

CERNEK – A NEW BIRD RINGING STATION IN TURKEY

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ABSTRACT

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A new Turkish bird ringing station – Cernek, was launched on 22 March 2002 under the auspices of the SE European Bird Migration Network (SEEN). This paper provides information about the location and biotopes of the station, methodology used in its work, species composition of captured birds and presents plans and perspectives for future research.

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INTRODUCTION

The Cernek Ringing Station was launched for the purpose of studying bird migration in northern Turkey, a poorly investigated region in this respect. According to current knowledge, the middle coast of the Black Sea is located away from the main bird migration flyways running from Europe over the Bosphorus and Dardanelles Straits and through southern or central Turkey. We have very limited knowledge of avian migration flyways that begin at breeding grounds on both sides of the Ural Mountains. However, an analysis of geographical conditions shows that birds breeding in this region and wintering in Africa may move southwards along the Caspian Sea or cross the relatively low mountain passes of the western Caucasus and continue their migration along the eastern coast of the Black Sea. Only birds from eastern Ukraine and western Russia can partly cross the Black Sea and land in northern Turkey in the region of the Cernek Station, but the extent of this phenomenon is not well known to date. To cast new light on migration strategies and flyways of passerines in the region of the Black Sea, a new Turkish bird ringing station at Cernek began operating on 22 March 2002 under the auspices of SE European Bird Migration Network (SEEN). This paper describes the location of the sta-

tion, its biotopes, methodologies used in its work and the species composition of the birds captured. We would like to present new and interesting issues that have arisen so far from the material collected in the first years of the station's activity.

STUDY AREA AND METHODS

Cernek Ringing Station (41°36'N, 36°05'E) is located in the delta of the River Kızılırmak within the Wildlife Protected Area (Ramsar Site), approximately in the middle of the southern Black Sea coast, near the town of Bafra in the Samsun Region of Turkey (Fig. 1). The delta is 0-15 m above the sea level and its total surface area is about 56 000 ha. More than 80% of this area is cultivated. The main wetland area is in the east delta, covering about 10 000 ha, and consists of several lakes, marshes, grasslands, dunes and seasonally flooded *Fraxinus* forest. A single lake on the western delta is surrounded by reeds and marshes.

