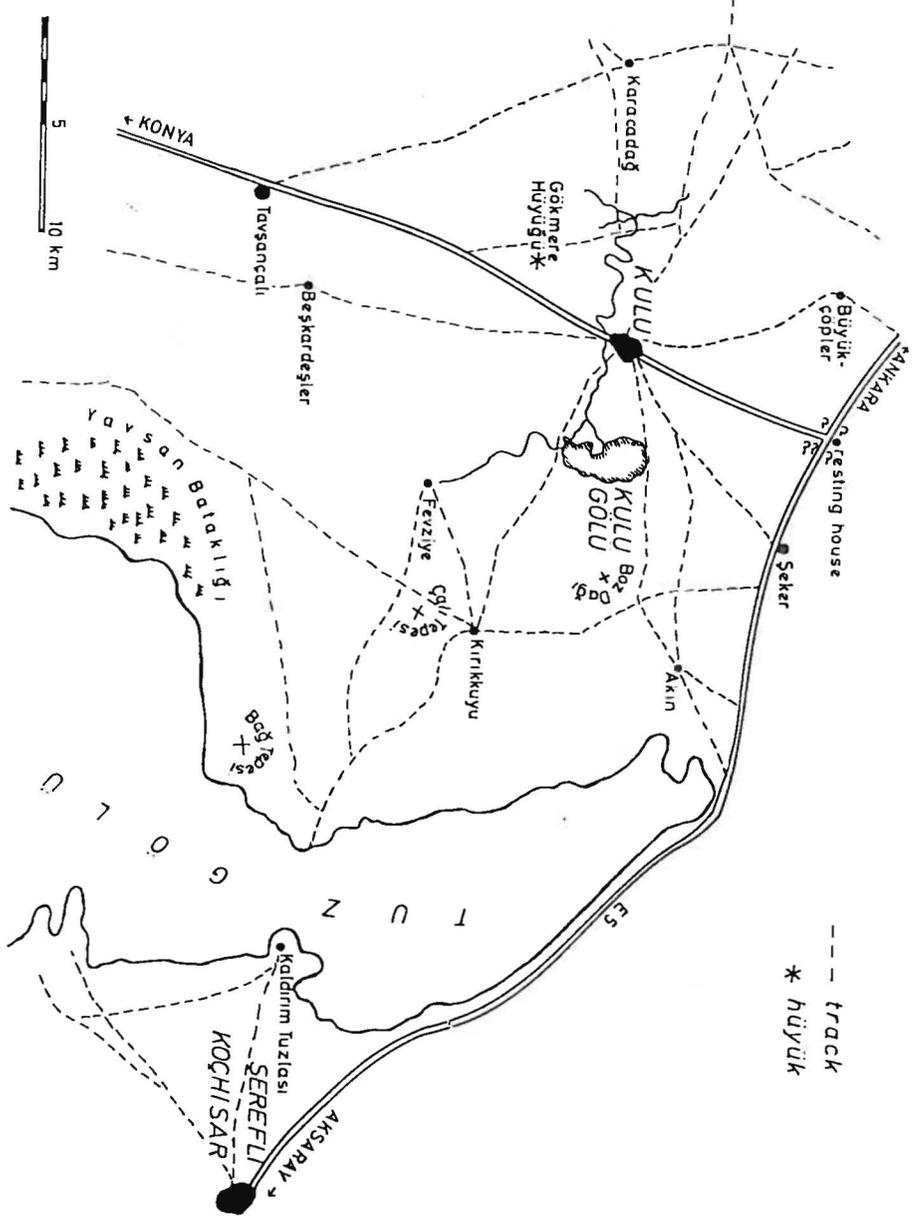
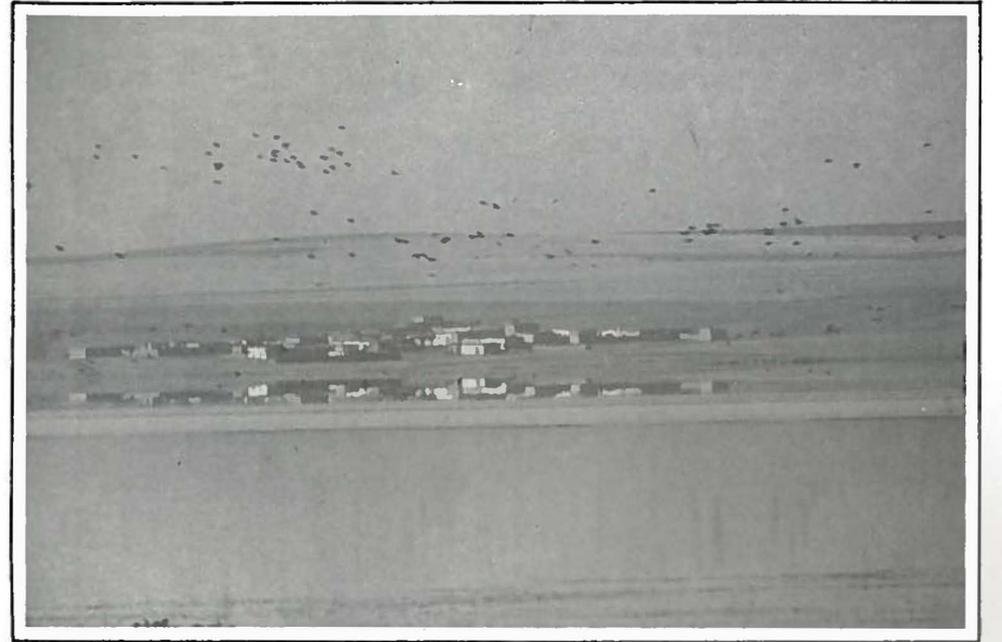




# BIRDS OF TURKEY TÜRKİYE KUŞLARI



5  
Kulu Gölü

**Birds of Turkey** is a series which provides conservationists, birdwatchers and ornithologists with documents on bird areas of Turkey. This is accomplished by combining the records of many birdwatchers. Several documents will be published every year and each issue will cover one area. If enough new records are available, improved lists will be prepared even on areas of already published lists. The editorial board (address below) would be grateful to receive any bird records from Turkey.

**Türkiye kuşları** doğa korumacılarına, kuş gözlemcilerine ve ornitologlara (kuşbilimcilere) Türkiye'deki önemli yöreler üzerine bilgi veren bir yayın dizisidir. Bu dizi, birçok gözlemcinin kayıtlarının birleştirilmesiyle oluşmaktadır. Her yıl, her biri belirli bir yöreyi kapsayan birkaç kitapçık yayımlanacaktır. Daha önce yayımlanmış olsa bile, bazı yöreler yeni bilgilerinişığında elden geçirilerek yeniden basılacaktır. Yayın kurulu (adresini aşağıda) kuşlarla ilgili Türkiye'de kaydedilmiş her türlü bilgiyi sevinerek kabul edecektir.

edited by

<b>Reşit Akçakaya</b> (Istanbul, TR)	<b>Can Bilgin</b> (Ankara, TR)
<b>Max Kasperek</b> (Landshut, FRG)	<b>Aygün Kılıç</b> (Ankara, TR)
<b>Nikolaus Koch</b> (Malsch, FRG)	<b>Frank de Roder</b> (Arnhem, NL)
	<b>Alan Vittery</b> (Cley, GB)

in co-operation with the  
**Ornithological Society of the Middle East**

**Correspondence:** Max Kasperek, Bettinaweg 7, D-8300 Landshut  
**Orders:** Dr. N. Koch, Waldprechtsstr. 67, D-7502 Malsch  
**Payment:** Postscheckkonto Karlsruhe 21 44 57 - 758  
to be made out to M. Kasperek

Price of this copy £ 2.00 or DM 7.-.

© by the editors of *Birds of Turkey* and Max Kasperek Verlag  
published in Heidelberg in July 1987  
ISSN 0177-4034

## The birds of lake Kulu

Kulu Gölü'nün kuşları

by Max Kasperek

### 1. Name and geographic position

Kulu Gölü is named on many maps as "Düden Gölü" or "Küçük Göl". However, as there are several lakes in Turkey with the same name, we chose the less common but unequivocal term "Kulu Gölü" (named after the nearby town).

According to EROI's (1982) biogeographic regions of Turkey, lake Kulu is situated in the "Tuz Gölü area" which is part of the "Upper Sakarya region" of "Inner Anatolia" (region number 523). It lies south of the point where the E5 highway from Ankara to Aksaray crosses the road to Konya. The co-ordinates of the lake are 39.05N and 33.09E.

### 2. Altitude

We do not know the altitude of the lake exactly, but we estimate it to be about 930 m, which is higher than that of the nearby Tuz Gölü (905 m) and lower than that of the town Kulu (959 m). Boz Dağı or Boz Tepe, a hill to the East of Kulu Gölü, has an altitude of 1,107 m and Çalı Tepesi and Bağ Tepesi, two hills southeast of the lake towards Tuz Gölü, have an altitude of 1,031 m and 1.050 m, respectively.

