Nakkaş Highway
Bird Surveys Report
2021



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Date: 30 Sept 2021 (rvs 17 June 2022)

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Revision Table:

Revision Number	Date	Report Title	Signature
1	7 June 2021	Nakkaş Highway Bird Surveys Report Spring 2021	KAB
2	30 Sep 2021	Nakkaş Highway Bird Surveys Report 2021	KAB

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1 INTRODUCTION

1.1 Background

Rönesans is planning to build a highway in İstanbul, extending from north of Büyükçekmece Lake to Başakşehir. The project is financed by international lenders. As part of ESIA process, it was deemed necessary to evaluate the usage of the proposed site by migrant birds in compliance with international standards and guidelines. Three points along the project site were identified as points of interest to assess the potential impact of the project of such bird species. The points of concern were identified as (1) habitats such as waterbodies, forestry and fruits plantations and crags and rock faces within a 500 m buffer of the highway route, and (2) points of potential collision risk.



Figure 1. The location and the route of the proposed highway.

1.2 Scope of Work

This study aims to investigate bird activity at the proposed Nakkaş highway route and its 500 m buffer zone during spring migratory season in 2021.

1.3 Site Description

The project is located in İstanbul, and crosses Büyükçekmece, Çatalca, Arnavutköy and Başakşehir districts (Figure 1). The proposed route is spread over an area with a west-east extension of approx. 31 km and the maximum north-south extension approx. 13 km. The total area that the highway and its 500 m buffer covers is approx. 66,8 km^2. At its western reaches, it crosses mostly rural areas, near villages, agricultural land and meadows. In its mid segment it passes through residential areas and the Sazlıdere Reservoir. In its eastern end it reaches highly developed urban areas.

1.4 Protected Areas

Turkey has an extensive network of designated conservation areas with many different categories. The Project Area crosses three designated protected areas, Büyükçekmece Gölü (MAR018), Küçükçekmece Havzası (MAR019) and Batı İstanbul Meraları (MAR021) (Eken *et al.* 2006) (Figure 2). The list of species triggering for Büyükçekmece Lake and Küçükçekmece Basin protected areas include various migratory bird species, especially White Stork (*Ciconia ciconia*).

Most species triggering for the IBA and found along the project transect are plant species and are outside of the scope of this study.

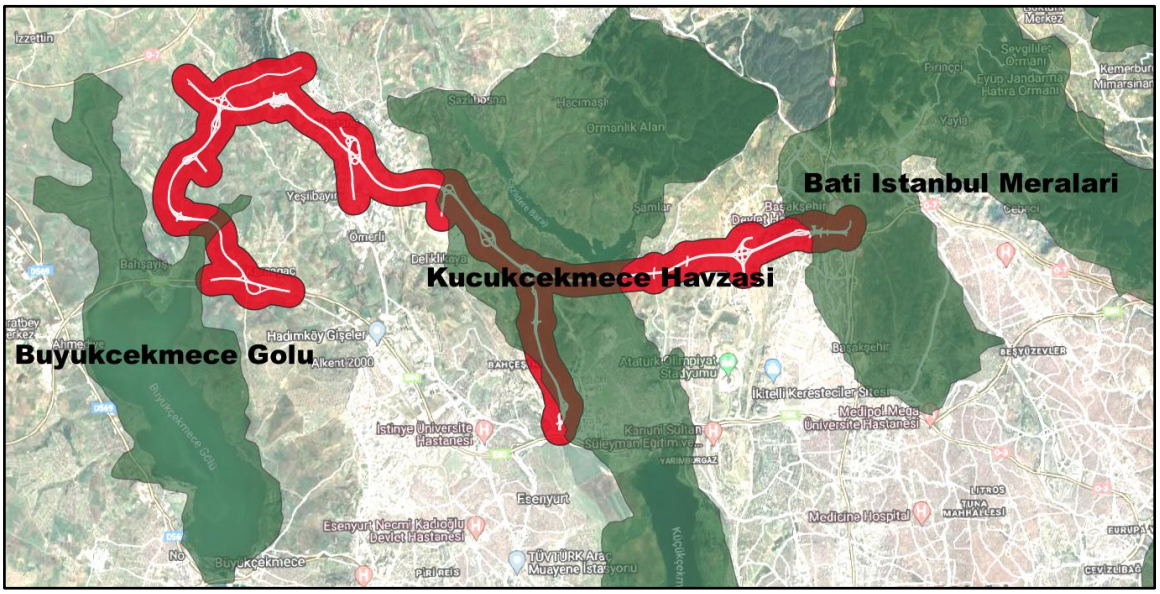


Figure 2. The proposed route and its 500 m buffer, and the protected areas.

