

BIRD DYNAMICS IN THE FORESTRY PLANTATION SFANTU` GHEORGHE – TULCEA COUNTY

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Abstract: The Romanian Ornithological Center studied the bird migration from July 18th to November 11th 2007 in Sfântu - Gheorghe in the Danube Delta, Romania. The main activity was the ringing, 7494 birds from 99 different species in the forest near the mentioned village were captured and ringed. Two previously unseen subspecies in Romania were also ringed, a Common Redstart *Phoenicurus phoenicurus samamisticus* subspecies and of a Chiffchaf *Phylloscopus collybita fulvescens/tristis*. The fifth observation of a Pallas' Warbler *Phylloscopus proregulus* was made. 242 bird species were observed such as the Pine Bunting *Emberiza leucocephalos*, the first record for Romania. Scarcer species such as the Cattle Egret *Bubulcus ibis*, the Lesser Kestrel *Falco naumanni*, the Pomarine Skua *Stercorarius pomarinus* and the Pallas' Gull *Larus ichthyaetus* were also observed during the stay.

Key words: birds, migration, ringing, monitoring

INTRODUCTION

The Romanian Ornithological Center is an institution with tradition in studying the dynamics of bird populations. On June 1, 1936 was created the Laboratory of Ornithology which functioned as an independent organism of the Entomological Center of Agricultural Research.

Nowadays, The Romanian Ornithological Center is researching with a fundamental disposition, regarding the monitoring of bird populations migration over Romania, closely and intrinsically related with bird dynamics on European and Intercontinental level.

Romania thanks to its geographical location is in the path of the most important migration routes from the center and east of Europe as well as its beautiful landscapes, forms a place of great importance for the evolution and constancy of sedentary, migratory, and wanderer, bird populations. Of the 4 major migration routes in Europe, the east area which includes east-elbic, pontic and sarmatic roads is the most important migration route in Eastern Europe, because it gathers birds from the biggest migration area, from the Siberian Taiga, the Central and East Europe, to South Africa route also known as the Eurasian-Africana Route.

The Danube Delta is the biggest European delta west of the Volga with 415'200 ha (Baboianu, 2007). The Danube Delta Biosphere Reserve (DDBR, IUCN Management Category IV) (IUCN, 2007) has an area of 580'000 ha (Delta und Dobrodgia) including 312'440 ha classified within the UNESCO patrimony. 50'573 ha from this area, 18 small spot, are totally protected (Ascentiev, 2007). Seven Important Bird Areas (IBA) are identified by Birdlife International which cover more than 491'000 ha in DDBR (Heath, 2000). About 70% of the area of the delta is dominated by Common Reed *Phragmites australis*. It's the largest reedbed of the world with its 170'000ha (Baboianu, 2007). More than 1'800 flora and 3'540 fauna species were censuses in the delta (Ascentiev 2007). Up to now 320

bird species of bird were mentioned in DDBR (Baboianu, 2007). Of the 93 species of European concern (SPEC) which occur in the region, 12 are globally threatened or near threatened species (Lesser White-fronted Goose *Anser erythopus*, Red-breasted Goose *Branta ruficollis*, Ferruginous Duck *Aythya nyroca*, Pygmy Cormorant *Phalacrocorax pygmeus*, Dalmatian Pelican *Pelecanus crispus*, Whitetailed Eagle *Haliaeetus albicilla*, Pallid Harrier *Circus macrourus*, Lesser Spotted Eagle *Aquila pomarina*, Eastern Imperial Eagle *A. heliaca*, Corncrake *Crex crex*, Great Snipe *Gallinago media* and Slender-billed Curlew *Numenius tenuirostris*) (IUCN, 2007). The most important European breeding populations of Red-crested Pochard *Netta rufina*, Ferruginous Duck *Aythya nyroca*, Red-necked Grebe *Podiceps grisegena*, Black-necked Grebe *Podiceps nigricollis* and Red-footed Falcon *Falco vespertinus* are also found in the DDBR (Baboianu, 2007). During the fall migration, the Carpathians constrain the migration against the Black Sea coast. The Black Sea western coast is the a major migration corridor for northern European and western Asian migrants (Milvus Group, 2007; Zalles 2001; SE European Bird Migration Network, 2006). In this corridor the Danube delta plays a vital links in the network of wetlands that stretch from the Arctic Ocean to South Africa, providing refuge for 25 million migrating waterfowl every year (Zaitsev, 2001).