### 3. Surface-area and depth

An estimation of the surface-area of the lake from maps yielded 800 ha (= 8 km<sup>2</sup>). CARP (1980) gives 700 ha. We do not know the depth of the lake but it appears to be below 2.0 m. Of course, the surface-area shows seasonal variation in accordance with the fluctuation of the water level.

#### 4. General description of the area

Kulu Gölü is a typical steppe lake (playa lake) characterized by its brackish water and shallowness, which results in great seasonal changes of surface-area and chemical composition of the water. There is a peninsula on the west side and some small islands are situated within the lake, providing an excellent breeding habitat for gulls, terns and waders. The lake is more or less devoid of vegetation on the shores and in the water. Only at a few places, namely on the western and southern shores, are small strips of reed (*Phragmites* sp.) present. These are especially at places where small creeks flow into the lake, reducing the salinity of the water.

There is a complete absence of trees at and around the lake; they are only to be found within the town of Kulu and south of the lake. Trees have to be planted along the main road from Ankara to Konya but they are still too small to provide rich habitats for birds. However, there is a small wood at the crossing of the Ankara - Aksaray highway with the road to Konya. Around an inn, scrub and trees (mainly *Robinia* sp. and *Pinus* sp.) provide an excellent habitat for migrating passerines and some breeding species. Observations from this oasis in the bare landscape are included in the list of the birds of Kulu Gölü.

Although, the lake was originally completely surrounded by steppe, fields, mainly of wheat, have now approached close to the lake and the size of the steppe area has diminished considerably. Although some parts of the area are now 100% non-irrigated arable land, the steppe still covers e.g. Boztepe (= Boz Dağı) completely. FREY & KÜRSCHNER (1982) characterize the vegetation as a mixed formation of non-homogeneous xeromorphic dwarf-shrubland [German: Mischformation aus xeromorphen offenen Zwergsträuchern] and non-irrigated arable land. Characteristic plant species are: *Alyssum hirsutum*, *Androsace maxima*, *Artemisia santonicum*, *Astragalus strigillosus*, *Convolvulus holosericeus*, *Dianthus zonatus*, *Euphorbia macroclada*, *Peganum harmala*, *Phlomis armeniaca*, *Tencrium polium*, and *Ziziphora tenuior*. These dwarf-shrubs have often remained only in narrow strips along the paths and tracks and along the hill ranges. The vegetation of Boztepe can be characterized as xeromorphic dwarf-shrubland interspersed with thorn-cushions [German: Xeromorphe offene Zwerggesträuch-Dornpolster-Mischformation] which has a coverage of 30-50%. Characteristic species are: *Acantholimon acerosum*, *Artemisia santonicum*, *Astragalus condensatus*, *Centaurea urviliei*, *Globularia trichosantha*, *Gypsophila eriocalyx*, *Hedysarum varium*,

*Helichrysum arenarium*, *Linum mucronatum* ssp. *armenum*, *Onobrychis sulphurea* var. *sulphurea*, *O. tournefortii*, and *Stipa barbata* (FREY & KÜRSCHNER 1982). Those areas were originally covered by *Stipa* meadows containing many species of grass. However, they have become severely degraded through intensive grazing. A grazing-resistant *Artemisia* steppe with a large component of thorn-cushions and many species containing latex or ethereal oils has developed.

#### 5. Water-Quality

The total electrolyte content of the lake is 15-16 g/l. This is about twice that of the water of lake Scyfe, another steppe lake of Inner Anatolia, but is much less than the water of lake Tuz which has about 300 g/l (cf. KASPAREK 1985). In two samples taken from two different parts of the lake in 1967, Devlet Su İşleri (DSİ) found the following distribution of ions (referred by KILINÇ 1984):

pH	EC	Na <sup>+</sup>	K <sup>+</sup>	HCO <sub>3</sub> <sup>-</sup>	CO <sub>3</sub> <sup>--</sup>	Cl <sup>-</sup>	SO <sub>4</sub> <sup>--</sup>
9.6	24,300	5,750.0	23.0	429.4	714.0	5,218.5	3,088.8
9.8	29,000	6,210.0	15.9	1,198.0	1,360.8	5,715.5	2,438.8

The values are in mg/l. From these figures, the total electrolyte content can be derived as 15.2 and 16.9 g/l (= 15.2 and 16.9‰). The water is characterized by an abundance of Na<sup>+</sup> - Cl<sup>-</sup> - SO<sub>4</sub><sup>--</sup> which is typical for "playa lakes". However, lake Kulu also shows a relatively high content of HCO<sub>3</sub><sup>-</sup>/CO<sub>3</sub><sup>--</sup> which in Turkey is usually found in abundance only in deep lakes with a low salinity (cf. IRION 1973).

#### 6. Climate

The study area has the typical semiarid climate of Inner Anatolia. The annual precipitation is about 300 mm (340 mm at Aksaray, 287 mm at Sultanhanı south of Tuz Gölü, cf. KÜRSCHNER 1980). The mean temperature lies at about 10°C. In January, the mean temperature falls to -5.3°C, in June it rises to +22.0°C.

The water of the lake freezes in some years. For example, DIJKSEN & KONING found the lake completely covered with ice during the international waterfowl counts in January 1972 and January 1973.

## 7. Ornithological importance of the area \*)

So far, 184 bird species have been identified at lake Kulu. Breeding has been confirmed for only 21 of these. However, this is due to an insufficient study of the area and not to an authentically low number of breeding birds. For example, breeding records are available for practically none of the passerine birds.

TURAN & GÜRPINAR (1976) listed Kulu Gölü in their preliminary inventory of wetlands of international importance. However, they included it in Category B. This contains sites which are "still of vital importance for migratory birds though they do not usually hold such huge concentrations or such rare species as category A sites". The present study on lake Kulu, the first of this kind, however, now clearly reveals that the area is of major importance for waterfowl and requires an appropriate degree of protection.

Some of the main points which support this are:

- a) the White-headed Duck which is endangered world wide and about 30 pairs of which breed at lake Kulu. Post-breeding flocks comprise up to 500 individuals.
- b) the Slender-billed Gull which is endangered throughout Europe and of which about 100 pairs breed. Post-breeding numbers rise to 550.
- c) the highest numbers of resting Ruddy Shelduck is 10,000, that of the Shoveler 6,050, that of the Pochard 45,000, and that of the Avocet 640. For all these species the figures clearly exceed 10% of the estimated flyway population of the Europe - Black Sea - Mediterranean region.
- d) the population size of the Avocet is 150-200 pairs. This exceeds the number which is necessary for a wetland for gaining international importance.

Other breeding species which attract interest because of their presence or because of their numbers are: Black-necked Grebe 100-150 pairs, Ruddy Shelduck 50 pairs, Shelduck 10-15 pairs, Oystercatcher 10 pairs, Black-winged Stilt 80 pairs, Kentish Plover 10-20 pairs, Greater Sandplover 5 pairs, Mediterranean Gull up to 30 pairs, Black-headed Gull 50 pairs, and Gull-billed Tern 200 pairs. A breeding population of the

Great Bustard exists in the surrounding area of the lake. All these figures clearly show the importance of the area as a breeding site on a national and international level.

In the post-breeding period the area is an important resting and moulting place for some ducks and geese, but especially for waders. Maximum numbers of selected species are: 800 Greylags and 10,000 Ruddy Shelducks in July, 2,000 Garganeys in August, 100 Ferruginous Ducks, 700 Tufted Ducks, and 500 White-headed Ducks in July, and 5,000 Coots in August. Among the waders, gulls and terns some August figures are: 700 Black-winged Stilts, 640 Avocets, 250 Kentish Plovers, 500 Little Stilts, 550 Slender-billed Gulls, and 300 White-winged Black Terns. Up to 200 Black-bellied Sandgrouses have been counted in August. In September, up to 75 Stone Curlews and 300 Temminck's Stilts have been present.

For duck species, the area plays an important role during November. Up to 19,000 White-fronted Geese have been counted around the lake, 9,000 Mallards, 6,000 Shovelers and 45,000 Pochards are other impressive figures during this month. However, winter numbers are low in some years due to freezing of the lake.

The flamingo, which has been found breeding at the nearby Tuz Gölü, can be seen regularly on the lake and numbers rise to 3,000 birds.

Representing the rarities which have been seen in the area, Cattle Egret, Bean Goose, Steppe and Imperial Eagle, Eleonora's Falcon, Demoiselle Crane, Dotterel, Broad-billed Sandpiper, Bar-tailed Godwit, and Citrine Wagtail are just a few examples.