2 METHODOLOGY

2.1 Survey Schedule and Environmental Parameters

6 surveys were carried out at 3 points identified to be the most critical habitats for migratory species. Most surveys took place between an hour after sunrise and 11:00 in order to catch peak bird activity.

Table 1. Dates of the field visits and the environmental conditions.

Survey #	Date	Temperature (degree C)	Wind speed (km/h)	Wind direction
1	18 Apr	13	9	NNE
2	25 Apr	12	24	ENE
3	27 Apr	14	17	W
4	02 May	21	9	WSW
5	16 May	23	9	SE
6	23 May	19	9	S

Table 2. Dates of the field visits and the environmental conditions.

Survey #	Date	Temperature (degree C)	Wind speed (km/h)	Wind direction
1	21 Aug	26	20	NE
2	22 Aug	26	23	NE
3	28 Aug	29	17	NE
4	29 Aug	29	6	SW
5	11 Sep	23	8	N
6	12 Sep	24	7	NE

2.2 Critical Habitats for Survey

Three critical habitats along the proposed highway route were identified during the exploration phase of the study for further surveying.

1. Sazlıdere Reservoir Area
2. Meadow near Bahşayış Village
3. Riparian Habitat

The first point of interest is where the impact area of the highway meets the Sazlıdere Reservoir area (1), where significant movement of birds between the reservoir and Küçükçekmece Lake are predicted; the second is a meadow near Bahşayış village (2) which is predicted to be a stop-over site for migratory soaring species, especially White Stork (*Ciconia cionia*); and the third point is a riparian habitat in Nakkaş village, formed around a creek which eventually feeds into Büyükçekmece Lake, which is predicted to be a crucial rest stop for migratory birds, especially passerines (3) (Figure 3). Each area was surveyed by an experienced bird watcher in order to determine diversity and abundance of bird species using a pair of binoculars and a camera. The allotted survey duration for the reservoir habitat was 1 hour, the meadow was 15 minutes, and the riparian habitat was also 1 hour. The surveyors walked to expand their coverage within the designated areas.

The birds were classified as:

- Breeding bird: Those may be breeding resident birds, or breeding summer migrants
- Migrant. The birds that do not breed in the area but are seen during migration

- Fly-over: Mostly migrant birds that do not use the habitat at the site, are seen over the site during their trans-continental migration, such as raptors.



Figure 3. Three critical habitats along the proposed route

3 RESULTS

3.1 Bird Surveys

Station 1: Sazlıdere Reservoir

During spring bird surveys at the critical habitat near the reservoir, a total of 57 bird species were detected, 24 of which were identified as breeding. No species categorized as endangered by the IUCN Red List was encountered during the surveys (



Photo 1. Sazlıdere Reservoir surveys at the buffer zone.

Table 3).

During autumn surveys, a small of wader group has been seen. The Globally Threatened Eurasian Turtle Dove (*Streptopelia turtur*) was recorded with on individual. It is a widespread and common migrant across Turkey which is expected to occur at any space. There was no roost of similar concentration of the species, that merit a conservation action.



Photo 1. Sazlıdere Reservoir surveys at the buffer zone.

Table 3. Bird surveys at Sazlıdere Reservoir during spring 2021.

