

Survey on the Common Crane Migration during Spring 2010

Follow-up Study to: ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT FOR THE BAHCE (OSMANIYE) WINDFARM PROJECT (135 MW)



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Introduction

ROTOR Elektrik Uretim Ltd. (ROTOR), a wind farm developer and a subsidiary of Zorlu Energy Group, has constructed and has been operating a 135 MW wind farm (Project) in Bahçe District of Osmaniye Province in south Turkey. The ornithological report, published in 2009, has discussed the effects of the project on the wild bird populations and the bird migration corridors within the region and concluded that its effects are minimal and not a significant threat for the birds. However report suggested a follow-up study on the Common Crane for 2010.

“Common Crane (*Grus grus*) should be monitored more carefully during spring migration between 7 March and 15 April, especially at the most southern tip of the project site near turbines 46 and 47...”

The aim of the report is to document the movements of the Common Crane near the project site in detail.

Methodology

A total of 12 days visit has been planned during spring 2010, between 1 March and 15 April, when the crane migration is at the peak time (Boyla 2009). **Table 1.** The counts have been conducted between 09:00 and 17:30 hours. The horizon was scanned with binoculars every 15 minutes to catch any movement of birds. During observations, the flight altitude, and flight corridors has been noted, together with the direction of the wind to see any relationship between the two. All bird activity in the field has been noted. Bird songs and calls have been extensively used for species identification, particularly for breeding birds. On the first visit the observation station has been defined as the ridge top near turbine number 42. (Longitude: 37,123; latitude: 36,614; altitude: 1300 m). Three experienced field workers have been present during surveys, [Kerem Ali Boyla (KAB), Ergün Bacak (EB) ve Zeynel Arslangündoğdu (ZA)] and at every day at least two of the observers were present. The observations were realised with 10x binoculars, 30x field telescope and a tripod to be used both with binoculars and the telescope.

Table 1. Field observations at the Bahçe Windfarm Terminal project area during 2010.

Date	Observation Hours	Weather	Wind	Observers
12 March	11:00-17:30	15° C clear but foggy in lower altitudes	SW light	KAB and EB
13 March	09:00-17:30	10° C clear with clouds low in the valley	SW	KAB and EB
14 March	09:00-17:00		S moderate	KAB and EB
15 March	09:00-17:00	15° C slightly cloudy	NE	KAB and EB
19 March	12:00-17:30	10° C clear, good visibility	SE light	EB and ZA
20 March	09:00-17:30	10-15° C, clear, good visibility	SE, W, NW light and changing	EB and ZA
21 March	09:00-17:30	15° C, clear, good visibility	SW light	EB and ZA
22 March	09:00-17:30	20° C, clear, good visibility	SE light	EB and ZA
2 April	11:00-17:30	15° C clear but foggy in lower altitudes	SE light	EB and ZA
3 April	09:00-17:00 and night survey between 22:00-24:00	15-20° C, clear moderate visibility with slight mist	NW	EB and ZA
4 April	09:00-17:00 and night survey between 21:20-23:20	20° C, clear, good visibility	WNW light	EB and ZA
5 April	09:00-17:00	20° C, clear, good visibility	ENE moderate	EB and ZA

Results

Field work. In the course of 12 days, a total of 98,5 hours of observations were realised, including 2 hour long night walk on 2 days. A total of 280 migratory soaring birds (storks, cranes and birds of prey), belonging to 17 different species were observed.

General results. The most common birds were White Stork (*Ciconia ciconia*), Common Crane (*Grus grus*), Common Buzzard (*Buteo buteo*) and Lesser Spotted Eagle (*Aquila pomarina*), confirming the findings of the 2009 study. The birds were recorded were classified according to the flight corridors, as used in the previous ornithological report, over and outside of the project area.

Table 2.

Observation of the Common Crane. During the fieldwork a total of 4 crane groups were observed. A single flew to SW over Kuşçubeli Pass on 12 March between 12:00 and 13:00 hours, however approaching the turbines number 45-47 at 500m it hit the northerly wind and turned back to the Islahiye plain, thus did not fly over the project area. Other tree groups of 10, 16 and 48 individuals were seen on 13 March very low (at 200-400m a.s.l.) over Islahiye plain at least one km west from the project site.

The Common Crane is known also to migrate during night and migration flocks often call (Snow and Perrins 1998). In previous years the wardens and local people had informed about the night passage of the crane. This year, the wardens of the project site had reported hearing the night passage of a crane group on 17 March between 22:00-24:00 hours.

Table 2. The number of birds observed during spring 2010 using different flight corridors over and outside of the project area. The species marked with (*) occur as resident birds. The boundaries of the project site and the flight corridors over and outside of the project are shown in Figure 1.