The village near the study area, Sfantu Gheorghe, is inhabited by less than 1000 peoples and is situated in the eastern extremity of the Danube delta, in the eastern part of Tulcea County. It is distant of about 120 km from Tulcea (the largest town and the administrative centre of Tulcea county) and about 35 km from Sulina. The village is bordered north by Crisan village and Sulina town, east by the Black Sea and, south by Sacaline Island and west by Murighiol village (Tulcea County council 2008). The climate is in temperate and continental with little precipitations and some marked dryness.

The study area is located about one kilometer north of the village (44°54'N 29°35'E) and cover about 50ha in different habitats (open lands, grasslands, canals, bushes, forest, etc) on the west part of the forest (Fig. 1). The main structure is a plantation of poplars with alders, willows and pines. Near the canals some reeds and other aquatic plants are found and in the grassland is mostly composed with dry rush and saline plants. The bush in dry areas is composed mainly of Russian Olives *Elaeagnus angustifolia* and some sea buckthorns *Hippophae l.*

MATERIAL AND METHOD

The ringing station was opened from July 18th to November 11th 2007. During this period the station had daily opening times presented in Table 1. When nets were opened, they were checked each hour from sunrise to sunset by small groups of birdwatchers. By extreme conditions, nets were closed (temperature above 27°C or wind above 5-6 Beauforts).

A total of 816 meter long, 2 meter high, 17 mm meshed mist nets were spread in the study area. The nets were parted in two tours. The big one was 546 meters and composed of 15 nets. The small one was 270 meters long and composed of 7 nets. In the big tour, two 6 meter high nets were used (Fig. 2).

All bird species were ringed except Goldcrest *Regulus regulus* and Firecrest *Regulus ignicapillus* females 25. The species name, catching date and hour, sexes, age, moult stage, body conditions (fat and muscle score), third primary and wing length, weight, net and pocket were recorded for each bird (Busse, 2000; Beirlein, 1995).

For difficult species or subspecies, with fewer literature data, additional measurements were made (Schmitz, 2006; Nicolai, 1996; Clement, 1998).

For the Common Chiffchaff *Phylloscopus collybita* and the Willow Warbler *Phylloscopus trochilus*, subspecies were identified and reported in the graph. When possible, ages and sexes were reported in the graphs.

RESULTS AND DISCUSSION

Captures of interest

The most interesting captures were:

- A Common Redstart of the ssp. *samamisticus* *Phoenicurus phoenicurus samamisticus* on July 29th. This record is a first for Romania.
- A Siberian Chiffchaff *Phylloscopus collybita fulvescens/tristis* on October 2nd. This record represents also a first for Romania.
- A Pallas' Warbler *Phylloscopus proregulus*, the fifth for the Romania was captured on October 27th.

Migration phenologies

Several species were captured in sufficient numbers to dress a rough phenology graph. These results are not absolute; the data of only one year was not sufficient to represent the whole migration in Romania, neither in the Danube delta. However the presented phenologies were new for Romania and this was the main reason for which a discussion of them was interesting. More data are needed to present better smoothed graphs. A oneseason study furnishes uneven data due to local migration and seizing conditions.

However, similar data are still lacking for the Danube Delta and ours are thus giving a first insight.

