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## **Species composition and numbers of birds captured at Durankulak ringing camp, NE Bulgaria during autumn 2019**

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### **Introduction**

Autumn passerine migration is not systematically studied along the Northern Black Sea Coast. There is no even one functioning ringing station at that region and also in the whole Varna and Dobrich provinces. Until now occasional short term ringing activities, mostly during summer and autumn, has been completed at Durankulak Lake and Shabla Tuzla Lake (organized mostly by the scientists from Institute of Biodiversity and Ecosystem Research and Bulgarian Ornithological Centre –Bulgarian Academy of Science) (Dimitrov et al.2018, own unpublished data). Although these studies didn't cover long periods of time, they clearly show that these sites are very good resting stations for a high diversity of migratory birds, especially passerines and waders. Thus we decided to start long –term research there aiming to study the characteristics of autumn migration of passerine birds. In August-October 2019 we organized first autumn ringing session at Durankulak Lake ringing camp. Our aim is to obtain information about the species composition of migrants and local birds, their numbers, timing and seasonal dynamics of migration, the existence of migration waves and their dependence of climatic factors, origin and flight direction of the migrants, time of resting of particular species at the site, etc. In the present report we provide data about the species composition, numbers and some data on timing of migration from the 2019 autumn season.

The ringing activities at Durankulak Lake will be used also for education of students and volunteers how to ring and identify birds, their sex, age and specific subspecies

features from a hand. During the field studies in 2019 about 45 experts and volunteers from Bulgaria and abroad took participation.

### Materials and methods

The ringing camp was organized at the south-eastern part of Durankulak Lake, Dobrich province, NE-Bulgaria, at coordinates: N 43°39'38.49 E 28°33'56.81. A total of 19 mist nets with overall length of about 200 meters were set in two separate lines in two different habitats. Nine nets (100 m.) in a reed massif along a dike dividing a shallow south-eastern bay of the lake from the main lake. Ten nets (100 m.) were set in low mixed broad-leaved forest with bushes close to the sea shore. The forest was dominated by *Fraxinus* sp., *Robinia pseudoacacia* and other low trees. The distance between the two lines of nets was approximately 700 m.



**Nets in the reed massif, Durankulak Lake, October 2019, photo: Mihail Iliev**

The nets were set in the whole period of the research 24.08.2019 - 14.10.2019. Every day all the nets were opened before sun rise (about 6 AM) and were operating until 11 AM. In the evening only the line of nets at the reed habitat was opened, after 5-6PM until the full darkness. Only on two days (27.09.; 8.10.) there were no catches because of unfavorable weather conditions (rain, strong wind).

Sound imitation was used to attract the migratory birds. At the reed net line in the evening we used constantly sound mix of *Motacilla flava* & *Riparia riparia* or

*Motacilla alba* (after 15 September). At the forest nets we used three different mixtures of bird calls for August, September and October periods. In all cases these mixtures included 6-8 species of birds expected to be the most common migrants for the particular period. The sound attraction in the forest was switched on after midnight, at 1 AM., and played until the end of the mourning catch session.

## Results

A total of 9344 birds of 84 species were captured and ringed. Their composition and numbers as well as the species numbers per 7 day periods are presented in Table 1.

In the total number we included additionally 20 birds belonging to order Charadriiformes that were captured at Shabla Tuzla Lake (at 11 km. to the S-SE from the ringing camp) during the night of 27/28 August.

**Table 1. Species composition, numbers and seasonal distribution of birds captured during autumn migration at Durankulak ringing camp, 2019**

