

1-1-2005

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PERKTAŞ, UTKU and AYAŞ, ZAFER (2005) "Birds of Nallıhan Bird Paradise (Central Anatolia, Turkey)," *Turkish Journal of Zoology*. Vol. 29: No. 1, Article 6. Available at: <https://journals.tubitak.gov.tr/zoology/vol29/iss1/6>

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## Birds of Nallıhan Bird Paradise (Central Anatolia, Turkey)\*

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Received: 02.03.2003

**Abstract:** This study was conducted in Nallıhan Bird Paradise (Nallıhan, Ankara), which displays seasonal wetland characteristics. Within the scope of this study, a 12 month field study between August 2000 and July 2001 was carried out in order to determine the avifauna of Nallıhan Bird Paradise. One hundred and thirty bird species belonging to 14 orders and 41 families were recorded in the study area. It was concluded that this area was probably used by a total of 41 actual and/or possible bird species for breeding purposes.

**Key Words:** Avifauna, Bird, Nallıhan Bird Paradise, Ankara, Central Anatolia, Turkey

### Nallıhan Kuş Cenneti (İç Anadolu, Türkiye)'nin Kuşları

**Özet:** Bu çalışma mevsimsel sulakalan özelliği gösteren Nallıhan Kuş Cenneti (Nallıhan-Ankara)'nde gerçekleştirilmiştir. Çalışmanın amacı, Ağustos 2000-Temmuz 2001 tarihleri arasındaki 12 aylık arazi çalışmalarıyla Nallıhan Kuş Cenneti'nin avifaunasının saptanmasıdır. Sonuç olarak, 14 takım ve 41 familya içinde yer alan 130 kuş türü çalışma alanında kaydedilmiştir. Bununla beraber, çalışma alanı üreme amacıyla, aktif ve/veya muhtemel üreme özelliğine sahip toplam 41 kuş türü tarafından kullanılmıştır.

**Anahtar Sözcükler:** Avifauna, Kuş, Nallıhan Kuş Cenneti, Ankara, İç Anadolu, Türkiye

### Introduction

The bird fauna of Turkey is relatively well known when compared with other groups (Bilgin, 1994). First observations on birds in Anatolia were in the 1830s (Kumerlove, 1986). Especially during the last 50 years, several checklists have been published, starting with Ergene (1945) and followed by Kasparyan (1956), Kumerlove (1961), Beaman (1978), Kiziroğlu (1989), Bilgin and Akçakaya (1990), Turan (1990), Kasperek (1992), and Kasperek and Bilgin (1996). Finally, Kirwan et al. (1998) listed a total of 453 bird species.

Of these 453 bird species, 376 occur regularly at different times of the year, and of the remaining, 56 are vagrants whose origins are Western Palaearctic, Eastern Palaearctic, Afrotropical, Holarctic, Southern Asian, and Nearctic and a few species are semi-cosmopolitan (Bilgin, 1994).

Turkey has one of the richest bird faunas in the Western Palaearctic, because it is located on important migration routes for birds, and includes different kinds of

habitats. Central Anatolia is an important region for bird species in Turkey; there are 32 important bird areas (Magnin et al., 2000). Studies on birds in Central Anatolia have been carried out recently (Kasperek, 1992; Kırac and Kırac, 1996; Pleasance, 1997; Ayaş and Turan, 2001; Perктаş et al., 2004), but studies including Ankara and its environs have been limited (Görgün, 1995; Albayrak, 2002; Perктаş, 2002).

Nallıhan Bird Paradise (NBP) located near the city of Ankara has not been previously studied in terms of its bird species. Therefore, the goal of this paper is to show the birds present in NBP and its ornithological importance.

### Study Area

The study area includes NBP and north of Sarıyar Dam Lake. NBP (40° 06' N, 31° 36' E) is situated on the north side of the Sarıyar Dam Lake in the north-west of Central Anatolia (Figure 1). It covers approximately 900 ha and is characterized by seasonal wetlands.

