca sa na toku Paríža, bola študovaná v priebehu 50. rokov, o ornitocenózach vodných nádrží v povodí nie sú žiadne údaje. Počas výskumu v r. 2003–2004 sme zistili 109 druhov vtákov. Z nich 50 druhov je vodných alebo na vodný biotop viazaných. Charakteristickými vtákmi skúmaných lokalít sú eudominantné a dominantné hniezdiace druhy; *Tachybaptus ruficollis*, *Podiceps cristatus*, *Anas platyrhynchos*, *Aythya ferina*, *Fulica atra* a *Acrocephalus arundinaceus*. Okrem druhu *Netta rufina*, ktorého 1 pár hniezdil v r. 2003–2004 na Parížskych rybníkoch, boli všetky druhy doteraz zaznamenané v NPR Parížske močiare. Na základe Sørensenovho indexu boli porovnané skúmané lokality s lokalitami na Trnavskej pahorkatine študované obdobnou metódou.