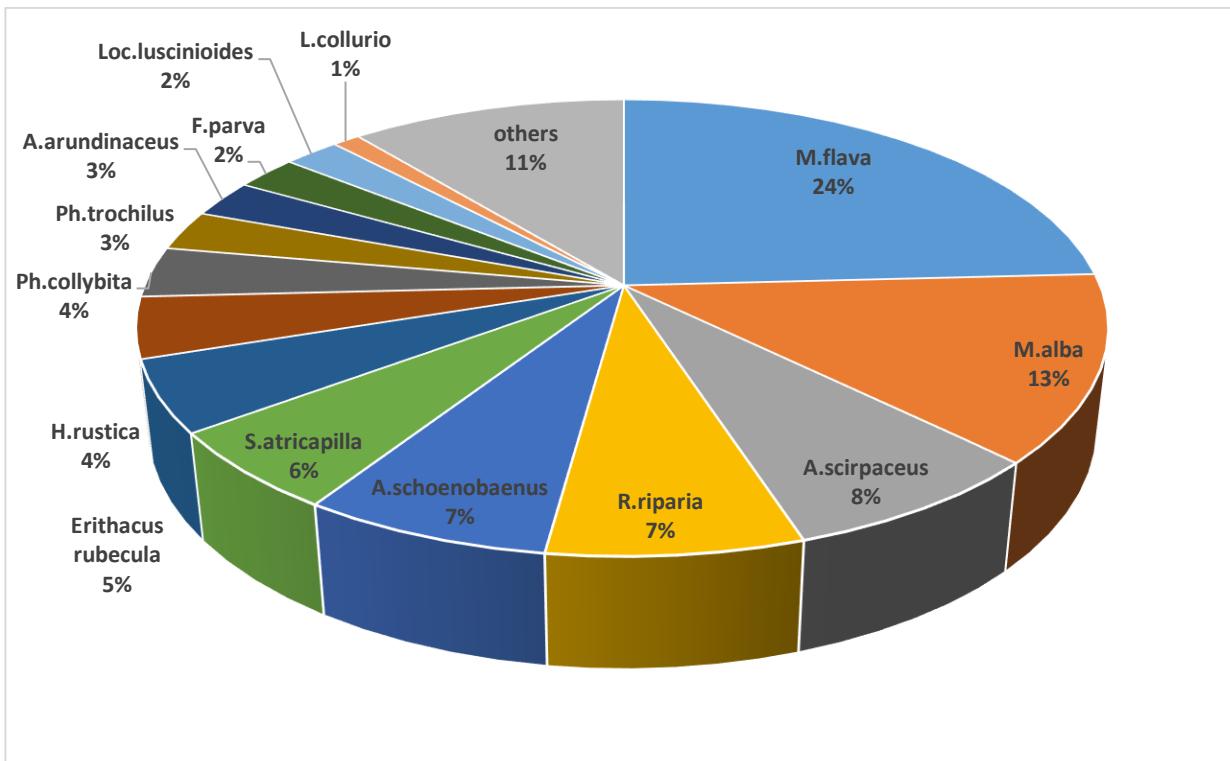
species	24.08. – 30.08.	31.08- 6.09. 13.09.	7.09. – 20.09.	14.09. – 20.09.	21.09. -27.09	28.09. - 4.10.	5.10.- 14.10.	Total
<i>Riparia riparia</i>	227	300	138	1	2	0	0	668
<i>Hirundo rustica</i>	88	93	181	3	29	7	2	403
<i>Anthus trivialis</i>	0	10	3	6	1	0	1	21
<i>Motacolla flava</i>	690	729	303	385	133	17	2	2259
<i>Motacilla alba</i>	0	0	1	114	363	433	321	1232
<i>Motacilla citreola</i>	2	1	2	0	0	0	0	5
<i>Troglodytes troglodytes</i>	0	0	0	0	0	2	47	49
<i>Erythacus rubecula</i>	0	0	0	2	7	40	425	474
<i>Luscinia luscinia</i>	6	4	12	9	3	1	0	35
<i>Luscinia megarhynchos</i>	7	1	0	0	0	0	0	8
<i>Luscinia svecica</i>	1	1	2	0	4	2	9	19
<i>Phoenicurus ochrurus</i>	0	0	0	0	0	0	2	2
<i>Phoenicurus phoenicurus</i>	2	1	7	16	32	12	14	84
<i>Saxicola rubetra</i>	0	0	0	0	0	1	0	1
<i>Oenanthe oenanthe</i>	2	0	0	0	0	0	0	2
<i>Turdus merula</i>	2	2	5	7	1	6	34	57
<i>Turdus philomelos</i>	4	7	2	7	3	14	44	81
<i>Cettia cetti</i>	5	1	0	3	1	2	17	31
<i>Locustella fluviatilis</i>	4	3	0	1	1	1	0	10
<i>Locustella luscinoides</i>	34	54	32	18	13	7	48	206
<i>Hippolais icterina</i>	0	1	1	0	0	0	0	2
<i>Acrocephalus melanopogon</i>	0	0	0	1	0	7	78	86
<i>Acrocephalus schoenobaenus</i>	104	97	95	77	65	68	148	654
<i>Acrocephalus agricola</i>	2	0	0	0	0	0	0	2
<i>Acrocephalus palustris</i>	17	26	15	21	7	0	2	88
<i>Acrocephalus scirpaceus</i>	350	158	58	22	50	25	51	714
<i>Acrocephalus arundinaceus</i>	126	52	25	12	13	8	14	250