\* This study was part of the requirements for the MSc degree submitted to Hacettepe University on 21 January 2002.

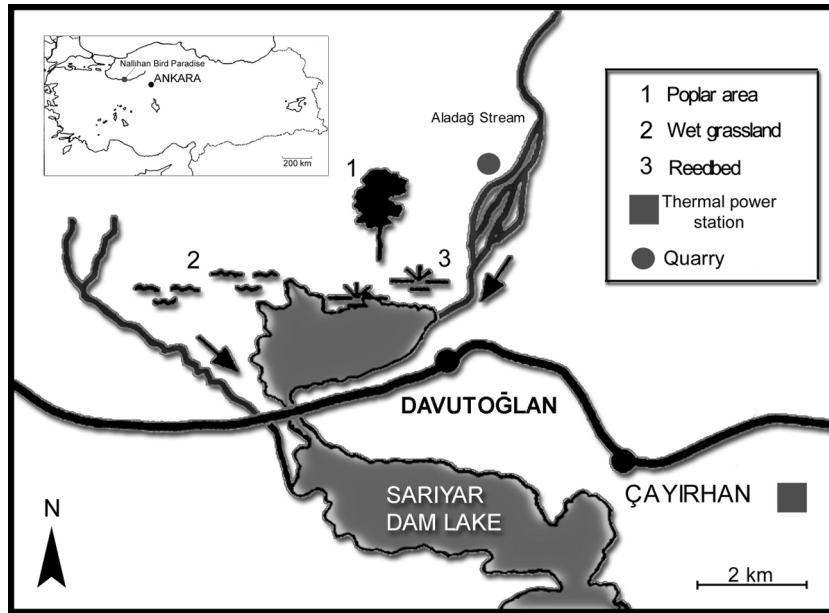


Figure 1. Location of Nallıhan Bird Paradise, Central Anatolia, Turkey.

The study area has a semi-arid cold Mediterranean climate (Akman, 1999). Detailed climate data are only available for Nallıhan, approximately 30 km to the north-west of NBP. During the study period (August 2000 to July 2001), the total annual rainfall was 305.4 mm at Nallıhan, and the annual mean temperature 13.5 °C. According to the average climate data of 25 years (1976-2000) for Nallıhan, the total annual rainfall is 277.1 mm, and the annual mean temperature 12.2 °C. Thus, approximately 6 months of the year are determined to be an arid period in Nallıhan and its environs (Figure 2).

The important habitats of the area include seasonal mudflats, standing ponds, streams, grasslands, wet grasslands, rocky areas, farmlands and settlements.

Vegetation cover is defined as steppe and salt marsh (Doğan, 2000). However, some parts of NBP were almost devoid of vegetation cover during the study period.

Plants of the important habitats in the area were also recorded. Along the entirety of Aladağ Stream, there was a riparian zone. *Typha latifolia*, *Typha angustifolia*,

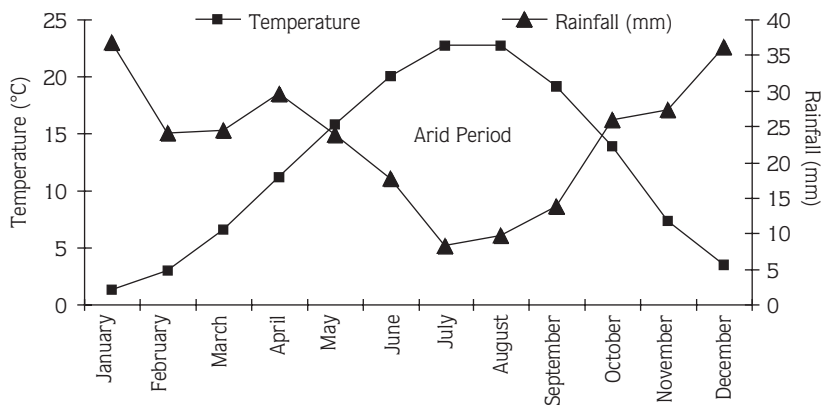


Figure 2. Ombrothermic climate diagram of Nallıhan.