Thrush Nightingale, Common Redstart, Blackbird, Garden warbler, Lesser Whitethroat, Eurasian Blackcap, Willow Warbler, Spotted Flycatcher, Blue Tit, Great Tit and Red-backed Shrike were present in the breeding period in the study area of Sfântu Gheorghe. For some bird species such as European Robin, Common Redstart, Blackbird, Song Thrush and Goldcrest, the juvenile migration in Sfântu Gheorghe started before the adult migration. For the Garden Warbler the adult migration started before the juvenile. These observations are coherent with the known phenologies of the species, except for the Common redstart observed in Helgoland (Germany) during 1961-2000 (Svensson, 2001).

Red-breasted Flycatcher and Spotted Flycatcher juveniles migrate also before the adults in Sfântu Gheorghe. This in according to the phenology for this species observed in Crimea during 2006 (Diadicheva, 2007).

The peak of the migration for the Garden Warbler, Red-breasted Flycatcher and Spotted Flycatcher is respectively 10, 13, 15 days before in Crimea in 2006 (Diadicheva, 2007) than in Sfântu Gheorghe in 2007.

At the end of August all adults Red-backed Shrike *Lanius collurio* had left the area (pentad 49) but juveniles were captured during the following 35 days, up to October 4th.

However the migration flow was scanty after mid-September (pentad 52), something similar to what was observed in Crimea during autumn 2006 (Diadicheva, 2007).

The juvenile Garden Warbler and Eurasian Blackcap moult generally all body feathers before the autumn migration. According of this fact all juvenile born in Sfântu Gheorghe has left the study area after the pentad 46 (Figure 9) and 48 (Figure 10), respectively.

Three subspecies of Common Chiffchaff were recorded (Figure 11): the nominal "*P. c. collybita*", the Nordic "*P. c. abietinus*" (about 15% of the caught birds are supposed to be of this ssp.) and one Siberian' Chiffchaff *Phylloscopus collybita fulvescens/tristis* on October 2nd.

All Willow Warbler subspecies were recorded (Figure 12): the nominal "*P. t. trochilus*", the Nordic "*P. t. acredula*" (about 10% of the caught birds are supposed to be of this ssp.) and the east Siberian "*P. t. yakutensis*" (about 1% of the caught birds are supposed to be of this ssp.).

An interrupted moult in great cover are been observed in the adult *P. t. yakutensis*, which is fairly uncommon for the others subspecies. Only adult are been safely determinate for *acredula* and *yakutensis* subspecies.

All Willow Warbler from Eastern Europe have their winter quarter in East Africa.. *P. t. yakutensis* migration road is not well documented but it noted as migrate in Kazakhstan⁴⁸ and Arabian Peninsula.

No real migration was noted for the Blue tit in Sfintu Gheorghe through the season. Although it has been proved that this bird migrates regularly in northern Europe (Nowakowski, 2004). Great Tit is an irruptive migrant in north east Europe. One bird captured during pentad 51 were recaptured on pentad 60 at Grindul Lupilor show that some movements occur in the area for this year but probably not a real migration.

Adults and juveniles of some bird species such as European Robin, Blackbird, Song Thrush, Goldcrest and only juveniles Willow Warblers and Great Tits were captured till the end of the study. The migration is thought to have continued afterwards.