## 8. Nature conservation and human activities

The area is not protected by any law. As far as we know there have not been any outstanding changes in the structure of the lake during recent decades. Because of its salinity, the water of the lake cannot be used for irrigation, so that there is no danger from this aspect. There are also no wetlands of any remarkable size which can be drained. However, the agricultural area nowadays approaches to the shores of the lake on most sides. The original steppe area has been changed into agricultural land so that nowadays only fragments of steppeland remain.

The lake is a famous hunting area which attracts not only hunters from the surrounding villages and the town Kulu, but also from distant cities, mostly from Ankara and Konya. Dried-up corpses of ducks,

\*) Some of the figures in this chapter are rough estimations. For detailed information the species chapter should be consulted.

waders, etc. can be found along the shores. Geese and ducks are the main bag of the hunters, but other species are also heavily shot. Rare species, although protected by law, probably suffer a lot under this pressure (e.g. Great Bustard). MYCOCK (1987) witnessed the shooting of a Greater Flamingo by local youths.

### 9. Bird-watching activity

This paper is based on the observations of about 62 observers or groups of observers who visited the area on 95 different days. Apart from one more episodic record regarding the Great Bustard in 1839, and some observations along the road in 1957, the area has been visited since 1963, more regularly since 1967, by bird-watchers from many countries. The main bird-watching activity lies in May, but the area has been visited in all months of the year. February and October are poorly covered.

19.4.1839 AINSWORTH (1842), observations along the road.  
 21.7, 29.8.57 BALANCE (1958), observations along the road.  
 17.4.63 D. RISTOW (unpubl., but see also KUMERLOEVE 1970).  
 7-8.1.67 Bird Report (1966-67).  
 1.4.67 ERARD & ETCHÉCOPAR (1968), observations along the road.  
 8-9.7, 1-2.9, 2, 22.10.67 VIELLIARD (1968).  
 17.12.67 Bird Report (1966-67).  
 6.9, 17-18.9.68 A. R. KITSON & R. F. PORTER (in: Bird Report 1966-67).  
 21.9.68 A. R. KITSON, R. F. PORTER & A. VITTEY (in: Bird Report 1966-67).  
 20.10.68 A. VITTEY (in: Bird Report 1966-67).  
 29.12.68 H. H. HOEKSTRA & F. KONING (unpubl., only non-waterfowl data available).  
 6.1.69 A. VITTEY (in: Bird Report 1968-69).  
 14.6.69 A. VITTEY (in: Bird Report 1968-69).  
 18-19.11.69 L. J. DIJKSEN & F. KONING (unpubl.).  
 16.12.69 L. J. DIJKSEN & F. KONING (unpubl.).  
 7.1, 9.1.70 L. J. DIJKSEN & F. KONING (unpubl.).  
 17.5.70 K. WARNCKE (unpubl. manuscript).  
 20-21.11, 17.12.70 L. J. DIJKSEN & F. KONING (unpubl.).  
 9.1.71 L. J. DIJKSEN & F. KONING (unpubl.).

13-15.7.71 J. C. BEAUDOIN (in: Bird Report 1970-73).  
 27.7.71 K. WARNCKE (unpubl. manuscript).  
 23.11.71 L. J. DIJKSEN, F. KONING & J. WALMSLEY (unpubl.).  
 17.1.72 L. J. DIJKSEN, F. KONING & J. WALMSLEY  
 27.3.72 K. BUCHER, J. EGGERS, H. & J. MÜLLER-REICH and P. & U. P. STREESE (unpubl.), observations along the road.  
 6.5.72 LEHMANN (1974).  
 31.5.72 K. WARNCKE (in: Bird Report 1970-73).  
 3.6.72 Bird Report (1970-73).  
 5-6.8.72 K. WARNCKE (unpubl. manuscript and Bird Report 1970-73).  
 9.1, 12.1.73 L. J. DIJKSEN & F. KONING (unpubl.).  
 3.5.73 A. Y. DIJKSEN & Y. K. TEMPELMANS-PLAT (unpubl., observations along the road from Ankara to Konya).  
 30.5.73 LEHMANN (1974).  
 21.6 Bird Report (1970-73).  
 21.2.74 L. J. DIJKSEN & F. KONING (unpubl.).  
 23.4.74 Bird Report (1974-75).  
 21, 25-26.8.74 HARBARD, WALSH & FISHER (1976).  
 19.5.75 J. PANS (1976 and unpubl.) et al.  
 28-29.5.75 Bird Report (1974-75).  
 5.6.75 R. R. LOVEGROVE, R. F. PORTER & I. WILLIS (unpubl.).  
 21.7.75 A. R. KITSON (in: Bird Report 1974-75),  
 21.9.75 Bird Report (1974-75).  
 7.8.76 Bird Report (1976-81).  
 1.10.76 Bird Report (1976-81).  
 3.5.77 Bird Report (1976-81).  
 31.8.77 Bird Report (1976-81).  
 2-3.5.78 D. HOLMAN (unpubl.).  
 4.5.79 P. DOHERTY (unpubl.).  
 9.5.79 Bird Report 1976-81.  
 17-18.5.79 M. J. INSKIP (unpubl.).  
 13.4, 25.4.80 E. BEZZEL, N. KOCH et al. (unpubl.), observations along the road.  
 14.5.80 M. KUHN (unpubl.), observations along the road.  
 2.4.81 GORIUP & PARR (1983, 1985), observations along

	the road.
17-19.8.81	F. R. LAMBERT (unpubl.).
27.12.81	A. MÜLLER, H. JACOBY et al. (unpubl.).
20.5.82	P. ZACH & K.-H. PÖLLET (unpubl.).
20.7.82	M. VAN BEIRS, G. BRODDELEZ & D. COLIN (unpubl.).
8.4, 18.4.83	J. D. GERHARD, R. O. PAXTON & S. PLIMPTON (unpubl.), on 18.4 only observations at the road crossing.
8.5.83	N. KOCH, D. SINGER et al. (unpubl.).
22.5.83	CH. MURPHY (unpubl.).
10.5.84	S. HARRAP (unpubl.).
8.6.84	A. NOESKE (unpubl.).
22.7.84	J. SCHIAERLAECKENS, J. VERMEULEN, V. VAN GORP, F. DEGENAAR, A. JANSEN & J. VAN RAAK (unpubl.).
11.9.84	M. KASPAREK (unpubl.).
31.3.85	K. WITT et al. (unpubl.), observations from the road crossing north of Kulu
2.4.85	C. A. BREWSTER (unpubl.).
28.4, 10.5.85	M. KASPAREK, W. PFLUGRAT, F. SAMWALD et al. (unpubl.).
11.5.85	J. FITZHARRIS, K. GRACE et al. (unpubl.).
10.1.86	DIJKSEN & KONING (1986).
12.10.86	M. DAVIES & J. MYCOCK (MYCOCK 1987).
9.3.86	J. BERG et al. (unpubl.).
22.1.87	L. J. DIJKSEN & P. VAN DER WOLF (unpubl.).
8.5.87	M. KASPAREK & A. KILIÇ-KASPAREK (unpubl.), observations along the road.

The extent of the observations varies greatly from observer to observer. Furthermore, some of the notes are not completely available, mainly those which have been published in the "Bird Reports". Altogether, about 1,550 bird records could be used. These were processed with ORNDATA, an electronic data bank developed by the author for this series and for other studies on Turkish birds.

#### 10. Hints for bird-watchers

The lake is usually visited from a track which leads from the town

Kulu directly to the western shore of the lake. However, it is a walk of about 5-6 kms, as the track is not drivable by car, at least not after rain-falls. There is a road which leads from Kulu to the southern shore. This part of the lake has been visited less often and should be covered better, especially during the breeding season. What should be done urgently and can be done even during a short stay at the lake is a count of the breeding populations of waders, gulls and terns (and also some duck species, especially of the White-headed Duck). Accurate up-to-date figures are lacking. A visit to the islands should be undertaken with the greatest care to avoid damaging the breeding colonies, which include several endangered species.

The passerine birds of the study area are less well known. Special attention should be given e.g. to the scrub and trees at the road crossing north of Kulu and to the trees south of the lake. I assume that several "new" species for the area can be found there and the status of several species already recorded could be defined more clearly.

#### 11. Acknowledgements

I wish to thank all those persons who made their unpublished records available to me: M. VAN BEIRS, Dr. J. BERG, Dr. E. BEZZEL, C. A. BREWSTER, L. J. DIJKSEN, P. DOHERTY, J. FITZHARRIS, J. D. GERHARD, S. HARRAP, D. HOLMAN, M. J. INSKIP, H. JACOBY, F. KONING, M. KUHN, CH. MURPHY, A. NOESKE, J. PANS, R. F. PORTER, Dr. D. RISTOW, J. SCHIAERLAECKENS, Dr. D. SINGER, Dr. K. WARNCKE, Dr. K. WITT, and P. ZACH. My special thanks are due to Dr. N. KOCH who provided me not only with his own observations but also with those of bird-watching tours organized by him. S. ALBRECHT provided me with a data sheet on the lake of the "Sites Register Scheme" by the Ornithological Society of the Middle East (F. R. LAMBERT). I also wish to express my sincerest thanks to CH. HUSBAND for proof-reading the text.