Common Name	Scientific Name	IUCN	Mig	Trns Flyer	18 Apr	25 Apr	27 Apr	02 May	16 May	23 May
Mallard	*Anas platyrhynchos*	LC		X					5	
Northern Pintail	*Anas acuta*	LC	M					2		
Greater Flamingo	*Phoenicopterus roseus*	LC	M							1
Great Crested Grebe	*Podiceps cristatus*	LC	Br			7	4	6	10	6
Eurasian Collared-Dove	*Streptopelia decaocto*	LC				2	1	1	1	+
Laughing Dove	*Streptopelia senegalensis*	LC				1	+			+
Alpine Swift	*Apus melba*	LC	M		35		+	+	+	+
Common Swift	*Apus apus*	LC	M					+	1	
Eurasian Coot	*Fulica atra*	LC								
Black-winged Stilt	*Himantopus himantopus*	LC	M, Br						5	2
Common Sandpiper	*Actitis hypoleucos*	LC	M					1		
Green Sandpiper	*Tringa ochropus*	LC	M			1				
Black-headed Gull	*Chroicocephalus ridibundus*	LC	Br	X				5	3	1
Mediterranean Gull	*Ichthyaetus melanocephalus*	LC		X				50		
Yellow-legged Gull	*Larus michahellis*	LC	Br	X	1	+		200	+	+
White-winged Tern	*Chlidonias leucopterus*	LC	M						3	
Common Tern	*Sterna hirundo*	LC	M	X		25	50	100	+	+
White Stork	*Ciconia ciconia*	LC	M							
Pygmy Cormorant	*Microcarbo pygmaeus*	LC	Br	X		7	+	7	20	+
Great Cormorant	*Phalacrocorax carbo*	LC	Br	X	1	8	+	21	4	1
Gray Heron	*Ardea cinerea*	LC	Br	X		11	3	6	6	1
Great Egret	*Ardea alba*	LC	Br	X		1			2	
Little Egret	*Egretta garzetta*	LC		X		4		4		5
Short-toed Snake-Eagle	*Circaetus gallicus*	LC	M Br				2			
Booted Eagle	*Hieraaetus pennatus*	LC	M Br				1			
Eurasian Marsh-Harrier	*Circus aeruginosus*	LC					1		1	
Common Buzzard	*Buteo buteo*	LC				1				
Little Owl	*Athene noctua*	LC							1	
European Bee-eater	*Merops apiaster*	LC	M Br			2		20	20	20
Syrian Woodpecker	*Dendrocopos syriacus*	LC					1			
Eurasian Kestrel	*Falco tinnunculus*	LC				1		1		1
Peregrine Falcon	*Falco peregrinus*	LC						1		
Eurasian Golden Oriole	*Oriolus oriolus*	LC	M Br							1
Red-backed Shrike	*Lanius collurio*	LC	M			1			3	
Eurasian Jay	*Garrulus glandarius*	LC				1	+			+
Eurasian Magpie	*Pica pica*	LC	Br			+	+	+	+	+
Eurasian Jackdaw	*Corvus monedula*	LC				+	+	+	+	+
Hooded Crow	*Corvus cornix*	LC	Br			+	+	+	+	+
Crested Lark	*Galerida cristata*	LC	Br						2	
Eastern Olivaceous Warbler	*Iduna pallida*	LC	M Br						5	+
Great Reed Warbler	*Acrocephalus arundinaceus*	LC	M Br							2
Barn Swallow	*Hirundo rustica*	LC				+	+	+	+	+
Common Chiffchaff	*Phylloscopus collybita*	LC	M			1				
Cetti's Warbler	*Cettia cetti*	LC	Br				1	1		1
Lesser Whitethroat	*Sylvia curruca*	LC	M							
Sardinian Warbler	*Sylvia melanocephala*	LC	Br			15	2	2	3	1
Greater Whitethroat	*Sylvia communis*	LC	M Br			3		9	4	4
European Starling	*Sturnus vulgaris*	LC				1		3		+
Common Nightingale	*Luscinia megarhynchos*	LC	M Br				1	2	1	
Northern Wheatear	*Oenanthe oenanthe*	LC	M Br			3	8	5	3	3
House Sparrow	*Passer domesticus*	LC				+	+	+	2	+
Western Yellow Wagtail	*Motacilla flava*	LC	M			2		1		
White Wagtail	*Motacilla alba*	LC	M			1				
Tawny Pipit	*Anthus campestris*	LC	M				2	1	1	
Tree Pipit	*Anthus trivialis*	LC	M		2					
Black-headed Bunting	*Emberiza melanocephala*	LC	M						1	
Corn Bunting	*Emberiza calandra*	LC	Br			2	1	4	1	

Table 4. Bird surveys at Sazlıdere Reservoir during autumn 2021.