Species	Over the Project site (2)	Outside of the Project site (1 and 3)	Total
Black Stork (<i>Ciconia nigra</i>)	0	2	2
White Stork (<i>Ciconia ciconia</i>)	18	84	102
Black Kite (<i>Milvus migrans</i>)	1	0	1
Egyptian Vulture (<i>Neophron percnopterus</i>)	1	16	17
Griffon Vulture (<i>Gyps fulvus</i>)	1	1	2
Short-toed Eagle (<i>Circaetus gallicus</i>)	1	0	1
Marsh Harrier (<i>Circus aeruginosus</i>)	3	1	4
Montagu's Harrier (<i>Circus pygargus</i>)	0	2	2
Sparrowhawk (<i>Accipiter nisus</i>)*	0	3	3
Common Buzzard (<i>Buteo buteo</i>)*	10	42	52
unid. buzzard (<i>Buteo spec</i>)	1	1	2
Long-legged Buzzard (<i>Buteo rufinus</i>)*	1	0	1
Lesser Spotted Eagle (<i>Aquila pomarina</i>)	2	11	13
Osprey (<i>Pandion haliaeetus</i>)	1	0	1
Merlin (<i>Falco columbarius</i>)	1	0	1
Peregrine Falcon (<i>Falco peregrinus</i>)	0	1	1
Common Crane (<i>Grus grus</i>)	1	74	75
Total	42	238	280

There is no commonly used methodology for observing the night passage of migratory birds, without the aid of radar, heat sensitive binocular and camera and other similar equipment that might capture birds flying at night. However we decided to make night surveys, without any additional equipment, with the hope to hear some passing flocks. On 3 April between 2200 and 24:00 hours and on 4 April between 21:20 and 23:20 hours night walks were realised aiming to record calls of the migratory cranes. However no cranes and other birds were recorded during those walks.

Resident birds of prey. Resident populations of the following species occur in the project area: 2 pairs of Sparrowhawk, Sparrowhawk (*Accipiter nisus*), 1 pair of Common Buzzard (*Buteo buteo*), 2 pairs of Long-legged Buzzard (*Buteo rufinus*) and 3 pairs of Common Kestrel (*Falco tinnunculus*).

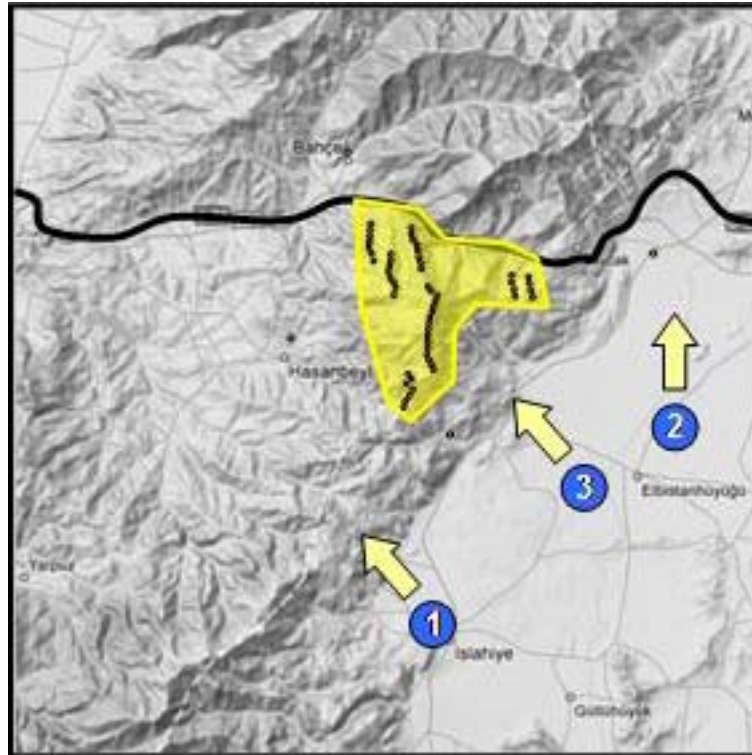


Figure 1. The flight corridors of migratory birds in spring. The shaded area is the project site, the black line the TEM motorway and black dots individual wind turbines.

Flight corridors outside the project site:

1. Birds arrive from south, start heading NW, fly over the Kuşçubeli Pass, then over Almançeşmesi Yaylası ve Hasanbeyli. This corridor is 1-2 south of the project site.
2. Birds fly over the Islahiye plain, straight N from Islahiye and Elbistanhöyüğü, not approaching the mountains and hills where the project area is located.

Flight corridors over the project site:

3. Birds arrive at Fevzipaşa, head NW, cross the ridges between the turbines number 32 to 46.

Breeding birds and other migrant species. During the surveys the following data on breeding and other migratory species were collected. Here we present the results to confirm last year's findings.

Table 3. The list of other migratory and resident species seen during 2009 and 2010.