#### 12. Abbreviations

Ba-58	= Ballance (1958)
BBC	= van Beirs, Broddelez & Colin
Bea	= Beaudoin

Ber	= Berg
BKo	= Bezzel, Koch et al.
Bre	= Brewster
DK	= L. J. Dijkzen & Koning
DKW	= L. J. Dijkzen, Koning & Walmsley
DM	= Davies & Mycock
Doh	= Doherty
DTe	= A. J. Dijkzen & Tempelmans-Plat
DW	= L. J. Dijkzen & v. d. Wolf
FG	= Fitzharris, Grace et al.
GPP	= Gerhart, Paxton & Plimpton
Har	= Harrap
HK	= Hoekstra & Koning
Hol	= Holman
HWF	= Harbard, Walsh & Fisher
In	= Inskip
Ka	= Kasperek
Kit	= Kitson
KK	= Kasperek & Kiliç-Kasperek
KP	= Kitson & Porter
KPS	= Kasperek, Pflugrat, Samwald et al.
KS <sub>i</sub>	= Koch, Singer et al.
Kuh	= Kuhn
La	= Lambert
Le-74	= Lehmann (1974)
LPW	= Lovegrove, Porter & Willis
MJ	= Müller & Jacoby
Mu	= Murphy
Noe	= Noeske
Pa	= Pans
Ri	= Ristow
Scha	= Schaerlaeckens, Vermeulen, van Gorp et al.
Vi-68	= Vielliard (1968)
Vit	= Vittery
Wa	= Warncke
Wa-MS	= Warncke (manuscript)
Wit	= K. Witt et al.
ZP	= Zach & Pöllet
●	= breeding has been confirmed

## Species list

### Little Grebe *Tachybaptus ruficollis* Küçük Batağan

Apparently a breeding bird whose population size was estimated to be 10 pairs in 1971 (Wa-MS). Other records from the breeding season include singing males, but always less than 10. In the post-breeding period, up to about 150 on 11.9.84 (Ka). In November up to 104 on 18.11.69 (DK), but absent during winter (December, January).

### Great Crested Grebe *Podiceps cristatus* Tepeli Batağan

Possibly breeding (Wa-MS estimated two pairs in 1971), but most observers did not note the species during the breeding season. At least 50 individuals on 22.7.84 (Scha), but otherwise always less than 10.

### Red-necked Grebe *Podiceps grisegena* Kızılboyunlu Batağan

One individual on 2.4.85 (Bre) and three on 17-19.8.81 (La) are the only records.

### ● Black-necked Grebe *Podiceps nigricollis* Karaboyunlu Batağan

Bea watched 305 adults plus many juveniles und pulli and saw 152 nests on 13-15.7.71. About two weeks later, on 27.7.71, Wa-MS independently found about 80 nests and estimated the total breeding population to be 150 pairs. Old nests from 1971 were also seen by Le-74 in the following year. In 1973 this observer could not find the colony, although the species was present. In 1974, one family party on 26.8 (HWF), in 1975 8 pairs plus 30 individuals on 5.6 (LPW), and in 1982 at least 10 pairs (ZP). In 1983, again a higher population size was noted: Mu estimated at least about 80 pairs on 22.5. Breeding season records from all other years suggest that the Black-necked Grebe is a regular breeding bird. During May and June, always at least a few birds, but mostly about 40-60 were noted.

Maximum numbers are reached during September, with about 800 on 6.9 and 18.9.68 (KP), 300-400 on 21.9.75 (Bird Report 1974-75), but only about 50 on 11.9.84 (Ka). In October, 300 on 22.10.67 (Vi-68). During November, still 155 on 20.11.70 (DK), but only 3 on 18.11.69 (DK).

In 1971, the colony was built on the margins of an islet of floating *Ruppia* sp., *Scirpus* sp., and *Phragmites communis*. On 13-15.7, many young had left the nest, but 42 nests still contained 16x1 egg, 11x2 eggs,

8x3 eggs, 5x4 eggs, 1x5 eggs, and 1x6 eggs (mean 2.21 eggs). On 22.7 the distribution of the clutch size in 21 nests was 8x0 egg, 2x1 egg, 4x2 eggs, 5x3 eggs, and 2x4 eggs (mean 2.53 eggs without the empty nests). Again, many young which had left their nests were observed, but there were also nestbuilding adults.

**Pygmy Cormorant** *Phalacrocorax pygmeus* **Küçük Karabatak**  
One on 20.7.82 (BBC) is the only record.

**Dalmatian Pelican** *Pelecanus crispus* **Tepeli Kutan**  
IHWF saw two flying south on 25.8.74 and one at the lake on the following day. Also one on 9.5.79 (Bird Report 1976-81).

**Little Bittern** *Ixobrychus minutus* **Küçük Balaban**  
One on 5.6.75 (LPW) and one male on 18.5.79 (In).

**Night Heron** *Nycticorax nycticorax* **Gece Balıkçılı**  
Har saw five on 10.5.84 and FG one juvenile on 11.5.85.

**Squacco Heron** *Ardeola ralloides* **Alaca Balıkçıl**  
Several records from May to July with a maximum of 9 individuals on 5.6.75 (LPW).

**Cattle Egret** *Bubulcus ibis* **Öküz Balıkçılı**  
In saw one flying individual on 18.5.79 and Mu noted one adult on 22.5.83.

**Little Egret** *Egretta garzetta* **Küçük Ak Balıkçıl**  
Only one record from May (6 on 18.5.79, In) and two from August (2 on 26.8.74, IHWF, and 1 on 17-19.8.81, La).

**Great White Egret** *Egretta alba* **Büyük Ak Balıkçıl**  
One flying north on 26.8.74 (IHWF) and at least 2 on 17-19.8.81 (La) are the only records.

**Grey Heron** *Ardea cinerea* **Külrenge Balıkçıl**  
More or less regularly noted from April to November. Most of the birds were singles or two birds, maxima are 7 individuals on 11.9.84 (Ka) and 25 individuals on 2.10.67 (Vi-68).

**Purple Heron** *Ardea purpurea* **Erguvani Balıkçıl**  
Several records from April to May and from July to August usually of ones or twos, but at least 5 in the reedy margins of the lake on 3.5.78 (Hol).

**Black Stork** *Ciconia nigra* **Kara Leylek**  
One on 17-19.8.81 (La) is the only record.

**White Stork** *Ciconia ciconia* **Leylek**  
The White Stork apparently does not breed at Kulu or at any other village in the study area. At least, no records give any indication of breeding (under-recorded?). Usually present in small numbers during April to May and July to August. Also a flock of about 200 individuals migrating north at the road crossing north of Kulu on 25.4.80 (BKo) and 260 resting on 8-9.7.67 (Vi-68).

**Glossy Ibis** *Plegadis falcinellus* **Çeltikçi**  
Several flocks have been seen in May (19 on 3.5.78, Hol; 30 on 4.5.79, Doh; 3 on 18.5.79, In; at least 20 on 10.5.84, Har). Apart from these records, there is only one of a single bird flying over the lake on 26.8.74 (IHWF) and at least 20 on 17-19.8.81 (La).

**Spoonbill** *Platalea leucordia* **Kaşıkçı**  
12 individuals on 2.9.67 (Vi-68) and 4 individuals on 5.6.75 (LPW) are the only records.

**Greater Flamingo** *Phoenicopterus ruber* **Flamingo**  
Flamingos can be seen at Kulu Gölü more or less throughout the year. Breeding does not take place, but the records have to be seen in relation to those at the nearby Tuz Gölü where the Flamingo has been found breeding.

In 1963, Ri watched 370 individuals on 17.4, and noted mating or mating display on four occasions. In 1967, Vi-68 saw 3,000 individuals including 17 first-year birds on 2.9 and 38 adults plus 14 first-year birds on 2.10. On 25.8.74, IHWF counted 550 individuals, 40 of these being birds of the year. For these years, this might suggest breeding at lake Tuz, including successful breeding in 1967 and 1974.

Maximum counts during the breeding season are about 1,800 on 8-9.7.67, about 3,000 on 2.9.67 (Vi-68), about 1,500 on 20.5.82 (ZP), about 1,000 on 8.6.84 (Noc), and about 700 each on 11.5.85 (FG) and

on 20.7.82 (BBC), and about 1,200 on 17-19.8.81 (La). Other records concern singles or up to several hundred birds. In November, only singles have been noted (DK, DKW).