*Phragmites australis* (reed), *Populus tremula* (white poplar) and *Salix* sp. (willow) were found at intervals in this zone. At the edge of standing freshwater was seen deciduous shrubland and we found short shrubs in this area: *Atraphaxis billardieri*, *Salsola gradis* and *Tamarix parviflora*. In wet grassland, some grass plants were found: *Lythrum salicaria* (red sally), *Crypsis schoenoides*, *Alopecurus myosuroides* and *Plantago major* (large plantain). In grassland, short shrubs were also found: *Salsola incenescens* and *Atraphaxis billardieri*.

Farming is practised in the study area. In particular, the flood area in NBP is farmed during the spring seasonally. Between August 2000 and July 2001, vegetables (e.g., spinach, cabbage, and corn) were grown densely in the study area. Furthermore, fruit gardens and poplar plantations were also seen in the study area.

### Conservation of the Study Area

NBP was declared an important bird area (IBA number TR 045), and in 1994 it was also declared a permanent wildlife reserve (Magnin et al., 2000).

The primary problem that affects the natural ecosystem is the pollution in the Sakarya River, which is a source of Sarıyar Dam Lake. The dam lake is heavily polluted, especially by untreated sewage from Ankara (Magnin et al., 2000). Furthermore, the pollution in Sarıyar Dam Lake also included organochlorine compounds and heavy metals (Ekmeççi, 1990).

### Materials and Methods

Observation surveys were performed between August 2000 and July 2001. The area was visited once a month and during the breeding season twice a month. The counting methods suggested by Bibby et al. (1992) were applied for different bird groups. Counting was started at sunrise and continued until sunset. Telescopes (40 X 60) and binoculars (16 X 24) were used during the counting period.

The possible status of recorded species for the study area is given: resident (R) –virtually always present in NBP, winter visitor (WV) present from November to March (individuals from some species in this category are also given as passage migrants), summer visitor (S) – regularly observed in spring (individuals from some species in this category are also given as passage migrants), passage migrant (PM) – only present in spring

and/or autumn migration periods, vagrant (V) – a category used for migratory species that swerved from normal migratory routes, and some species are given as unknown (?).

### Results

In NBP, 130 bird species were recorded between August 2000 and July 2001. They belong to 41 families (Appendix 1). The highest numbers of species were recorded in September 2000 (45 species) in autumn and May 2001 (63 species) in spring. The smallest numbers of species were recorded in autumn (29 in November 2000) and winter (30 in December 2000) (Figure 3).

The possible status of all bird species was determined during the study period (Appendix 1).

During spring 2001, actual and/or possible breeding bird species were recorded in the study area and represented 32% (n = 41) of the total bird species recorded. Of 41 breeding bird species, 16 were resident breeders (RB) (Appendix 1).

### Discussion

In Turkey, 4 dam lakes (Demirköprü, Sarıyar, Hirfanlı and Yedikır) have been declared important bird areas so far. NBP, located at the Sarıyar Dam, includes species with an unfavourable conservation status in Europe (Magnin et al., 2000). Because of this characteristic, NBP and the Sarıyar Dam were determined as distinct place from the others.

Turkey has 2 important migration routes and 3 migration gates, namely the Bosphorus in the north-west, Artvin-Borçka pass in the north-east and Hatay-Belen pass in the south (Sutherland and Brooks, 1981; Van der Have et al., 1989; Kok and Ongeane, 1995; Mrlik et al., 1995; Kaya et al., 1999). During the autumn and the spring migration periods, some wetlands in Central Anatolia have been used by different bird species that are passage migrants (Perktas et al. 2004).