species	24.08. – 30.08.	31.08- 6.09.	7.09. – 13.09.	14.09. – 20.09.	21.09. –27.09	28.09. – 4.10.	5.10.- 14.10.	Total
<i>Sylvia nisoria</i>	4	5	0	3	1	0	0	13
<i>Sylvia curruca</i>	8	8	6	17	9	10	8	66
<i>Sylvia communis</i>	2	3	1	3	2	0	0	11
<i>Sylvia borin</i>	8	12	15	12	12	0	7	66
<i>Sylvia atricapilla</i>	32	74	75	124	76	70	78	529
<i>Phylloscopus trochilus</i>	64	15	12	55	42	27	52	267
<i>Phylloscopus sibilatrix</i>	0	0	0	1	1	0	0	2
<i>Phylloscopus collybita</i>	0	0	0	2	9	50	274	335
<i>Regulus regulus</i>	0	0	0	0	0	2	13	15
<i>Regulus ignicapilla</i>	0	0	0	0	0	0	3	3
<i>Muscicapa striata</i>	4	3	5	13	2	0	0	27
<i>Ficedula parva</i>	5	29	56	83	42	8	6	229
<i>Panurus biarmicus</i>	3	0	0	0	3	0	3	9
<i>Cyanistes caeruleus</i>	3	0	1	1	19	3	8	35
<i>Parus major</i>	0	2	2	1	2	1	2	10
<i>Remiz pendulinus</i>	1	0	0	0	1	0	5	7
<i>Oriolus oriolus</i>	0	2	0	0	1	0	0	3
<i>Lanius collurio</i>	36	16	13	15	11	8	3	102
<i>Garrulus glandarius</i>	0	0	0	0	1	1	1	3
<i>Sturnus vulgaris</i>	1	0	0	5	0	0	0	6
<i>Passer domesticus</i>	0	1	0	0	0	0	0	1
<i>Passer hispaniolensis</i>	2	5	1	1	2	0	0	11
<i>Fringilla coelebs</i>	0	0	0	0	0	0	3	3
<i>Carduelis chloris</i>	0	0	0	0	0	0	4	4
<i>Carduelis carduelis</i>	0	0	0	0	0	0	1	1
<i>Carduelis spinus</i>	0	0	0	0	0	0	25	25
<i>Coccothraustes coccothraustes</i>	0	0	0	0	0	0	1	1
<i>Emberiza hortulana</i>	0	1	0	0	0	0	0	1
<i>Emberiza schoeniclus</i>	1	0	0	0	0	0	9	10
<i>Miliaria calandra</i>	0	0	0	0	1	0	2	3
<i>Ixobrychus minutus</i>	0	3	0	0	0	0	0	3
<i>Accipiter brevipes</i>	0	1	1	0	0	0	0	2
<i>Accipiter nisus</i>	0	0	0	0	0	0	1	1
<i>Rallus aquaticus</i>	0	0	0	0	0	0	1	1
<i>Porzana porzana</i>	0	0	0	1	0	0	0	1
<i>Porzana parva</i>	0	1	0	0	0	0	0	1
<i>Crex crex</i>	0	0	0	0	1	0	0	1
<i>Alcedo atthis</i>	9	12	10	6	4	8	9	58
<i>Upupa epops</i>	0	0	0	0	1	0	0	1
<i>Dendrocopos major</i>	0	1	0	0	0	0	0	1
<i>Dendrocopos syriacus</i>	0	0	1	0	0	0	0	1
<i>Dendrocopos minor</i>	0	1	0	0	0	0	0	1
<i>Jynx torquilla</i>	1	2	1	1	0	0	0	5
<i>Caprimulgus europaeus</i>	0	0	0	0	1	0	0	1