Common Name	Scientific Name	IUCN	Mig	Daily Mov	21 Aug	22 Aug	28 Aug	29 Aug	11 Sep	12 Sep
Great Crested Grebe	Podiceps cristatus	LC						20	2	
Eurasian Turtle Dove	Streptopelia turtur	VU	M		1			1	1	
Eurasian Collared-Dove	Streptopelia decaocto	LC					2		1	
Alpine Swift	Apus melba	LC			50				1	
Pallid Swift	Apus pallidus	LC						4		
Eurasian Coot	Fulica atra	LC							4	4
Green Sandpiper	Tringa ochropus	LC	M					1		
Greenshank	Tringa nebularia	LC	M					1	1	1
Wood Sandpiper	Tringa glareola	LC	M					30		
Black-headed gull	Chroicocephalus ridibundus	LC	M	X	10			80	2	4
Yellow-legged Gull	Larus michahellis	LC		X	300	20		150	23	3
Common Tern	Sterna hirundo	LC		X		1				
Pygmy Cormorant	Microcarbo pygmaeus	LC		X	1	1		2	2	
Great Cormorant	Phalacrocorax carbo	LC		X	30	3		12		
Gray Heron	Ardea cinerea	LC		X	10	6	3	7	4	1
Glossy Ibis	Plegadis falcinellus	LC	M			3				
Eurasian Honey-Buzzard	Pernis apivorus	LC	Fo			28				
Short-toed Snake Eagle	Circaetus gallicus	LC			1	2				
Lesser Spotted Eagle	Clanga pomarina	LC	Fo			1				
Booted Eagle	Hieraaetus pennatus	LC	Fo			4				
Eurasian Marsh Harrier	Circus aeruginosus	LC					1			
Black Kite	Milvus migrans	LC	Fo		2					
Long-legged Buzzard	Buteo rufinus	LC	Fo			1				
Little Owl	Athene noctua	LC			2	1		1	1	
European Bee-eater	Merops apiaster	LC	M						1	
Wryneck	Jynx torquilla	LC	M				2			
Eurasian Kestrel	Falco tinnunculus	LC			1	2	1			
Red-backed Shrike	Lanius collurio	LC			6	3	4		3	3
Lesser Grey Shrike	Lanius minor	LC	M				1			
Eurasian Magpie	Pica pica	LC			8	3	53	22	8	27
Eurasian Jackdaw	Corvus monedula	LC			10		45	7	16	39
Hooded Crow	Corvus cornix	LC			2	2			1	2
Barn Swallow	Hirundo rustica	LC			20			5	51	
House Martin	Delichon urbicum	LC			6					
Willow Warbler	Phylloscopus trochilus	LC	M		8	2	1		5	4
Barred Warbler	Curruca nisoria	LC	M		1					
Lesser Whitethroat	Curruca curruca	LC	M		1				2	7
Sardinian Warbler	Curruca melanocephala	LC							2	
Greater Whitethroat	Curruca communis	LC			5		1			
Spotted Flycatcher	Muscicapa striata	LC	M							2
Whinchat	Saxicola rubetra	LC	M				1			
Northern Wheatear	Oenanthe oenanthe	LC			2		3			
House Sparow	Passer domesticus	LC					1			

During survey special attention was paid for the birds moving between the Sazlıdere Damlake and Küçükçekmece Lake, along the Sazlıdere steam, at daily basis. Those are birds that move between feeding grounds and roosting grounds, the latter involves safe and quite sites, reeds, island, etc. where they can spend time for resting or sleeping.

Those birds involve 10 species as shown on table as species with Daily Movements (Daily Mov):

- Mallard
- Black-headed Gull
- Mediterranean Gull
- Yellow-legged Gull
- Common Tern
- Pygmy Cormorant
- Great Cormorant

- Gray Heron
- Great Egret
- Little Egret

Most species were recorded at flight height between 50 and 300 meters. The height of the tower is planned as 196 meter above ground, and the height of the road as 80 meters. The half of the cross section between 79 and 196 meters correspond to the crossection covered by the suspension cables of the bridge. That means that the current height of the bridge is on the flight height of the bridge.

Some birds are expected to fly at road height. Most birds are expected to modify their flight height when crossing over the bridge, the bridge's suspension cables will stand out and encourage birds approaching the bridge to gain height.