In NBP, the number of bird species changed in autumn 2000 and spring 2001 (Figure 3). This was related to the study area including suitable settling areas for passage migrants, which entered from both of Turkey's north and south migration gates. Especially in spring 2001, summer visitors and passage migrants arrived in the study area during the same period. Therefore, the number of bird

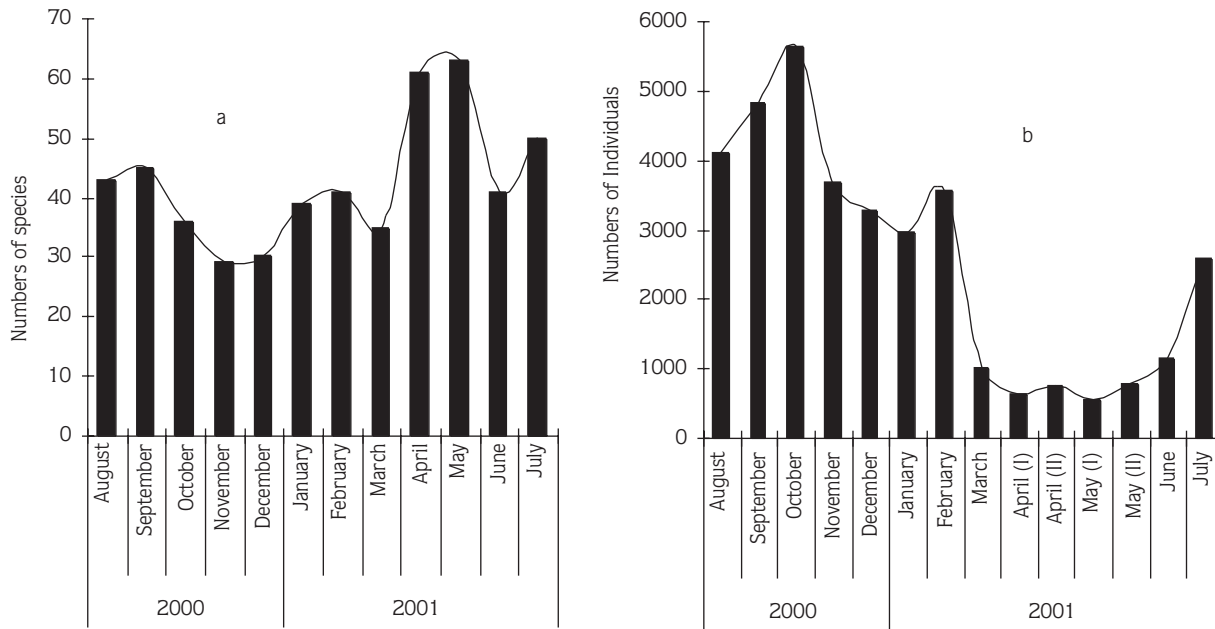


Figure 3. Numbers of bird species (a) and numbers of individuals (b) during the study period (August 2000-July 2001) in the study area. (Observations were performed twice in April 2001 and May 2001. I and II indicate observations in these months).

species reached a maximum in May 2001. In consideration of this situation, increasing bird species and bird numbers in autumn 2000 were related only to passage migrants, because summer visitor species left the study area during this term.

NBP was determined to be an important area for passage migrants (26%) and summer visitors (24%). In terms of passage migrants, 2 important non-passerine bird species (*Pelecanus onocrotalus* and *Platalea leucorodia*), which have been declared strongly declined in Turkey (Tucker and Heath, 1994), were observed in the study area. Moreover, previous observations in NBP showed that the teal (*Anas crecca*) and common crane (*Grus grus*) reached huge numbers as passage migrants in November 2000 (Demirci, 2000; Kılıç, 2000).

Many bird species that were summer visitors in the study period appeared for possible breeding in the study area. In terms of the summer visitors, 5 important non-passerine bird species (*Nycticorax nycticorax*, *Ardeola ralloides*, *Ciconia ciconia*, *Milvus migrans* and *Neophron percnopterus*) that have been declared to they have declined in Turkey (Tucker and Heath, 1994) bred in the study area and its environs. However, especially the Egyptian Vulture (*Neophron percnopterus*), which has decreased sharply in the Western Palearctic (Donazar et

al., 2002), used the study area and its environs for breeding and feeding. Furthermore, *Ciconia nigra*, which has been determined to be rare in Europe and data on its population sizes or trends in Turkey are limited (Tucker and Heath, 1994), bred in the study area. Thus, NBP was a settling, feeding and breeding area for some species mentioned above during the study period.