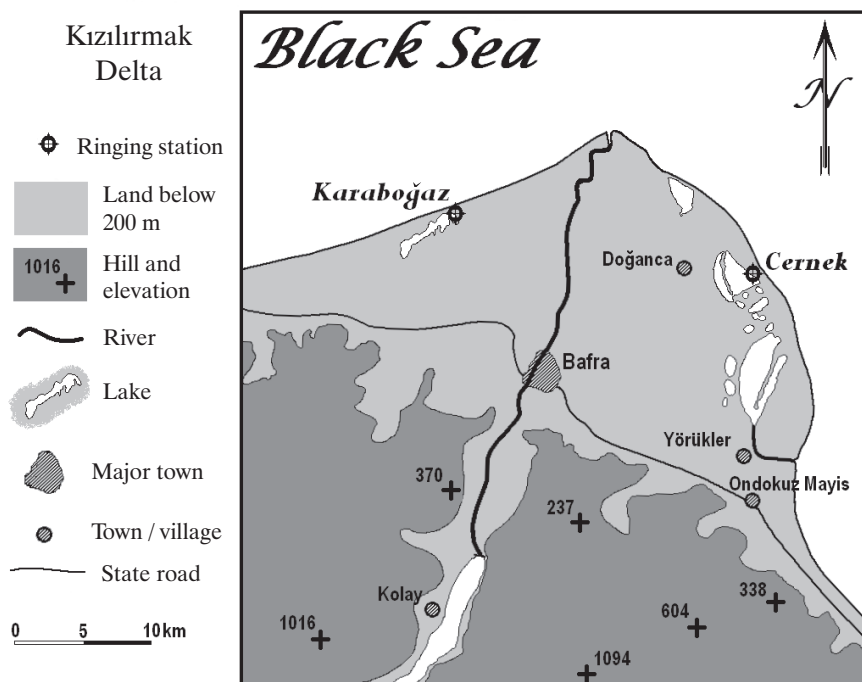


Fig. 1. Delta of the Kızılırmak River with location of ringing stations

The ringing station is located within the eastern part of the delta, at the shore of Lake Cernek, from which it derived its name. Cernek is a 400 ha fresh water lake, surrounded by extensive marshes and reeds at all banks, except its sandy north-eastern coast that adjoins the dune vegetation separating the Black Sea and the lake (Fig. 2-3). The width of the dunes extends up to 700 m with heights varying between 0.5-4 m. The beaches are barren with no vegetation, whereas in the area neighbour-



Fig. 2. Lake Cernek and Pontine Mountains - local geographical barriers (Photo by J.K. Nowakowski)



Fig. 3. Dunes and shrubs on the spit which separates Lake Cernek from the Black Sea (Photo by J.K. Nowakowski)

ing Cernek, shrubs and low trees with a maximum height of 5 m dominate and include: Laurel (*Laurus nobilis*), Strawberry Tree (*Arbutus unedo*), Tree Heath (*Erica arborea*), Sea Buckthorn (*Hippophae rhamnoides*), Common Myrtle (*Myrtus communis*), Fig-tree (*Ficus carica*) and Whitethorn (*Crataegus monogyna*). The ground vegetation in spring – where it is not overgrazed – is rich in *Euphorbia* species, Sea Daffodil (*Pancraetium maritimum*), *Verbascum* species and Sand Galingale (*Cyperus capitatus*). Blackberry *Rubus sp.* is a common and widespread species on the dunes. Depressions provide wetter conditions and these places have more marshy vegetation with *Juncus sp.*, *Carex sp.* and *Cyperus sp.* The area receives 726 mm annual rainfall and has a mean annual temperature of 14°C.

In 2004 birds were also caught in the western part of the delta near Karaboğaz Lake (Karaboğaz Ringing Place – 41°37'N, 35°46'E). The ringing station there is located on the northwestern bank of this lake in habitats similar to those near Cernek Lake (dunes, reedbeds).

Birds are caught in mist-nets (about 35 nets 7 and 12 m long) – see Table 1. SEEN standards (Busse 2000) are used in the work, and include:

1. Species identification, ageing and sexing (if possible); ringing.
2. Measurements of the length of the folded wing, tail and wing formula.
3. Weighing (electronic balance with accuracy of 0.1 g); assessment of the fat score (9 score scale).
4. Description of moult of the primaries and rectrices.
5. Orientation experiments in Busse's cage.

Additional data is collected for some species.

Table 1
Ringing activity, species list and total results of work at Cernek and Karaboğaz (K-boğaz)

Period of ringing activity from to	Cernek						K-boğaz
	2002		2003		2004		2004
	22 Mar. 25 Apr.	17 Aug. 29 Oct.	19 Mar. 30 May	15 Aug. 29 Oct.	15 Mar. 27 May	16 Aug. 25 Oct.	31 Aug. 9 Sept.
Number of nets	39	38	36	40	37	38	13
<i>Tachybaptus ruficollis</i>						1	
<i>Ixobrychus minutus</i>					3		
<i>Anas querquedula</i>						1	
<i>Anas platyrhynchos</i>						1	
<i>Accipiter nisus</i>	3	2			2		
<i>Buteo b. vulpinus</i>						1	
<i>Falco subbuteo</i>	1				2	1	
<i>Coturnix coturnix</i>	2	4	3		3	1	1
<i>Crex crex</i>				2		3	
<i>Rallus aquaticus</i>					1		
<i>Streptopelia turtur</i>		3		2	1	10	
<i>Cuculus canorus</i>		4		4	5	18	
<i>Otus scops</i>	1	6		3	2	1	
<i>Asio otus</i>		1			1		
<i>Tyto alba</i>				1		1	