Considering the current low population of birds, the high adaptation probability of birds regarding their flight height, and the suspension cables to block birds getting into risky zones, the collision risk birds and vehicles can be assumed to be very low. The presence of already existing TEM motorway on the same flight course also suggest that birds are used to such man-made structures and the project is not likely to cause a barrier effect.

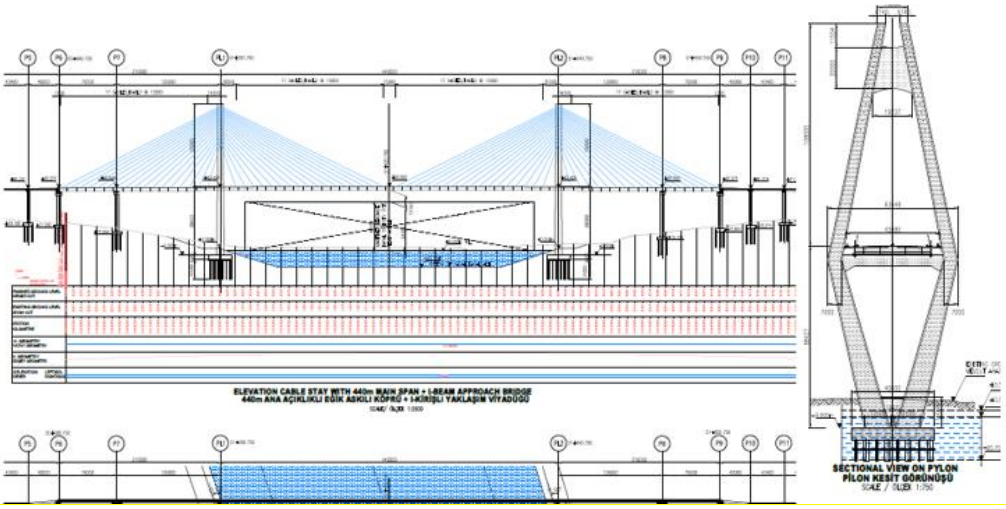




Photo 1. Sazlıdere Damlake, the construction site and sazlıdere stream from airplane on 16 Aug 2021. 10 species of birds were observed fying from north (right upper corner) to south (left lower corner) on daily basis.

Station 2: Riparian Habitat near Bahşayış

During spring bird surveys at the critical habitat at the meadow habitat near Bahşayış, a total of 32 bird species were detected, 9 of which were identified as breeding. No species categorized as endangered by the IUCN Red List was encountered during the surveys. The meadow habitat was determined to be used by White Stork (*Ciconia ciconia*) as a resting place during their migratory activities during the April surveys (Table 4).

During autumn Surveys the site hosted some migrant passerines such as Thrush Nightingale (*Luscinia luscinia*) and Whinchat (*Saxicola rubetra*). Common warblers were also present in the valley.



*Photo 2. The meadows near Bahşayış are an important resting site for White Stork (*Ciconia ciconia*).*