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Figures

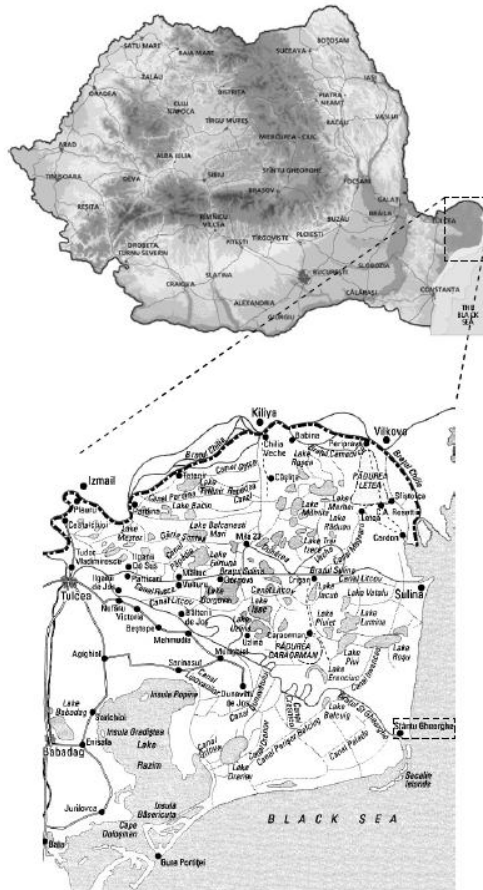


Figure 1 Localization of the study area

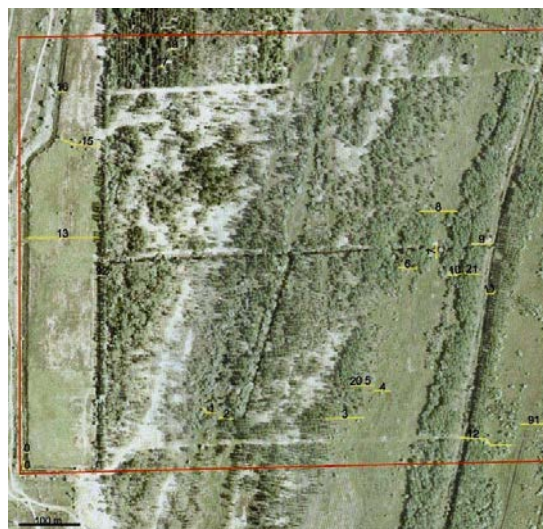


Figure 2 Localization of nets. The study area is surrounded by a red-line. Aerial image, courtesy of: Marine and Fluvial Research Station, Sfântu Gheorghe

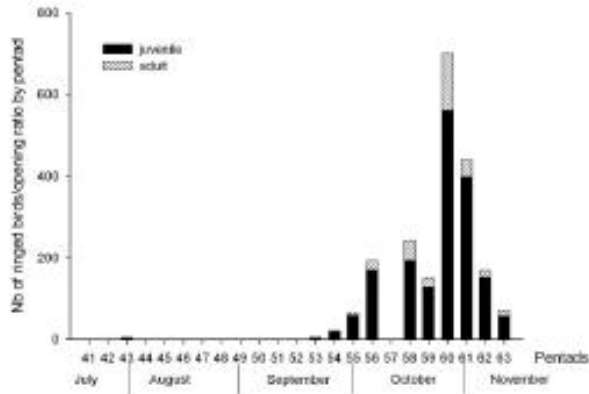


Figure 3 - Phenology of European Robin *Erithacus rubecula* by pentads according to age (n=736).

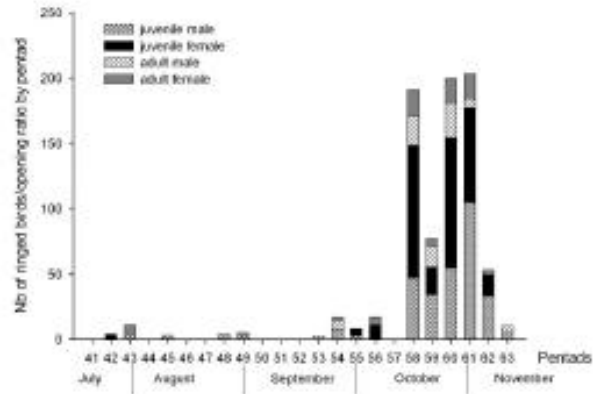


Figure 6 - Phenology of Blackbird *Turdus merula* by pentads according to the age and the sex (n=297).