Period of ringing activity from to	CerneK						K-boğaz
	2002		2003		2004		2004
	22 Mar. 25 Apr.	17 Aug. 29 Oct.	19 Mar. 30 May	15 Aug. 29 Oct.	15 Mar. 27 May	16 Aug. 25 Oct.	31 Aug. 9 Sept.
<i>Caprimulgus europaeus</i>		8	1	6	7	7	
<i>Apus apus</i>					1		
<i>Alcedo atthis</i>	3	126	22	45	6	100	4
<i>Upupa epops</i>	2	9	1	10	5	13	1
<i>Merops apiaster</i>		12		6		1	
<i>Dendrocopus syriacus</i>		1					
<i>Jynx torquilla</i>	3	33	8	22	6	5	8
<i>Galeria cristata</i>				1			
<i>Calandrella brachydactyla</i>		1					
<i>Riparia riparia</i>		9	3	1	2	1	
<i>Delichon urbica</i>				1		1	
<i>Hirundo daurica</i>			1				
<i>Hirundo rustica</i>	66	62	29	46	91	36	1
<i>Anthus trivialis</i>	2	21	5	22	14	11	1
<i>Anthus pratensis</i>						1	
<i>Anthus campestris</i>					1		
<i>Motacilla alba</i>	1	13			5	1	
<i>Motacilla flava</i>	261	16	16		5	4	
<i>Prunella modularis</i>	14	5	23	7	25	5	
<i>Luscinia luscinia</i>	3	109	36	122	22	65	3
<i>Luscinia megarhynchos</i>	9	11	24	14	8	1	4
<i>Erithacus rubecula</i>	175	489	168	630	242	451	
<i>Luscinia svecica</i>	1	3	3	2	1	2	
<i>Saxicola rubetra</i>	1	56	33	39	4	13	1
<i>Saxicola torquata</i>				1	1	1	
<i>Phoenicurus ochruros</i>	2	5	5	1	6	4	
<i>Phoenicurus phoenicurus</i>	18	877	33	430	36	441	69
<i>Oenanthe oenanthe</i>		10		7	2	2	
<i>Turdus merula</i>	25	79	46	110	82	30	
<i>Turdus torquatus</i>		3					
<i>Turdus iliacus</i>					2		
<i>Turdus philomelos</i>	39	88	14	135	64	44	
<i>Turdus viscivorus</i>		5		1	2	4	
<i>Locustella luscinioides</i>	14	3	4	2	7	10	1
<i>Locustella fluviatilis</i>		3		9			1
<i>Acrocephalus scirpaceus</i>	16	63	45	122	26	97	16
<i>Acrocephalus palustris</i>		34	10	19		61	2
<i>Acrocephalus arundinaceus</i>	3	16	47	30	28	12	3
<i>Acrocephalus schoenobaenus</i>		13		2	3	6	1
<i>Acrocephalus dumetorum</i>							1
<i>Cettia cetti</i>	15	37	17	23	26	71	17
<i>Hippolais pallida</i>		17	65	29	9	12	
<i>Hippolais icterina</i>		3	1	6	3	7	1
<i>Sylvia borin</i>		1396	118	894	53	860	84
<i>Sylvia communis</i>	1	276	71	168	22	104	18
<i>Sylvia curruca</i>	3	242	11	66	5	38	39
<i>Sylvia nisoria</i>		76	17	34	22	11	3
<i>Sylvia atricapilla</i>	20	1362	187	705	103	762	31
<i>Sylvia melanocephala</i>	32	72	23	52	25	25	2