Table 5. Bird surveys near Bahşayış meadow during spring 2021

Common Name	Scientific Name	IUCN	Mig	18 Apr	25 Apr	27 Apr	02 May	16 May	23 May
Common Quail	Coturnix coturnix	LC	M				2		
Eurasian Collared-Dove	Streptopelia decaocto	LC	Br			2	2	+	+
Laughing Dove	Streptopelia senegalensis	LC						1	
Alpine Swift	Apus melba	LC	M				+	100	+
Common Swift	Apus apus	LC	M					2	
Eurasian Coot	Fulica atra	LC					5		
Yellow-legged Gull	Larus michahellis	LC					1		+
White Stork	Ciconia ciconia	LC	M	130	4	5			
Little Owl	Athene noctua	LC						1	
Eurasian Hoopoe	Upupa epops	LC	M						
European Bee-eater	Merops apiaster	LC	M				+		
Syrian Woodpecker	Dendrocopos syriacus	LC			1		2		
Eurasian Kestrel	Falco tinnunculus	LC			1				
Eurasian Golden Oriole	Oriolus oriolus	LC	M Br					1	3
Red-backed Shrike	Lanius collurio	LC	M Br					2	1
Eurasian Magpie	Pica pica	LC			2	+	+	+	+
Eurasian Jackdaw	Corvus monedula	LC					+	+	+
Hooded Crow	Corvus cornix	LC			1		+	+	+
Eastern Olivaceous Warbler	Iduna pallida	LC	M Br					3	+
Great Reed Warbler	Acrocephalus arundinaceus	LC	M Br			1			
Barn Swallow	Hirundo rustica	LC	M			+	+		+
Cetti's Warbler	Cettia cetti	LC	Br						2
Lesser Whitethroat	Sylvia curruca	LC	M						
Sardinian Warbler	Sylvia melanocephala	LC					1		
Greater Whitethroat	Sylvia communis	LC	M Br				2	1	
Common Nightingale	Luscinia megarhynchos	LC	M Br		3	2			1
House Sparrow	Passer domesticus	LC					+	+	+
Western Yellow Wagtail	Motacilla flava	LC	M				2		1
Tawny Pipit	Anthus campestris	LC	M		2				
Black-headed Bunting	Emberiza melanocephala	LC	M Br					6	6
Corn Bunting	Emberiza calandra	LC						1	
Cirl Bunting	Emberiza cirlus	LC			1				
TOTAL									

Table 6. Bird surveys near Bahşayış meadow during autumn 2021

Common Name	Scientific Name	IUCN	Mig	21 Aug	22 Aug	28 Aug	29 Aug	11 Sep	12 Sep
Feral Pigeon	Columba livia	LC				1			
Eurasian Collared-Dove	Streptopelia decaocto	LC				4	2	2	3
Alpine Swift	Apus melba	LC						37	
Black Stork	Ciconia nigra	LC	fo		1				
White Stork	Ciconia ciconia	LC	M		84		3		
Honey Buzzard	Pernis apivorus	LC	fo		1		449		
Short-toed Snake Eagle	Circaetus gallicus	LC	M				1	1	
Lesser Spotted Eagle	Clanga pomarina	LC	fo					53	
Black Kite	Milvus migrans	LC	fo				2		
Hoopoe	Upupa epops	LC	M					1	
European Bee-eater	Merops apiaster	LC	fo		1			16	17
European Roller	Coracias garrulus	LC	fo						2
Syrian Woodpecker	Dendrocopos syriacus	LC			1				
Eurasian Kestrel	Falco tinnunculus	LC		4	2	4		1	1
Red-backed Shrike	Lanius collurio	LC		2	2	4			2
Eurasian Magpie	Pica pica	LC				2	2		1
Common Raven	Corvus corax	LC				1	1		
Barn Swallow	Hirundo rustica	LC		2				30	2
Red-rumped Swallow	Cecropis daurica	LC						1	
Willow Warbler	Phylloscopus trochilus	LC						3	
Barred Warbler	Curruca nisoria	LC	M	1					
Lesser Whitethroat	Curruca curruca	LC	M	1	1	1		7	4
Greater Whitethroat	Curruca communis	LC						1	
Spotted Flycatcher	Muscicapa striata	LC	M	1		1		1	3
Whinchat	Saxicola rubetra	LC	M					3	
House Sparrow	Passer domesticus	LC			20	12			23
Western Yellow Wagtail	Motacilla flava	LC	M				10		
White Wagtail	Motacilla alba	LC	M		1				

Station 3: Riparian Habitat near Nakkaş village

During spring bird surveys at the critical habitat at the riparian habitat near Nakkaş, a total of 50 bird species were detected, 11 of which were identified as breeding. Meadow Pipit (*Anthus pratensis)* which is categorized as Near Threatened (NT) by the IUCN Red List was encountered during the surveys



Photo 3. The riparian habitat in Nakkaş, surrounded by agricultural land.

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Photo 3. The riparian habitat in Nakkaş, surrounded by agricultural land.