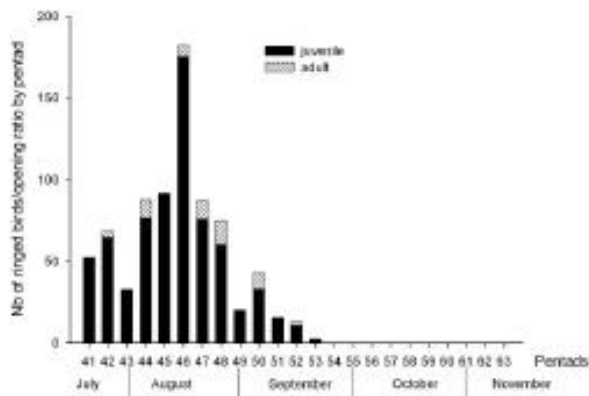


Figure 4 - Phenology of Thrush Nightingale *Luscinia luscinia* by pentads according to the age (n=241).

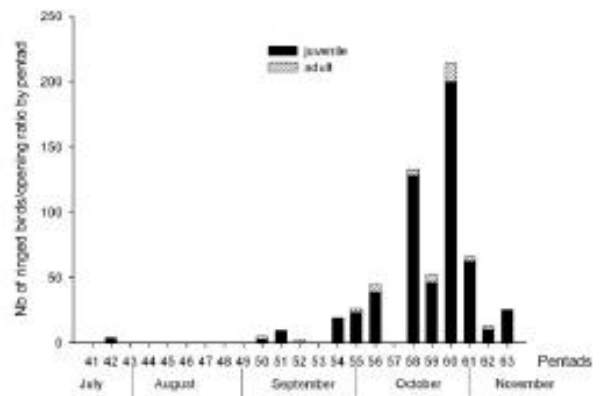


Figure 7 - Phenology of Song Thrush *Turdus philomelos* by pentads according to the age (n=236).

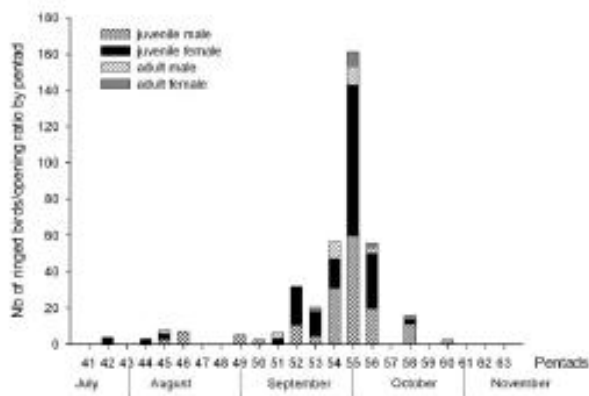


Figure 5 - Phenology of Common Redstart *Phoenicurus phoenicurus* by pentads according to the age and the sex (n=150).

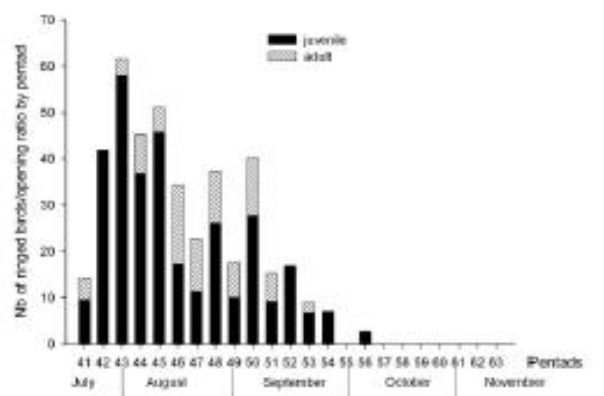


Figure 8 - Phenology of Lesser Whitethroat *Sylvia curruca* by pentads according to age (n=138).