Period of ringing activity from to	CerneK						K-boğaz
	2002		2003		2004		2004
	22 Mar. 25 Apr.	17 Aug. 29 Oct.	19 Mar. 30 May	15 Aug. 29 Oct.	15 Mar. 27 May	16 Aug. 25 Oct.	31 Aug. 9 Sept.
<i>Sylvia hortensis</i>			1				
<i>Phylloscopus borealis</i>		1					
<i>Phylloscopus trochiloides nitidus</i>						1	
<i>Phylloscopus sibilatrix</i>	5	30	17	11	14	10	
<i>Phylloscopus collybita</i>	170	602	184	330	255	456	
<i>Phylloscopus trochilus</i>	207	1069	244	591	216	650	66
<i>Regulus ignicapillus</i>			2		7		
<i>Regulus regulus</i>	1	3	2	5	3	1	
<i>Muscicapa striata</i>		749	22	485	38	441	23
<i>Ficedula parva</i>	2	261	10	166	47	214	14
<i>Ficedula hypoleuca</i>	36	32	22	10	26	10	
<i>Ficedula semitorquata</i>		2			1		
<i>Ficedula albicollis</i>	4	71	10	32	18	59	
<i>Aegithalos caudatus</i>					16		
<i>Remiz pendulinus</i>	1						
<i>Parus major</i>	1	1		2	4	4	1
<i>Parus caeruleus</i>	1	2	1	2	4	1	
<i>Troglodytes troglodytes</i>	3	2	5	1	9	1	
<i>Lanius collurio</i>	1	189	31	184	32	41	13
<i>Lanius nubicus</i>		1					
<i>Lanius minor</i>					4		
<i>Oriolus oriolus</i>		9	1	12	7	13	1
<i>Sturnus vulgaris</i>					6	1	
<i>Sturnus roseus</i>		1					
<i>Passer hispaniolensis</i>	1	31		51	8	6	1
<i>Passer domesticus</i>		20	25	84	9	2	1
<i>Fringilla montifringilla</i>	2	2	10	1		1	
<i>Fringilla coelebs</i>	18	42	85	18	96	22	
<i>Carduelis spinus</i>	6	3	2	2		25	
<i>Carduelis carduelis</i>				1			
<i>Carduelis chloris</i>			9				
<i>Pyrrhula pyrrhula</i>			1				
<i>Coccothraustes coccothraustes</i>	1	7	8	1	3	1	
<i>Carpodacus erythrinus</i>		2	1			1	
<i>Emberiza citrinella</i>		1		3			
<i>Emberiza hortulana</i>		16		26		6	2
<i>Miliaria calandra</i>			1		2		
Total number of birds	1196	8833	1784	5850	1817	5326	435
Number of species	46	72	56	65	70	71	34
Number of orientation tests	319	1068	594	994	513	1217	284

RESULTS

During three years of work, 24 806 birds representing 100 species were ringed (Table 1). A higher intensity of passage was observed in autumn, when 89.7 indiv./day were caught on average (in spring 26.4 indiv./day on average). Species composition also differed between the two seasons: in autumn Garden Warbler (*Sylvia*

borin), Blackcap (*S. atricapilla*) and Willow Warbler (*Phylloscopus trochilus*) prevailed (16%, 14% and 12% of all caught birds, respectively), while in spring the dominant species included Willow Warbler, Chiffchaff (*P. collybita*) and Robin (*Erithacus rubecula*) – 14%, 13% and 12% of all caught birds, respectively. Moreover, intensive passages of flycatchers were observed in autumn, especially of Spotted Flycatcher (*Muscicapa striata*) and Red-breasted Flycatcher (*Ficedula parva*), which usually are not so numerous at other ringing stations. Among the caught species worthy of note were the first record of Arctic Warbler (*Phylloscopus borealis*) in Turkey and the fifth record of Blyth's Reed Warbler (*Acrocephalus dumetorum*). The capture of Ring Ouzel (*Turdus torquatus alpestris*) was the first record of this species in the Kızılırmak delta.