Table 6. Bird surveys in the Riparian Habitat during spring 2021

Common Name	Scientific Name	IUCN	Mig.	18 Apr	25 Apr	27 Apr	02 May	16 May	23 May
Mallard	*Anas platyrhynchos*	LC				1			
Common Quail	*Coturnix coturnix*	LC	M			1			
Eurasian Collared-Dove	*Streptopelia decaocto*	LC			4	+	1	+	+
Alpine Swift	*Apus melba*	LC	M			2	+	+	+
Common Swift	*Apus apus*	LC	M						+
Green Sandpiper	*Tringa ochropus*	LC	M			+			
Yellow-legged Gull	*Larus michahellis*	LC			1		2	6	+
Gray Heron	*Ardea cinerea*	LC				1			
Short-toed Snake-Eagle	*Circaetus gallicus*	LC	M Br						1
Booted Eagle	*Hieraaetus pennatus*	LC	M						1
Eurasian Scops-Owl	*Otus scops*	LC	M			1			
Eurasian Hoopoe	*Upupa epops*	LC	M			1			
European Bee-eater	*Merops apiaster*	LC	M				16	+	+
Eurasian Kestrel	*Falco tinnunculus*	LC			1				
Red-backed Shrike	*Lanius collurio*	LC	M Br				3	2	1
Woodchat Shrike	*Lanius senator*	LC	M				1		
Eurasian Jay	*Garrulus glandarius*	LC					1	1	
Eurasian Magpie	*Pica pica*	LC			+	+	+	+	+
Eurasian Jackdaw	*Corvus monedula*	LC			+	+	+	+	+
Hooded Crow	*Corvus cornix*	LC			+	+	+	+	+
Great Tit	*Parus major*	LC			1				
Greater Short-toed Lark	*Calandrella brachydactyla*	LC	M				3		
Eurasian Skylark	*Alauda arvensis*	LC	Br		+	5	10	4	+
Crested Lark	*Galerida cristata*	LC							
Eastern Olivaceous Warbler	*Iduna pallida*	LC	M Br					3	+
Eurasian Reed Warbler	*Acrocephalus scirpaceus*	LC	M			2			
Great Reed Warbler	*Acrocephalus arundinaceus*	LC	M Br			1		1	
Barn Swallow	*Hirundo rustica*	LC	M			+	+	+	+
Red-rumped Swallow	*Cecropis daurica*	LC					1		
Willow Warbler	*Phylloscopus trochilus*	LC	M				1		
Common Chiffchaff	*Phylloscopus collybita*	LC	M						
Cetti's Warbler	*Cettia cetti*	LC	Br		1				1
Lesser Whitethroat	*Sylvia curruca*	LC	M			1			
Sardinian Warbler	*Sylvia melanocephala*	LC	Br		+	2	+		+
Greater Whitethroat	*Sylvia communis*	LC	M Br		2	1	4	1	15
European Starling	*Sturnus vulgaris*	LC							+
Eurasian Blackbird	*Turdus merula*	LC			1				1
Common Nightingale	*Luscinia megarhynchos*	LC	M Br		1	6	3	2	+
Collared Flycatcher	*Ficedula albicollis*	LC	M			1			
Whinchat	*Saxicola rubetra*	LC	M		9		5	2	
European Stonechat	*Saxicola rubicola*	LC				1			
Northern Wheatear	*Oenanthe oenanthe*	LC	M				6	1	
House Sparrow	*Passer domesticus*	LC			+	+	+	+	+
Western Yellow Wagtail	*Motacilla flava*	LC	M			15	+	+	+
Tawny Pipit	*Anthus campestris*	LC	M			4			
Meadow Pipit	*Anthus pratensis*	**NT**	M			17			
Tree Pipit	*Anthus trivialis*	LC	M		1				
Black-headed Bunting	*Emberiza melanocephala*	LC	M Br			1	3	9	50
Corn Bunting	*Emberiza calandra*	LC				1	1	2	30
Ortolan Bunting	*Emberiza hortulana*	LC	Br				1		