species	24.08. – 30.08.	31.08- 6.09.	7.09. – 13.09.	14.09. – 20.09.	21.09. –27.09	28.09. – 4.10.	5.10.- 14.10.	Total
<i>Otus scops</i>	0	0	0	1	0	0	1	<b>2</b>
<i>Asio otus</i>	0	0	0	0	0	1	0	<b>1</b>
<i>Gallinago gallinago</i>	0	0	0	0	0	0	1	<b>1</b>
<i>Streptopelia turtur</i>	0	0	0	0	1	0	0	<b>1</b>
<b>Total</b>	<b>1857</b>	<b>1738</b>	<b>1082</b>	<b>1050</b>	<b>975</b>	<b>842</b>	<b>1780</b>	<b>9324</b>
<b>Number of species</b>	36	40	32	37	42	30	44	
<i>In Shabla Tuzla</i>								
<i>Calidris minuta</i>	5							
<i>Calidris temminckii</i>	1							
<i>Calidris ferruginea</i>	2							
<i>Calidris alpina</i>	2							
<i>Charadrius dubius</i>	6							
<i>Charadrius alexandrinus</i>	1							
<i>Actitis hypoleucos</i>	1							
<i>Haematopus ostralegus</i>	1							
<i>Chroicocephalus ridibundus</i>	1							
	20							
<b>Total</b>	<b>1877</b>	<b>1738</b>	<b>1082</b>	<b>1050</b>	<b>975</b>	<b>842</b>	<b>1780</b>	<b>9344</b>

The most common bird species captured as percentage from the overall catch are presented at Fig.1. For presenting the graphs of particular species timing of autumn migration more autumn seasons are needed to be included in the research.

**Figure 1. Most numerous bird species captured at Durankulak Lake in autumn migration, 2019 (in %)**



**Levant Sparrowhawk (*Accipiter brevipes*), captured on 4.09.2019 (Photo: Nayden Chakarov)**



**River Warbler (*Locustella fluviatilis*), captured on 1.09.2019 (photo: Peter Shurulinkov)**



Bluetroat (*Luscinia svecica*), captured on 21.09.2019, photo: Jivko Gradinarov



**Red-breasted Flycatcher (*Ficedula parva*), captured at Durankulak Lake on  
30.09.2019, photo: Pavel Simeonov**

### **Conclusion**

Durankulak Lake and its surroundings are very suitable place for setting a long-term ringing camp during autumn. Average number of birds captured per day per 100 m. of mist nets was 89.9. At the neighboring Chituc ringing camp in Romania the same value for 2019 autumn was 54.4 . (<https://www.facebook.com/chitucringcamp/> ; [https://milyus.ro/en/am-incheiat-cu-succes-al-saselea-sezon-consecutiv-de-inelare-pe-grindul-chituc/?fbclid=IwAR2xdvKvV8s4vD5wrIPp\\_bixVBMa1TluO-9cUTAu9QNhCeQQ4DdTqL\\_tNI](https://milyus.ro/en/am-incheiat-cu-succes-al-saselea-sezon-consecutiv-de-inelare-pe-grindul-chituc/?fbclid=IwAR2xdvKvV8s4vD5wrIPp_bixVBMa1TluO-9cUTAu9QNhCeQQ4DdTqL_tNI)). High numbers were reached not only for many common long-distance migrants for the whole Europe but also for some much more rare and locally abundant species as *Ficedula parva*, *Locustella luscinoides*, *Locustella fluviatilis*, *Acrocephalus melanopogon*, *Luscinia svecica*. Special interest represents also the capture of five *Motacilla citreola* – a very rare transitional migrant in Bulgaria. Timing and scale of autumn migration of that species over our country still remains unknown.

In future we can obtain good data for seasonal dynamics and other migration characteristics for these species at Durankulak Lake. Our purpose about the future activities is to gather data about the species composition and timing of the passerine migration comparable to the results obtained in the neighboring functioning stations as Atanasovsko Lake (BG), Kalimok (BG), Chituc (RO), Agigea (RO) and Kizil Irmak delta (TR).

## References

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Goldcrest (*Regulus regulus*), captured on 5.10.2019

Photo: Diana Simeonova



Common Snipe (*Gallinago gallinago*), captured on 10.10.2019, photo:  
P.Shuruinkov



Citrine Wagtail (*Motacilla citreola*), captured on 29.08.2019, photo: P.Shurulinkov



**Bearded Tit (*Panurus biarmicus*), captured on 21.09.2019 ,photo: Jivko  
Gradinarov**



**Moustached Warbler (*Acrocephalus melanopogon*), captured on 11.10.2019,  
photo; P.Shurulinkov**