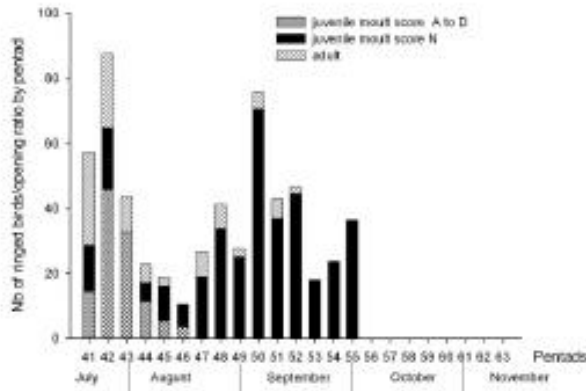


Figure 9 - Phenology of Garden Warbler *Sylvia borin* by pentads according to age and moult score (n=194).

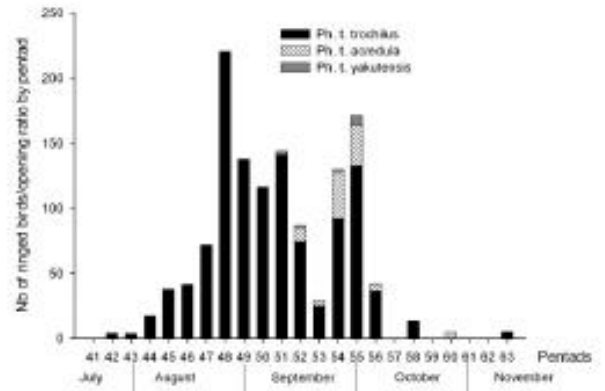


Figure 12 - Phenology of Willow Warbler *Phylloscopus trochilus* by pentad according to the subspecies (n=459, sp. acredula n=39 sp. yakutensis n=6).

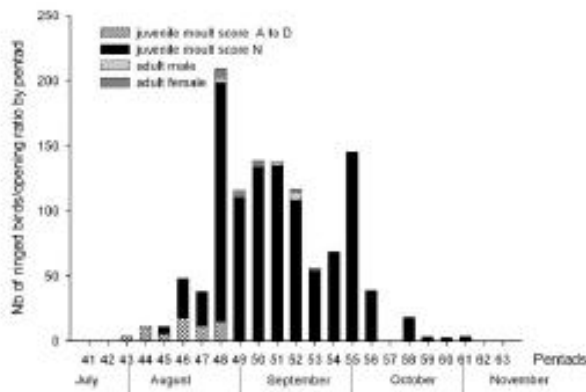


Figure 10 - Phenology of Eurasian Blackcap *Sylvia atricapilla* by pentads according age, moult score and sex (n=420).

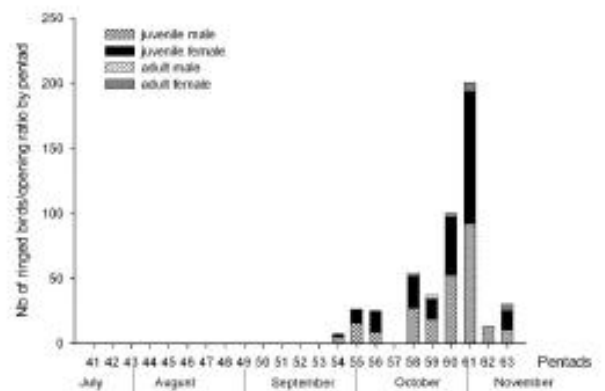


Figure 13 - Phenology of Goldcrest *Regulus regulus* by pentad according to the age and the sex (n= 171).

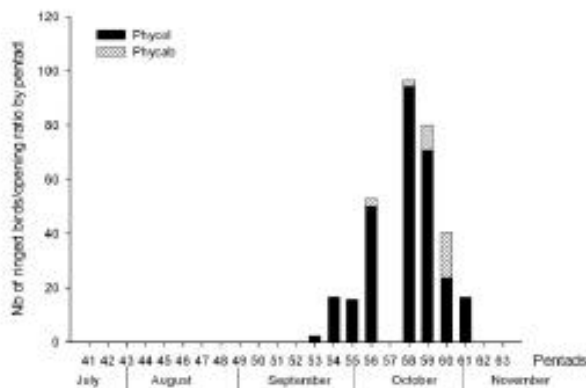


Figure 11 - Phenology of Common Chiffchaff *Phylloscopus collybita* by pentad according to the subspecies (n=124, sp. abietinus n=12).