Throughout the study period, however, the grey heron (*Ardea cinerea*), ruddy shelduck (*Tadorna ferruginea*), and black-headed gull (*Larus ridibundus*) were regularly observed in large numbers each month. Therefore, they were declared characteristic bird species for NBP.

Different wetlands in Central Anatolia are used by waterfowls and waders (Barış, 1989). NBP as a wintering area was also determined as an important area for Podicipedidae, Phalacrocoracidae, Ardeidae and Anatidae in the study period.

Although NBP has been defined as a temporary wetland (Magnin et al., 2000), this was not observed during the study period. Since good rainfall did not fall in the study area throughout the year (August 2000-July 2001), aridity was seen and the vegetation structure did not develop well in the same period.

NBP has good potential as a breeding, settling and feeding area for bird species (Magnin et al., 2000), but this potential was not apparent during the study period. Thus, the decreased preference for NBP by these birds during the study period may have been due to the aridity and poor vegetation structure related to the climatic conditions. Finally, according to the climatic data, NBP suffered an extreme year between August 2000 and July 2001.

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## Acknowledgements

We are especially grateful to the Hacettepe University Research Foundation for their support (Project Number: 00.01.601.001). We also thank Atıl Barış ALBAYRAK for his help during the study, and Çağatay TAVŞANOĞLU and Kadir Yiğit US for checking the English of the manuscript.

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Appendix 1. Numbers and status of bird species recorded in Nallihan Bird Paradise.

Euring Code and Species Name	2000						2001						Status	
	August	September	October	November	December	January	February	March	April <sup>1</sup>	May <sup>2</sup>	June	July		
								I	II	I	II			
00070	500	2625	431		98	41							WV, PM	
00090			20		31	20		6				17	WV, PM	
00720					421	266							WV	
00880		12											PM	
01040	69	5						1	6	24	76	21	S	
01080	16	4								5	9	4	S	
01190	168	3							11	31	55	61	S, PM	
01210			48	79	237	6	23	18	2	13	3	1	WV	
01220	227	414	289	391	307	58	89	105	74	262	14	112	216	R, RB
01240										1			V	
01310	18	21		1				4	16	47	28	62	3	S, PM
01340	48	2	1					2	28	22	11	159	61	S, PM
01440									14					PM
01710	194	653	2500	600	269	598	462	31	51	21	8	43	175	R, PM, RB
01790						2	15							WV
01820				1										?

1 and 2: Because of the breeding season, 2 field surveys were performed in Nallihan Bird Paradise in April and May 2001. **Actual and/or possible breeding bird species are in bold.**



Appendix 1. (Continued)

	2000					2001							Status			
	August	September	October	November	December	January	February	March	April		May	June		July		
									I	II	I	II				
01840					17		24									WV
01860		3	1	235	676	550	547	6	25	10	5	3	8			R, WV
01890								3								V
01910		8	84		39											PM, WV
01940			371		205	2	374	53								WV
01980			2		106	170	220									WV
02030					3											?
02380									2		1		1	5		S
02470		4							4	1	1	3	1	3		S
02560		1														?
02600		1								1						V
02610			1							1						V
02620									1							?
02870		2	1			1	2					1				WV
02880		2	2	3	3	5		2	3	1	1	1		2		R, RB
02980		1														?