Table 7. Bird surveys in the Riparian Habitat during autumn 2021

Common Name	Scientific Name	IUCN	Mig	21 Aug	22 Aug	28 Aug	29 Aug	11 Sep	12 Sep
Eurasian Turtle Dove	Streptopelia turtur	VU	M					1	
Alpine Swift	Apus melba	LC						11	
Eurasian Honey Buzzard	Pernis apivorus	LC	Fo		2	18	18	1	
Short-toed Snake Eagle	Circaetus gallicus	LC	m	1	1			3	2
Lesser Spotted Eagle	Clanga pomarina	LC	Fl					1	1
Eurasian Marsh Harrier	Circus aeruginosus	LC	M	1		1	1		1
Black Kite	Milvus migrans	LC	Fl			1			
European Bee-eater	Merops apiaster	LC	M	1		2		15	12
Lesser Kestrel	Falco naumanni	LC	M			1			
Eurasian Kestrel	Falco tinnunculus	LC		1	1	1			2
Peregrine Falcon	Falco peregrinus	LC	Fl					2	
Red-backed Shrike	Lanius collurio	LC		1	2	14	2	7	3
Lesser Grey Shrike	Lanius minor	LC	M		1				
Eurasian Magpie	Pica pica	LC				4			
Eurasian Jackdaw	Corvus monedula	LC				6			
Hooded Crow	Corvus cornix	LC				3			
Great Tit	Parus major	LC						1	2
Barn Swallow	Hirundo rustica	LC		1			1	3	15
Red-rumped Swallow	Cecropis daurica	LC					4		
Willow Warbler	Phylloscopus trochilus	LC	M	1	1	2	2	7	2
Cetti's Warbler	Cettia cetti	LC						1	
Lesser Whitethroat	Curruca curruca	LC	M					1	1
Sardinian Warbler	Curruca melanocephala	LC					1		
Greater Whitethroat	Curruca communis	LC				1	2		
Eurasian Blackbird	Turdus merula	LC							1
Spotted Flycatcher	Muscicapa striata	LC	M						1
Thrush Nightingale	Luscinia luscinia	LC	M				1		
Whinchat	Saxicola rubetra	LC	M			1	1	8	8
European Stonechat	Saxicola rubicola	LC					4		1
Northern Wheatear	Oenanthe oenanthe	LC		1		3			
House Sparrow	Passer domesticus	LC				1			
Western Yellow Wagtail	Motacilla flava	LC					8		
Tawny Pipit	Anthus campestris	LC				1	1		
Tree Pipit	Anthus trivialis	LC	M				1		
Black-headed Bunting	Emberiza melanocephala	LC				1			

4 IMPACT ASSESSMENT AND RECOMMENDATIONS

In general, the bird diversity and level of population of breeding and migratory birds are not high around the project area. Most of the natural habitats in the region has been degraded by human settlements, hunting pressure and modification of natural habitats. While the eastern segment of the proposed highway crosses highly developed urban zones, the further development of which poses insignificant threat to migratory birds, the middle and western segments cross over areas of significance, such as riparian and meadow habitats and protected waterbodies.

At Sazlıdere reservoir there is minor breeding activity of water birds, mostly Common Tern (Sterna hirundo) and small groups of shorebirds on the islands in the reservoir. Those bird populations outside of the impact zone of the project and no negative impact is expected. The movement of waterfowl and shorebirds between the bodies of water in Sazlıdere and Küçükçekmece. Groups of cormorants, herons and gulls has been observed to fly on north-south direction. The collision with moving vehicles is possibly insignificant for some commuting water birds.

At the second critical habitat, the meadows near Bahyayış, **the importance of the site was determined to be on a provincial level.** The vast meadows here provide a good resting place for the migrating White Stork (*Ciconia ciconia*). Resting places are crucial for the species as they cover long distances each year, and the quality and quantity of meadows such as the one here are fast diminishing due to urban pressure and development. This area needs to be protected as is, and the **excavated earth should not be stored/dumped at this site at all costs.** Meadow Pipit (*Anthus pratensis)* a Near Threatened (NT) species was detected here.

The riverine habitat is important area for common migratory birds, mostly songbirds.

The Globally Threatened Eurasian Turtle Dove (*Streptopelia turtur*) was recorded at two wooded habitats, on the shores of Sazlıdere dam lake and on the riverine habitat near Nakkaş. Eurasian Turtle Dove is a widespread and common migrant across Turkey which is expected to occur at any space. There was no roost of similar concentration of the species, that merit a conservation action.

High number of migratory birds of prey related to birds flying over the site. The whole Istanbul province is located on the migratory routes of soaring migratory birds, such as White Stork, Common Buzzard, Honey Buzzard and Lesser Spotted Eagle and all those birds might be observed over the project site. Most birds were passage migrants only using the air space of the project site, recorded as fly-over birds, and were excluded from the analysis.

5 REFERENCES

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