**Mute Swan** *Cygnus olor* **Kuğu**  
8 individuals on 10.1.86 (DK) is the only record.

**Bean Goose** *Anser fabalis* **Tarla Kazı**  
One on 2.4.85 (Bre) is one of the few recent records in Turkey.

**White-fronted Goose** *Anser albifrons* **Sakarca Kazı**  
The large steppes around the complex of the lakes Kulu, Tuz, Tersakan, and Bolluk provide excellent winter grounds for the White-fronted Goose. As wintering flocks may often change their feeding and resting sites, the figures below only can give a rough impression of the situation in the whole area.

DK counted 19,077 around the lake on 18.11.69 and 11,766 on 9.1.71. 12,000 were seen on 22.1.87 (DW). In other years, the figures were e.g. 6,955 on 7.1.70, 5,360 on 20.11.70 (but only 460 one month earlier, on 17.12.70), and 6,906 on 23.11.71 (all data DK). In some years, such high numbers have not been recorded (however, about 5,000 unidentified geese on 9.3.86, Ber, might have belonged to this species), but as this greatly depends on the exact point of observation and especially on the hour of watching, it does not necessarily indicate changes in the population size. Thus, MJ only saw one individual on 27.12.81, but hunters told them about "thousands" of geese which pass over the lake every evening.

In April, still 1,500 were seen on 2.4.85 (Bre) and about 20 on 28.4.85 (KPS). Earliest record in autumn: 300 on 22.10.67 (Vi-68).

**Greylag** *Anser anser* **Boz Kaz**  
A few pairs of Greylag Geese appear to breed at lake Kulu, although confirmation is needed. Up to about 50 birds (28.4.85, KPS, and 8.5.83, KSi) are present during the breeding season, probably mainly non-breeders. Maximum count is at least 800 in the post-breeding period (22.7.84, Scha). 24 individuals on 10.1.86 (DK) is the only winter record.

● **Ruddy Shelduck** *Tadorna ferruginea* **Angıt**  
Breeding species. Vi-68 saw two pairs with young on 8-9.7.67. Wa-MS counted at least 50 breeding pairs with large young on 27.7.71

and LPW noted three family parties on 5.6.75. ZP saw 15 pairs on 20.5.82. Non-breeders are frequent at Kulu Gölü and many birds concentrate at the lake during the post-breeding period. Thus, in July about 10,000 (!) on 21.7.75 (Kit), about 2,500 on 13-15.7.71 (Bea), more than 1,000 (plus the breeding population mentioned above) on 27.7.71 (Wa-MS), and about 4,000 on 20.7.82 (BBC). At the beginning of August, on 5-6.8.72, Wa still noted about 8,500 birds.

Numbers decline rapidly in the second half of August and in September (September maximum is 1,700 on 2.9.67, Vi-68, otherwise about 300 on 11.9.84, Ka). Small numbers remain throughout the year until April. For the winter period, e.g. 4 on 20.11.70 and 20 on 7.1.70 (DK).

Family parties included 7, 12, and 15 young on 5.6.75. On 27.7.71 all families seen had large young.

● **Shelduck** *Tadorna tadorna* **Suna**  
Breeding species. Vi-68 confirmed breeding in 1967, Wa-MS and Bea in 1971, Wa again in 1972 and LPW in 1975. The population size seems to be about 10-15 pairs. Records are usually below 20 individuals (but 32 on 20.11.70, DK, and exceptionally 700 on 22.10.67, Vi-68), also during winter, when e.g. 7 were seen on 17.12.70 (DK), one on 27.12.81 (MJ), or 6 on 9.1.71 (DK).

In 1967, one pair had one young on 8-9.7 and another 7 young on 2.9. Bea saw one pair with one pullus, two pairs with 3 pulli, 2 pairs with 4 pulli, and one male with 20 pulli on 14-15.7.71. On 27th of the same month, Wa-MS saw one pair with 8 and one with 11 freshly fledged young as well as one pair with two and one with three large young. In 1972, 3 single adults had 12 and 15 small young and 5 fledged young, respectively (Wa). In 1975 four pairs had 5, 6, 9, and 14 young.

**Wigeon** *Anas penelope* **Fiyo**  
Winter visitor. Records from November to January with maximum of 187 on 18.11.69 (DK).

● **Gadwall** *Anas strepera* **Bozördek**  
Breeding bird, probably less than 10 pairs. About 20 individuals plus one nest containing 7 eggs on 14-15.7.71 (Bea). At least one pair on 27.7.71 (Wa-MS), three nests with 3, 10, and 11 eggs on 6.5.72 (Le-74), several pairs on 2 and 3.5.78 (IIol) and 4 pairs on 20.5.82 (ZP). Otherwise present in small numbers. 70 individuals on 17-19.8.81 (La) and 16 on 18.11.69 (DK). Records from December and January are lacking.

- **Teal** *Anas crecca* **Çamurcu**  
Probably less than 10 breeding pairs. Confirmed in 1972, when Wa noted two females with 7 and 10 pulli on 5-6.8. During the post-breeding period, e.g. 30 on 25.8.74 (IIWF), 150 on 17-19.8.81 (La), or about 100 on 11.9.84 (Ka). During autumn and winter several hundred usually present. Maximum counts are 250 on 22.10.67 (Vi-68), 676 on 7.1.70 (DK), 500 on 23.11.71 (DKW), and 400 on 20.11.70 (DK).

- **Mallard** *Anas platyrhynchos* **Yeşilbaş**  
Breeding bird. Breeding was confirmed in 1971 (Bea) and in 1972 (Ic-74). Highest number during breeding season is at least 50 on 4.5.79 (Doh). Population size might be around 15-20 pairs. Maximum counts in October (4,000 on 2.10.67, Vi-68), and November (9,112 on 18.11.69; 2,000 on 20.11.70, DK). Still 2,200 individuals present on 22.1.87 (DW), and also 1,348 individuals on 7.1.70, but only e.g. 120 on 10.1.86 (DK).  
On 13-15.7.71, 8 nests contained 2-12 eggs and single females had 7 and 11 well-grown young. On 6.5.72, ten nests contained 5-13 eggs.

- Pintail** *Anas acuta* **Kılördek**  
Records from the breeding season indicate probable nesting in the study area. However, numbers are low and if breeding at all, the population size is less than 5-10 pairs. Higher numbers during autumn and winter, e.g. 450 on 22.10.67 (Vi-68), 200 on 20.11.70, and 300 on 21.2.74 (DK).

- Garganey** *Anas querquedula* **Çıkrıkçı**  
Rare breeding species with a population size below 10 pairs. From May to July up to 50 individuals present (10.5.84, Har). Some concentrations in the post-breeding season usually comprise several tens or hundreds of birds (e.g. 100 on 21.7.75, Kit), but exceptionally 2,000 on 5-6.8.72 (Wa), 800 on 17-19.8.81 (La), and 1,200 on 2.9.67 (Vi-68). The hitherto latest record is three individuals on 11.9.84 (Ka).

- **Shoveler** *Anas clypeata* **Kepçel**  
A few breeding pairs. Breeding was confirmed in 1971 (Bea) and 1972 (Wa-MS). The majority of the birds observed during the breeding season (usually less than 25) are males, which suggests that females were on the nests in other years too.  
During autumn and winter one of the commonest ducks with maxima of 1,200 on 22.10.67 (Vi-68), 6,050 on 20.11.70, 3,000 on

23.11.71, 2,089 on 18.11.69, and 1,260 on 7.1.70 (DK).

- **Red-crested Pochard** *Netta rufina* **Macar Ördeği**  
A few breeding pairs. Confirmed in 1967, when Vi-68 saw a female with 7 small young on 8-9.7. A group of six birds on 14.7.71 probably consisted of a female with 5 well-grown young (Bea). Records from May to July only.

- Pochard** *Aythya ferina* **Boz Dalağan**  
Probably breeding, although not confirmed. From May to July, single males or pairs have been seen, but also e.g. 90 birds, most of them males, on 5.6.75 (LPW) and at least 150 on 8.6.84 (Noe). In July, numbers rise, e.g. about 300 on 14-15.7.71 (Bea), at least 500 on 22.7.84 (Scha), or about 400 (100 of them females) on 27.7.71 (Wa). In August, 450 on 17-19.8.81 (La). It seems that these are moulting flocks. In October, 850 on 22.10.67 (Vi-68).

Maximum counts are 45,000 on 20.11.70 (DK) and 28,000 on 23.11.71 (DKW), numbers which have not been approached in recent years. Other figures from the winter are e.g. 7,040 on 18.11.69 and 3,120 on 7.1.70 (DK).

- Ferruginous Duck** *Aythya nyroca* **Pasbaş Dalağan**  
Several records scattered from April to November. Breeding is possible, e.g. at least 10 on 4.5.79 (Doh) or 2-3 on 10.5.84 (Har). At least 100 on 22.7.84 (Scha) is the maximum count.