Three birds with foreign rings were captured and eight ringing recoveries were obtained during three years of station activity:

Acrocephalus scirpaceus

- Ankara JA 40846 *imm.* 8 Apr. 2004 Cernek, TUR (41°36'N, 36°05'E)
17 Apr. 2004 Dnestrovkie plavni, UKR (46°25'N, 30°12'E)
- Ankara JA 55899 4 3 Apr. 2004 Titreyengöl-Sogun, TUR (36°46'N, 31°27'E)
8 May 2004 Cernek, TUR (41°36'N, 36°05'E)

Sylvia curruca

- Ankara JA 35169 *imm.* 30 Aug. 2003 Cernek, TUR (41°36'N, 36°05'E)
17 Apr. 2004 Bukowo-Kopań, PL (46°25'N, 30°12'E)

Sylvia atricapilla

- Ankara JA 16281 M *imm.* 3 Oct. 2002 Cernek, TUR (41°36'N, 36°05'E)
2 May 2004 Arad, ISR (31°15'N, 35°12'E)
- Ankara JA 14123 F *imm.* 9 Sep. 2002 Cernek, TUR (41°36'N, 36°05'E)
3 Apr. 2003 Eilat, ISR (29°33'N, 34°57'E)

Sylvia borin

- Ankara JA 35480 *imm.* 4 Sep. 2003 Cernek, TUR (41°36'N, 36°05'E)
16 Oct. 2003 Kuzey Sina ilinin Beer el Abd, EGY
(31°00'N 33°00'E)

Turdus merula

- Ankara DA00265 *ad.* 23 Mar. 2003 Cernek, TUR (41°36'N, 36°05'E)
Bafra, TUR (*ca.* 41°30'N, 35°55'E)

Turdus philomelos

- Ankara DA 00560 *imm.* 27 Oct. 2003 Cernek, TUR (41°36'N, 36°05'E)
25 Feb. 2004 Karpaz Yarımadası, CYP (35°30'N, 34°15'E)

Alcedo atthis

- Ankara YH 00551 8 Sep. 2003 Cernek, TUR (41°36'N, 36°05'E)
11 Sep. 2003 Akyatan İstasyonu, TUR (36°36'N, 35°17'E)

Moscow XC 958 009 *imm.* 21 Jun. 2003 Okskiy Nat. Reserve, RUS (54°43'N, 40°51'E)
14 Apr. 2004 Cernek, TUR (41°36'N, 36°05'E)

Moscow XC 958 111 *imm.* 18 Aug. 2003 Okskiy Nat. Reserve, RUS (54°43'N, 40°50'E)
24 Oct. 03 Cernek, TUR (41°36'N, 36°05'E)

Particularly interesting are three long-distance recoveries of Kingfishers (*Alcedo atthis*), including one direct movement to the Çukurova delta with a mean speed of 186 km/day.

Data on directional preferences of 4705 birds were collected (Table 1).

DISCUSSION

Both the high number of captured birds and obtained ringing recoveries indicate that the Kızılırmak delta is an important stopover on the migration route towards the birds' winter quarters in Africa, and further systematic work may enlarge our knowledge on bird migration in this region to a significant degree. The location of the station appears to be very fortunate: this place seems to be a natural laboratory for studies of bird orientation and the influence of geographical barriers in shaping their flyways. To the south-west of the station, the deep valley of the River Kızılırmak is located, which serves as a crossing through the Pontine Mountains from the north to the south. The Pontine Mountains, which reach 3937 m a.s.l. (in the region of Samsun up to 2058 m), extend along the entire southern coast of the Black Sea. This valley is the most convenient pass towards the south along an area of almost 500 km. Lake Cernek is a local barrier on the birds' way south. Even a preliminary analysis of the results of orientation experiments shows that most species prefer directions following the spit which separates Lake Cernek from the Black Sea, or towards the south-west – directly to the gate of the above mentioned Kızılırmak valley (Erciyas *et al.* 2005). On the other hand, birds have shown no preferences for southern directions, which should decidedly predominate if we look at the wider geographical scale. These results provide a promising perspective for further studies on the influence of the distance of movements, birds' fitness, weather conditions and also other similar factors on migration strategies used by birds: to avoid or to cross geographical barriers.

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