Appendix 1. (Continued)

	2000												2001							Status
	August	September	October	November	December	January		February		March		April <sup>1</sup>		May <sup>2</sup>		June	July			
						I	II	I	II	I	II	I	II	I	II			I	II	
06650	32	65	5			25	12	9	5	10	10	10	10	10	10	9	22	R, RB		
06840	3	4	4	11	5	8	4		10	10	4	2	1		1	1		R, RB		
06870												1		1		3		S		
07240									1	1	1	1						PM		
07950																10		V		
08400	1	6										12						S		
08410	5										3	1	2		5			S		
08460		4							1	6	1	1	5		2			S		
08480									1									?		
08760				2														?		
08780						2	3	4			1	1			5			R		
08870						1												?		
09720	9	12	3	1	2	7	42	9	20	2	2	2	2	4	45			R, RB		
09760			1		10	2					1			18				R		
09780						15		2										WV		
09910	10								10									S		

Appendix 1. (Continued)

	2000												2001						Status
	August	September	October	November	December	January		February		March		April		May		June	July		
						I	II	I	II	I	II	I	II	I	II				
09920	2	5												5	10		S		
10010	10							30		7	31	50	30				S		
10110										1							V		
10140					100												PM		
10170			4	2			4	1	4	1	4						PM		
10190		6		1													PM		
10200	2	5	5				4	1	100	1	2						PM		
10990							3	2	1				1				WV		
11040									26	17	4	9	2				S		
11170												1					V		
11210				1							3						WV		
11370									14								PM		
11390			2	2				1				4					PM		
11440	6	13	2					1	2	1			2	10			S		
11460	9	2								2	1	1					S		
11470									2	1	1	1	4				S		



Appendix 1. (Continued)

	2000												2001						Status
					August	September	October	November	December	January		February	March	April <sup>1</sup>		May <sup>2</sup>	June	July	
														I	II	I	II		
14810	<b><i>Sitta neumayer</i> MICHAHELLES, 1830</b>																		
14820	<i>Tichodroma muraria</i> (LINNE, 1766)																		
14900	<i>Remiz pendulinus</i> (LINNE, 1758)																		
15080	<b><i>Oriolus oriolus</i> (LINNE, 1758)</b>																		
15150	<b><i>Lanius collurio</i> LINNE, 1758</b>																		
15190	<i>Lanius minor</i> GMELIN, 1788																		
15200	<i>Lanius excubitor</i> LINNE, 1758																		
15230	<i>Lanius senator</i> LINNE, 1758																		
15240	<i>Lanius nubicus</i> (LICHTENSTEIN, 1823)																		
15390	<i>Garrulus glandarius</i> (LINNE, 1758)																		
15490	<b><i>Pica pica</i> (LINNE, 1758)</b>																		
15590	<b><i>Pyrrhocorax pyrrhocorax</i> (LINNE, 1758)</b>																		
15600	<i>Corvus monedula</i> LINNE, 1758																		
15630	<i>Corvus frugilegus</i> LINNE, 1758																		
15670	<b><i>Corvus corone cornix</i> LINNE, 1758</b>																		
15720	<i>Corvus corax</i> LINNE, 1758																		

Appendix 1. (Continued)

	2000						2001						Status				
	August	September	October	November	December		January	February	March	April <sup>1</sup>		May <sup>2</sup>		June	July		
15820	7										I	1	I	1	7	30	S
																	PM
15840													40				
15910	80	50	18	60	20		1	30	42	10	28	40	10	33	11		R, RB
15920		3									10	170	20	19	32		S
15980	10	50	63				93	70	28	38	35	5	30	22	24		R, RB
16360				7			31	8									WW
16380							2										?
16400			1														V
16490							1										?
16530	4		1	10			100	6	14	30	13	20	21	18	26		R, RB
16540			1														V
16600		2		2	10				1	10							WW
17170							1	1									WW
18600							12	4									WW
18660							15					2			2		V



Appendix 1. (Continued)

	2000					2001							Status	
	August	September	October	November	December	January	February	March	April <sup>1</sup>	May <sup>2</sup>	June	July		
18770							1	1					V	
18810										4	17	3	2	S
18820		11				1	10	5	9	4	9	14	1	R, RB