- Tufted Duck** *Aythya fuligula* **Tepeli Dalağan**  
The situation is very similar to that of the Ferruginous Duck. Low numbers during the breeding season indicate possible breeding. Maximum is 700 during the moulting period (20.7.82, BBC). Also irregularly present during winter (2 on 17.1.72, DKW, and 50 on 7.1.67, Bird Report 1966-67).

- **White-headed Duck** *Oxyura leucocephala* **Dikkuyruk**  
Breeding species. Breeding confirmed in 1971 (Wa-MS), 1972 (Wa), and 1975 (LPW). A very rough estimation suggests a breeding population of about 30 pairs, which makes Kulu Gölü one of the most important breeding sites of this species in the Middle East. Maximum counts in April are about 100 (2.4.85, Bre), in May 96 (3.5.78, Hol), in June 87 (5.6.75, LPW), in July at least 500 (22.7.84, Scha), and in August at least

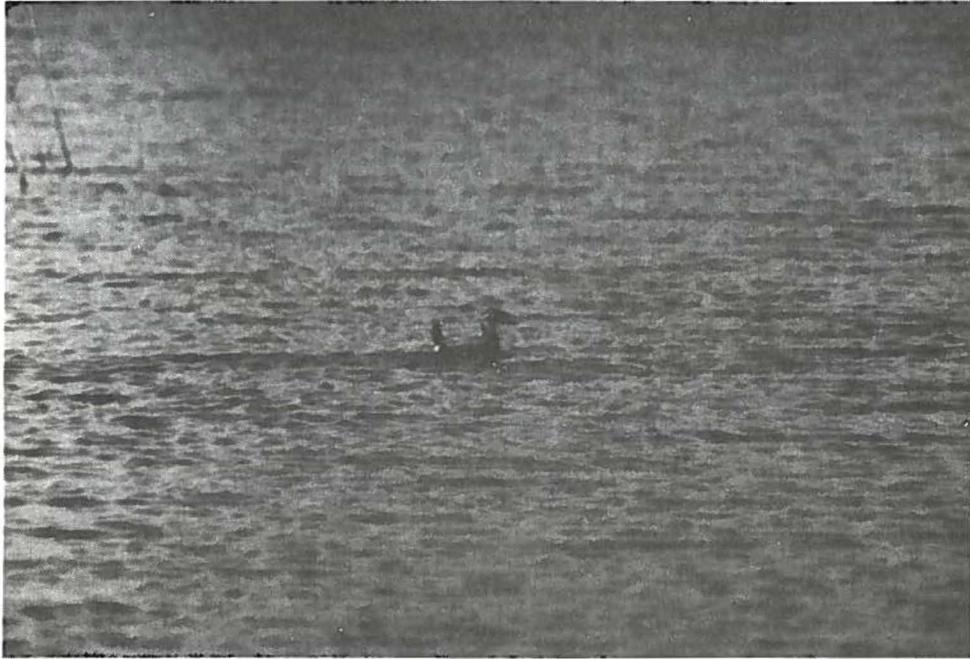


Fig. 1. Kulu Gölü is one of the most important sites for the White-headed Duck in the Middle East. About 30 pairs breed at the lake and post-breeding flocks comprise up to 500 individuals.

(photograph by M. Kasparek).

350 (25 and 26.8.74, HWF). Lower numbers in September and October. November maximum is 70 individuals on 20.11.70 (DK).

Display was noted on 20.5.82 (17 individuals, four of these adult males. One female disappeared several times at the same place in the reedy belt of the lake; ZP), young were seen on 5.6.75 (3 large young and 3 downy young; LPW), 27.7.71 (two females with [fledged?] young; Wa-MS), and 6.8.72 (3 well-grown young; Wa).

**Honey Buzzard**

*Pernis apivorus*

Arı Şahini

One on 11.5.85 (FG) is the only record.

**Black Kite**

*Milvus migrans*

Kara Çaylak

One each on 2 and 3.5.78 (Hol), on 26.8.74 (HWF), and on 8-9.7.67 (Vi-68).

**Short-toed Eagle**

*Circaetus gallicus*

Yılan Kartalı

One was eating a snake in flight near the town of Kulu on 5.6.75 (LPW). La watched one on 17-19.8.81 and Vi-68 one on 2.9.67.

**Marsh Harrier**

*Circus aeruginosus*

Saz Delicesi

Records from May (a female north of the lake on 17.5.70, Wa-MS), June (a female on 8.6.84, Noc), August (at least 5 on 17-19.8.81, La, and one on 26.8.74, HWF), and September (2 on 11.9.84, Ka).

**Hen Harrier**

*Circus cyaneus*

Gökçe Delice

DW saw one male on 22.1.87.

**Montagu's Harrier**

*Circus pygargus*

Çayır Delicesi

Although breeding in the Tuz Gölü basin, a female on 28.4.85 (KPS) and at least one on 17-19.8.81 (La) are the only records.

**Buzzard**

*Buteo buteo*

Şahin

One on 29.8.57 at the road to Konya near Kulu was "definitely this species" (Ba-58). FG noted four at the lake on 11.5.85.

**Long-legged Buzzard**

*Buteo rufinus*

Kızıl Şahin

Present throughout the year, but not seen at the lake itself regularly. A breeding season record on 14.5.80 (Kuh) is at the border of the study area (9 kms south of Tavşançalı). Singles have been seen several times along the road around Kulu from November to February.

**Spotted Eagle**

*Aquila clanga*

Büyük Bağırgan Kartal

Two individuals were seen southwest of Kulu on 21.9.68 (KP, Vit).

**Steppe Eagle**

*Aquila nipalensis*

Bozkır Kartalı

Hol watched an immature individual by the E5 road near the crossing with the road to Konya on 2.5.78.

**Imperial Eagle**

*Aquila heliaca*

Şah Kartal

A winter record: One 20 kms south of Kulu on 19.11.69 (DK).

**Booted Eagle** *Hieraaetus pennatus* **Küçük Kartal**  
One light phase bird at the road crossing north of Kulu on 5.6.75 (I.PW).

**Lesser Kestrel** *Falco naumanni* **Küçük Kertenez**  
Present in small numbers, also in the breeding season, mainly along the roads. Latest record: One on 2.10.67 (Vi-68).

**Kestrel** *Falco tinnunculus* **Kerkenez**  
Present throughout the year in small numbers.

**Red-footed Falcon** *Falco vespertinus* **Ala Doğan**  
Regular migrant in spring from the end of April to mid May. The earliest record is four birds on 23.4.74 (Bird Report 1974-75), the latest is two south of Tavşançalt on 14.5.80 (Kuh).

**Merlin** *Falco columbarius* **Boz Doğan**  
One each on 20.10.68 (Vit), 29.12.68 (IİK), and 22.1.87 (DW).

**Hobby** *Falco subbuteo* **Delice Doğan**  
Only eight records from May and August. Probably under-recorded.

**Eleonora's Falcon** *Falco eleonora* **Kara Doğan**  
Vit observed one immature Eleonora's Falcon north of Kulu on 20.10.68 (cf. KASPAREK & RISTOW 1986). Although there are very few inland records from Turkey, it is not surprising for immature birds.

**Lanner** *Falco biarmicus* **Bıyıklı Doğan**  
KP watched one female about 30 kilometres south of Kulu on 17.9.68.

**Saker** *Falco cherrug* **Ulu Doğan**  
One near Kulu on 21.9.68 (KP, Vit), one harassing a party of Stone Curlews on 6.9.68 (KP), one on 31.8.77 and one on 7.8.76 (Bird Report 1976-81).

**Partridge** *Perdix perdix* **Çil Keklik**  
Vi-68 saw three groups totalling 47 individuals on fields around the lake on 2.9.67. No recent records.

**Quail** *Coturnix coturnix* **Bıldırcın**  
Up to 4 singing males (8.6.84, Noe) from May to July.

**Little Crane** *Porzana parva* **Benekli Yelve**  
One unidentified *Porzana* seen on 18.5.79 probably belonged to this species (In).

**Corn Crake** *Crex crex* **Bıldırcın Kılavuzu**  
One on 4.5.79 (Doh).

**Moorhen** *Gallinula chloropus* **Saz Tavuğu**  
Probably about 5 pairs breeding in the reedy belts of the lake. No autumn or winter records.

**Coot** *Fulica atra* **Sakarmekke**  
Apparently some dozen breeding pairs. Wa-MS estimated 80 breeding pairs on 27.7.71. Other figures from the breeding season are e.g. about 400 each on 18.5.79 (In) and on 20.5.82 (ZP), and 800 on 20.7.82 (BBC).