Species	Status	2009	2010
Stock Dove (<i>Columba oenas</i>)	migratory	x	x
Common Swift (<i>Apus apus</i>)	migratory	x	x
Alpine Swift (<i>Apus melba</i>)	migratory	x	
Bee-eater (<i>Merops apiaster</i>)	migratory	x	
Wood Lark (<i>Lullula arborea</i>)	breeder	x	x
Barn Swallow (<i>Hirundo rustica</i>)	breeder	x	x
Red-rumped Swallow (<i>Hirundo daurica</i>)	migratory	x	
House Martin (<i>Delichon urbica</i>)	migratory	x	x
White Wagtail (<i>Motacilla alba</i>)	migratory	x	x
Wren (<i>Troglodytes troglodytes</i>)	breeder	x	
Nightingale (<i>Luscinia megarhynchos</i>)	breeder	x	
Robin (<i>Erithacus rubecula</i>)	breeder	x	
Black Redstart (<i>Phoenicurus ochruros</i>)	migratory	x	x
Northern Wheatear (<i>Oenanthe oenanthe</i>)	breeder	x	x
Black-eared Wheatear (<i>Oenanthe hispanica</i>)	breeder	x	
Stonechat (<i>Saxicola torquata</i>)	breeder	x	
Blackbird (<i>Turdus merula</i>)	breeder	x	x
Song Thrush (<i>Turdus philomelos</i>)	migratory	x	x
Mistle Thrush (<i>Turdus viscivorus</i>)	breeder	x	x
Chiffchaff (<i>Phylloscopus collybita</i>)	breeder	x	x
Lesser Whitethroat (<i>Sylvia curruca</i>)	breeder	x	x
Orphean Warbler (<i>Sylvia hortensis</i>)	breeder	x	
Rueppel's Warbler (<i>Sylvia ruepelli</i>)	breeder	x	
Coal Tit (<i>Parus ater</i>)	breeder	x	x
Blue Tit (<i>Parus caeruleus</i>)	breeder	x	x
Great Tit (<i>Parus major</i>)	breeder	x	x
Long-tailed Tit (<i>Aegialos caudatus</i>)	breeder	x	x
European Jay (<i>Garrulus glandarius</i>)	breeder	x	x
Hooded Crow (<i>Corvus corone</i>)	breeder	x	x
Common Raven (<i>Corvus corax</i>)	breeder	x	x
House Sparrow (<i>Passer domesticus</i>)	breeder	x	
Chaffinch (<i>Fringilla coelebs</i>)	breeder	x	x
Serin (<i>Serinus serinus</i>)	breeder	x	x
Linnet (<i>Carduelis cannabina</i>)	breeder	x	x
Goldfinch (<i>Carduelis carduelis</i>)	migratory		x
Greenfinch (<i>Carduelis chloris</i>)	breeder	x	
Ortolan Bunting (<i>Emberiza hortolana</i>)	breeder	x	
Rock Bunting (<i>Emberiza cia</i>)	breeder	x	x

Conclusion

As a result of the field survey the following can be concluded:

- *A total of 74 Common Crane (Grus grus) was recorded during almost 100 hours long field survey in spring 2010, all using flight corridors outside of the project area over Islahiye Plains. The number of cranes possibly using the area is very low and thus the wind farm can be considered not to affect the migratory populations of cranes at a significant level.*
- *The number of cranes possibly using the area does not fulfil any international criteria, such as BirdLife International's Important Bird Areas (IBA) criteria.*

The result of the survey is very similar to those of the surveys during 2009. Therefore this survey in a way confirms the windfarm does not possess a significant threat to resident and migratory birds.

This study presents comprehensive information on the status of Common Crane in the Osmaniye Windfarm Project. Therefore no other research is required on the effects of the windfarm to the Common Crane and other wild bird populations.

However it is recommended to continue monitoring the wind farm, especially for collisions with migratory and resident birds, that all windfarms are known to cause.

References

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Appendix

Appendix 1. Daily totals of observed number of soaring migratory birds over and outside of the project area.

Species	March				March				April				Total
	12	13	14	15	19	20	21	22	2	3	4	5	
Black Stork (<i>Ciconia nigra</i>)			2										2
White Stork (<i>Ciconia ciconia</i>)		2	17	9		1					1	72	102
Black Kite (<i>Milvus migrans</i>)												1	1
Egyptian Vulture (<i>Neophron percnopterus</i>)		2	1	2			12						17
Griffon Vulture (<i>Gyps fulvus</i>)		1			1								2
Short-toed Eagle (<i>Circaetus gallicus</i>)												1	1
Marsh Harrier (<i>Circus aeruginosus</i>)				1			3						4
Montagu's Harrier (<i>Circus pygargus</i>)												2	2
Sparrowhawk (<i>Accipiter nisus</i>)*				3									3
Common Buzzard (<i>Buteo buteo</i>)*	2	11	1	14	2	1	10		1			10	52
unid. buzzard (<i>Buteo spec</i>)					1				1				2
Long-legged Buzzard (<i>Buteo rufinus</i>)*							1						1
Lesser Spotted Eagle (<i>Aquila pomarina</i>)									2		1	10	13
Osprey (<i>Pandion haliaeetus</i>)												1	1
Merlin (<i>Falco columbarius</i>)*	1												1
Peregrine (<i>Falco peregrinus</i>)*										2		1	2
Common Crane (<i>Grus grus</i>)	1	74											75
Total	4	90	21	29	4	2	26	0	4	2	2	98	280