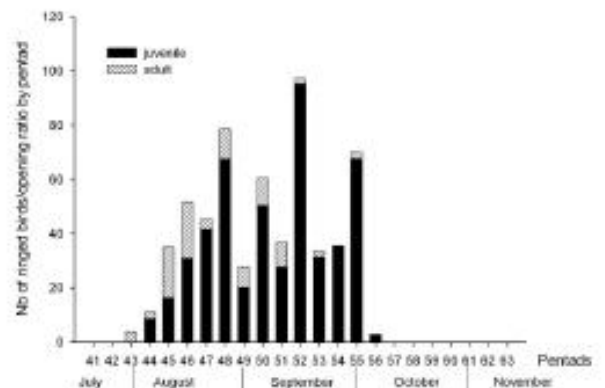


Figure 14 - Phenology of Spotted Flycatcher *Muscicapa striata* by pentad according to the age (n=217).

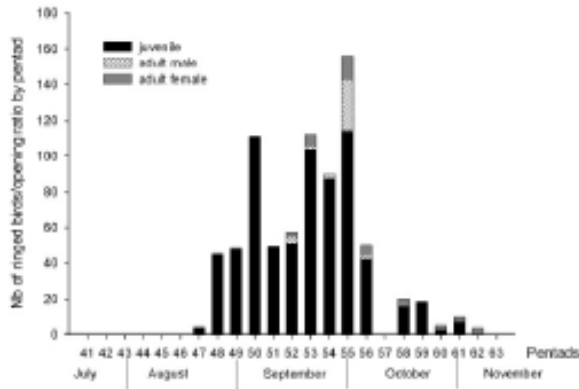


Figure 15 - Phenology of Red-breasted Flycatcher *Ficedula parva* by pentad according the age and sex (n=307).

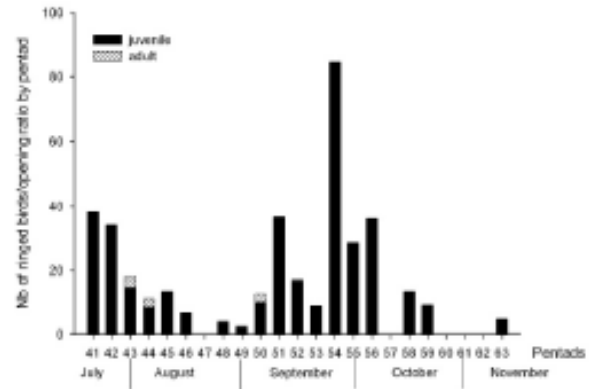


Figure 17 - Phenology of Great Tit *Parus major* by pentad according the age (n=139).

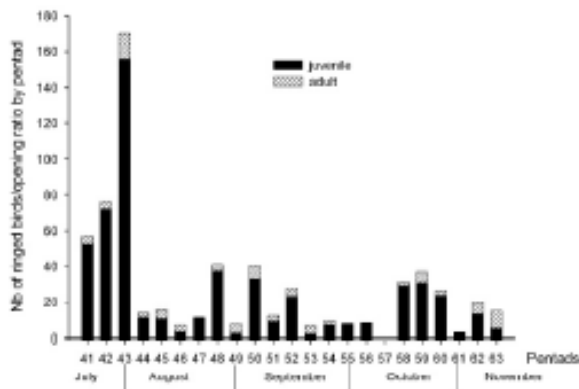


Figure 16 - Phenology of Blue Tit *Parus caeruleus* by pentad according the age (n=202).