Maximum counts are at least 5,000 for August (25 and 26.8.74, IWF), about 3,500 for September (11.9.84, Ka), and 3,500 for November (20.11.70, DK). During winter (December, January), numbers usually do not exceed a few hundred, but 1,180 on 7.1.70 (DK).

**Crane** *Grus grus* **Turna**  
Apparently not breeding in the study area, but in its surroundings. Wa-MS saw three pairs with fledged young on 27.7.71. Other records are from March to May with maximum of 35 individuals flying north on 2.4.85 (Bre) and from September to October with maximum of 230 on 2.10.67 (Vi-68).

**Demoiselle Crane** *Anthropoides virgo* **Telli Turna**  
KSi saw and filmed a single individual of this species on 8.5.83 (cf. KASPAREK 1987a).

**Great Bustard** *Otis tarda* **Toy**  
AINSWORTH (1842) noted "flocks of bustards" in the Kulu area on 19.4.1839. ERARD & ETCHÉCOPAR (1968) saw one pair and a group of forty individuals near Kulu on 1.4.67. BUCHER et al. found some Bustard feathers north of Kulu on 27.3.72. DK noted one bird by the road from Kulu to Cihanbeyli on 21.2.74. On 3.5.78, Hol saw one

individual and on 9.5.79, two individuals were seen at Kulu Gölü (Bird Report 1976-81). GP noted one bird flying eastwards near Tavşançalı on 2.4.81. TURAN (1969) points out that the Great Bustard is a breeding bird in the area of Tuz Gölü, especially around Kulu Gölü. These records give evidence that the Great Bustard has one of its few breeding populations in the western half of Anatolia around Kulu Gölü (on the occurrence of this species in Turkey, cf. KASPAREK 1987b).

● **Oystercatcher**      *Haematopus ostralegus*      **Poyraz Kuşu**

A few pairs breed at lake Kulu. Bea counted 27-28 birds including fledged young on 14-15.7.71, but Wa-MS noted only a single bird two weeks later (27.7.71). Le-74 saw two pairs on 6.5.72 and Wa found a nest with 3 eggs on 31.5.72. LPW saw three very agitated pairs on 5.6.75 and ZP two pairs and one single bird on 20.5.82. There are more records from the breeding season with maxima of about 20 on 18.5.79 (In) and at least 20 on 10.5.84 (Ilar).

● **Black-winged Stilt**      *Himantopus himantopus*      **Uzunbacak**

Breeding species. Wa-MS estimated 80 breeding pairs on 27.7.71, 70 pairs were estimated on 3.6.72 (Bird Report 1970-73). However, Le-74 counted only 20 pairs but noted more on some small islands not visited on 6.5.72. LPW saw 8 pairs on 5.6.75, and ZP 10 pairs on 20.5.82. These figures do not necessarily indicate a decline in the breeding population, as e.g. 1979 seems to have been a year with a very high population: About 150 were noted independently by Doh on 4.5 and by In on 18.5.79. Or in 1984, two observers only noted "common" (10.5.84, Ilar, and 8.6.84, Noc).

Breeding was confirmed by LPW who saw a young bird on 5.6.75 and by Bea who found three nests with 4 eggs each and one with 3 eggs.

The highest number is 700 in the post-breeding period (5-6.8.72, Wa). Also 300 on 17-9.8.81 (La).

● **Avocet**      *Recurvirostra avosetta*      **Kılıçgaga**

Breeding species. In 1969, at least 20 pairs with broods plus 300 adults were present on 14.6 (Vit). Wa-MS estimated 100 pairs on 27.7.71, Le-74 counted 156 nests on 6.5.72. There appeared to be further nests on an island not visited. In the following year, the same observers noted an "unchanged population size". In 1975, LPW counted 105 breeding pairs and estimated a total of 150 pairs (5.6.75). In 1978, Iol noted "several hundred apparently nesting in the margins of the lake" (3.5). In



Fig. 2. The Black-winged Stilt is a typical species of lake Kulu where it breeds along the shores and on islands.

(photograph by Dr. N. Koch)

1979, In counted about 400 individuals on 18.5 and in 1982, ZP estimated at least 200 breeding pairs (20.5). From these figures, the population size can be derived to vary between at least 100 and 200 pairs.

The earliest observation are 4 individuals on 17.4.63 (Ri), the latest 32 individuals on 20.11.70 (DK).

Le-74 counted 36 nests containing eggs on 6.5, LPW saw 6 broods of small chicks on 5.6, and ZP saw many pairs with young aged up to 10 days on 20.5. Small young (and also large young) were seen still on 14-15.7 (Bea).

Maximum counts are 640 on 8-9.7 and 450 on 2.10.67 (Vi-68) and 460 on 5-6.8.72 (Wa).

**Stone Curlew** *Burhinus oedicnemus* **Kocagöz**

A few pairs breed in the area surrounding of the lake. Le-74 noted 3 pairs on 6.5.72 and ZP 2 pairs on 20.5.82. Maximum is about 15 individuals on 11.5.85 (FG) in spring and 75 on ploughed land on 6.9.68 (KP) in autumn.

**Collared Pratincole** *Glareola pratincola* **Batak Kırlangıcı**

Apparently (regular?) breeding species. Pa noted a colony on 19.5.75 and Iol saw at least 36 individuals on 2 and 3.5.78. A juvenile bird was seen by IHWF on 25.8.74. Other records from the breeding season do not comprise more than a few birds. Latest autumn record: 17 on 2.10.67 (Vi-68).

**Black-winged Pratincole** *Glareola nordmanni* **Karakanlı Batak Kırlangıcı**  
Vit saw two individuals on 14.6.69.

**Little Ringed Plover** *Charadrius dubius* **Küçük Halkalı Cılibit**

30 each on 8.7.67 (Vi-68), on 17-19.8.81 (La) and on 25.8.74 (IHWF), and 15 on 2.9.67 (Vi-68) are the only records.

**Ringed Plover** *Charadrius hiaticula* **Halkalı Cılibit**

Migrants were seen in May (3 on 18.5.79, In, at least 10 on 10.5.84, Har, and 1 on 11.5.85, FG) and in August (1 on 25 and 2 on 26.8.74, IHWF, and 2 on 17-19.8.81, La) and September (3 on 1.9.67, Vi-68).

● **Kentish Plover** *Charadrius alexandrinus* **Küçük Cılibit**

Breeding species whose population size is difficult to estimate. E.g. Wa-MS estimated 10 pairs on 27.7.71, I.e-74 noted "many breeding pairs" on 6.5.72 or Doh at least 40 individuals on 4.5.79. Usually 10-20 individuals have been noted by different birdwatchers during the breeding season. Highest numbers are at least 250 on 25 and 26.8.74 (IHWF) and 200 on 21.7.75 (Kit). Exceptionally, 2,500 were seen by La on 17-19.8.81.

The earliest record is of four individuals on 17.4.63 (Ri), the latest is of one individual on 22.10.67 (Vi-68).

Breeding was confirmed by LPW who saw one pair with 2 chick plus one pair with one chick on 5.6.75.

**Greater Sand Plover** *Charadrius leschenaultii* **Büyük Cılibit**

Apparently breeding in small numbers. Iol noted 2 pairs at the northern end of the lake on 3.5.78 and Doh one pair at the lake on

4.5.79. Other records available from May to August. Maximum is about 15 on 7.8.76 (Bird Report 1976-81) and 9 on 25.8.74 (5 were present on the following day) (IHWF).

**Dotterel** *Charadrius morinellus* **Dağ Cılibiti**

DKW saw one on 23.11.71 and Hol 5 in a field about 5 kms north of the town of Kulu on 3.5.78.

**Grey Plover** *Pluvialis squatarola* **Gümüş Yağmurcun**

Two records from spring migration (one each on 3.5.78, Iol, and on 10.5.84, Har) and two from autumn migration (5 on 5-6.8.72, Wa, and 2 on 21.9.75, Bird Report 1974-75).

**Spur-winged Plover** *Hoplopterus spinosus* **Mahmuzlu Kızkuşu**

Surprisingly, there seem to be no breeding pairs at the lake. Only two records from May (2 on 4.5.79, Doh, and 1 on 11.5.85, FG), and one from September (1 on 11.9.84, Ka).

**Lapwing** *Vanellus vanellus* **Kızkuşu**

Breeding species whose population size appears to be about 50 pairs (estimated by Wa-MS on 27.7.71). LPW counted 54 pairs on 5.6.75 and ZP saw at least 15 pairs on 20.5.82.

A group of 50 non-breeders on flooded fields north of Kulu on 8.4.83 (GPP). During the post-breeding period, about 300 each on 13-15.7.71 (Bea) and on 17-9.8.81 (La), and 200 on 21.7.75 (Kit). Also present during autumn and winter in low numbers. Maximum is 90 individuals on 7.1.70 (DK).