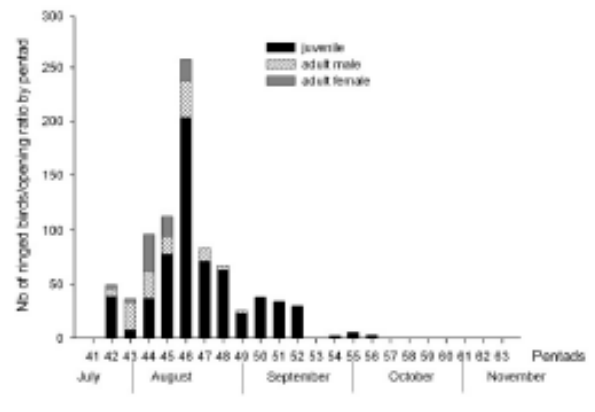


Figure 18 - Phenology of Red-backed Shrike *Lanius collurio* by pentad according the age and sex (n=269).

Tables

Table 1

Daily openings

Month	Small tour	Big tour
July	32.5%	34.7%
August	27.1%	41.4%
September	29.1%	56.6%
October	46.6%	58.1%
November	52.5%	67.3%

Table 2

Compilation of data for the main caught birds

	nb. data	Ratio juv/ad	Juveniles			Adults				
			1st date	Maximal date	Last date	1st date	Maximal date	Last date		
				number			number			
European Robin	736		1.8	27.10	100	8.11	22.9	27.10	30	8.11
<i>Erithacus rubecula</i>		5.1								
Thrush Nightingale	241		22.7	17.8	20	23.9	27.7	27.8	4	15.9
<i>Luscinia luscinia</i>		12.3								
Common Redstart	150		28.7	30.9	17	27.10	12.8	29.9	3	14.10
<i>Phoenicurus phoenicurus</i>		7.8								
Blackbird	297		30.7	24.10	35	8.11	28.7	24.10	11	8.11
<i>Turdus merula</i>		3.6								

Song Thrush	236	26.7	24.10	34	8.11	5.9	24.10	4	7.11
<i>Turdus philomelos</i>		12.9							
Lesser Whitethroat	138	22.7	3.8	7	5.10	21.7	14.8	4	18.9
<i>Sylvia curruca</i>		3.8							
Garden Warbler	194	21.7	13.9	11	4.10	21.7	27.7	4	14.9
<i>Sylvia borin</i>		5.9							
Eurasian Blackcap <i>Sylvia atricapilla</i>	420	1.8	2.9	24	30.10	9.8	27.8, 14 and 15.9	2	19.9
		31.3							
Common Chiffchaff	124			<i>P. c. collybita</i>			<i>P. c. abietinus</i>		
<i>Phylloscopus collybita</i>		22.9	14.10	17	1.11	2.10	24.10	6	1.11
Willow Warbler	459			<i>P. t. trochilus</i>			<i>P. t. acredula</i>		
<i>Phylloscopus trochilus</i>		27.7	29.8	25	7.11	14.9	28.9	11	27.10
				<i>P. t. yakutensis</i>					
		9.9	28.9	3	28.9				
Goldcrest	171	23.9	30.10	37	7.11	16.10	17, 19, 27, 28, 30.10 et 8.11	1	8.11
<i>Regulus regulus</i>		27.5							
Spotted Flycatcher	217	7.8	14.9	19	5.10	3.8	12.8	4	29.9
<i>Muscicapa striata</i>		5.8							
Red-breasted Flycatcher	307	8.3	21.8	17 et 29.9	17	30.10	13.9	22.9 et 4.10	5
<i>Ficedula parva</i>									
Blue Tit	202	22.7	3.8	18	8.11	22.7	1, 6, 14.8 et 20.10	2	8.11
<i>Parus caeruleus</i>		5.7							
Great Tit	139	21.7	25.9	21	8.11	1.8	3, 6, 25.8 et 3.9	1	16.10
<i>Parus major</i>		33.8							
Red-backed Shrike	269	26.7	13. et 17.8	15	4.10	25.7	4.8	10	2.9