**Sanderling** *Calidris alba* **Ak Kumkuşu**

At least 20 on 10.5.84, two in summer plumage on 5.6.75 (LPW), and one on 21.9.75 (Bird Report 1974-75).

**Little Stint** *Calidris minuta* **Küçük Kumkuşu**

Spring migration in April and May. Highest numbers are at least 100 on 10.5.84 (Har), at least 200 on 4.5.79 (Doh), and about 500 on 18.5.79 (In). In autumn, higher numbers during August (max. about 1,500 on 7-19.8.81, La, at least 350 on 26.8.74, HWF, and 500 on 5-6.8.72, Wa) and September (max. about 100 on 11.9.84, Ka), but present until January. Thus, still 30 on 20.11.70 (DK), 25 on 27.12.81 (MJ), and 10 on 9.1.71 (DK).

**Temminck's Stint**      *Calidris temminckii*      Sarıbacaklı Kumkuşu  
Records from May to September do not show a clear pattern of migration. Usually, small groups of up to a dozen birds, but exceptionally about 300 on 11.9.84 (Ka).

**Curlew Sandpiper**      *Calidris ferruginea*      Kızıl Kumkuşu  
Migrant in May and from August to September. Maxima are about 15 on 18.5.79 (In), 17 on 5-6.8.72 (Wa), and about 20 on 11.9.84 (Ka).

**Dunlin**      *Calidris alpina*      Kumkuşu  
Present throughout the year with migration peaks in May and September. During spring migration, e.g. at least 30 on 3.5.78 (Hol), at least 25 on 4.5.79 (Doh), or about 30 on 8.5.83 (KSi). During autumn migration, e.g. about 50 on 11.9.84 (Ka). Records from November and December include up to 42 birds on 20.11.70 (DK). In January, still 35 present on 6.1.69 (Vit).

**Broad-billed Sandpiper**      *Limicola falcinellus*      Uzungagalı Kumkuşu  
5 on 17-19.8.81 (La) and 2 on 25.8.74 (HWF).

**Ruff**      *Philomachus pugnax*      Döğüşkenkuş  
Apparently present throughout the year. A concentration of birds is noted during migration in April and May (maximum is about 600 on 2.4.85, Bre, but also several hundred on 2 and 3.5.78, Hol, and about 300 each on 18.5.79, In, and on 28.4.85, KPS). Autumn maxima are lower than in spring (max. 300 on 17-9.8.81, La, 80 on 25.8.74, IWF, and 130 on 2.9.67, Vi-68). 70 birds between Kulu and Cihanbeyli on 21.2.74 (DK) indicate overwintering in some years.

**Snipe**      *Gallinago gallinago*      Su Çulluğu  
Present throughout the year in small numbers. Usually singles were noted, maximum is 15-20 on 27.12.81 (MJ).

**Black-tailed Godwit**      *Limosa limosa*      Batak Çulluğu  
Eight records, in April (10 on 28.4.85, KPS), June (1 on 8.6.84, Noe), July (10 on 22.7.84, Scha), August (6 on 17-19.8.81, La), September (4 on 11.9.84, Ka, and 27 on 6.9.68, KP), October (19 on 2.10.67, Vi-68), and November (3 on 20.11.70, DK).

**Bar-tailed Godwit**      *Limosa lapponica*      Kıyı Çulluğu  
One bird was seen independently in May 1979 by Doh on 4.5 and by In on 18.5.

**Curlew**      *Numenius arquata*      Kervan Çulluğu  
Eight records from January, March, May, July, August, and October.

**Spotted Redshank**      *Tringa erythropus*      Benekli Kızılacak  
Present from May to October. Maximum in May is about 12 on 11.5.85 (FG), in August 105 on 5-6.8.72 (Wa), and in September 54 on 18.9.68 (KP).

**Redshank**      *Tringa totanus*      Kızılacak  
Apparently breeding in small numbers. Wa-MS estimated 20 pairs on 27.7.71 which might be somewhat too high, at least for other years. Le-74 noted some agitated birds on 6.5.72. Otherwise present throughout the year without a distinct migration pattern. Winter records are e.g. 25 on 29.12.68 (HK) and 15 on 7.1.70 (DK).

**Marsh Sandpiper**      *Tringa stagnatilis*      Batak Düdükçünü  
Migrant and summer visitor in April (three records with maximum of 10 on 2.4.85, Bre) and June to September (11 records with maximum of 32 on 5-6.8.72, Wa).

**Greenshank**      *Tringa nebularia*      Yeşilacak  
Migrant in April and May and again from July to September. Highest numbers are 25 birds on 26.8.74 (HWF) and 20 on 8.9.67 (Vi-68).

**Green Sandpiper**      *Tringa ochropus*      Yeşil Düdükçün  
Records from June to December. Usually singles or small groups, but higher numbers in July and August (about 100 on 8-9.7.67, Vi-68, about 85 on 14.7.71, Bea, 40 on 21.7.75, Kit, and 40-50 on 17-19.8.81, La).

**Wood Sandpiper**      *Tringa glareola*      Orman Düdükçünü  
Migrant in April and May and again from July to September. Maxima are about 50 on 18.5.79 (In), 35 on 20.7.82 (BBC) and 100 on 17-19.8.81 (La).

**Common Sandpiper** *Actitis hypoleuca* **Dere Düdükçünü**  
Migrant in April and May and again in July and August. Maxima are in spring at least 30 on 4.5.79 (Doh) and in autumn 40 on 25.8.74 (HWF).

**Turnstone** *Arenaria interpres* **Taşçeviren**  
Three records in May: One on 18.5.79 (In), two on 10.5.84 (Har), and one on 11.5.85 (FG).

**Red-necked Phalarope** *Phalaropus lobatus* **Kızılbayunlu Kumkuşu**  
Migrant during both seasons. During spring migration 3 were seen on 3.5.78 (Hol), 10 on 4.5.79 (Doh), and 14 on 18.5.79 (In). The species was also noted on 19.5.75 (Pa). During autumn migration 3 were seen on 5-6.8.72 (Wa) and at least 5 on 17-19.8.81 (La).

- **Mediterranean Gull** *Larus melanocephala* **Akdeniz Martısı**  
Only recorded during the breeding season (under-recorded in other seasons?). Vi-68 saw seven adults plus four young on 8-9.7.67, Bea one pair with 2 newly fledged young on 14-15.7.71, Le-74 found 30 nests with 3 eggs each on 6.5.72 (but only 2 pairs were noted on 3.6.72, Bird Report 1970-73), and LPW one pair within a colony of Black-headed Gulls on 5.6.75. On 22.5.83, Mu saw about 30 birds in a breeding colony on a small island. Perhaps not a regular breeder. Highest count was about 200 on 11.5.85 (FG).

**Little Gull** *Larus minutus* **Küçük Martı**  
Migrant in May/June and from August to October in small numbers. Highest numbers are 10 individuals in both seasons (3.5.78, Hol, and 25.8.74, HWF).

- **Black-headed Gull** *Larus ridibundus* **Karabaş Martı**  
Breeding species. In 1972, Le-74 found 50 occupied nests on 6.5, in 1975, LPW about 40 pairs (at least 15 chicks were seen) on 5.6, and in 1978, Hol noted several hundred in a colony on an island which was not visited on 3.5. The population size seems to vary greatly from year to year, as e.g. Noe noted only "few" on 8.6.84. In autumn and winter up to several hundred (maximum is 400 on 11.9.84, Ka), but usually much fewer.

- **Slender-billed Gull** *Larus genei* **İncegagalı Martı**  
Breeding species. In 1971, Wa-MS estimated 150 pairs with fledged young (27.7). The following year, Le-74 counted 53 breeding pairs (6.5). On 5.6.75, LPW saw 160 adults, but no nesting, although this was strongly suspected from behaviour (mobbing of intruders). In 1982, ZP saw at least 100 breeding pairs on an island (20.5). In 1983, Mu found no evidence for breeding on 22.5, although 60 individuals were present. Highest number is 550 (adults and juvenils) on 5-6.8.72 (Wa) and 450 on 17-19.8.81 (La).

**Common Gull** *Larus canus* **Küçük Gümüş Martı**  
A few records from May and August.

**Lesser Black-backed Gull** *Larus fuscus* **Karasırtlı Martı**  
BKO saw two adults north of Kulu on 13.4.80 and Hol two at the lake on 3.5.78.

**Herring Gull** *Larus argentatus* **Gümüş Martı**  
The species is present in the area more or less regularly in small numbers throughout the year. A record by Bea on 14-15.7.71 concerns one pair with one juvenile, but it is not clear whether the juvenile was fully fledged.

- **Gull-billed Tern** *Gelochelidon nilotica* **Gülen Sumru**  
Breeding species. Vit estimated at least 200 pairs on 14.6.69 and Wa-MS 200 pairs on 27.7.71. The following year, on 6.5.72, Le-74 found 24 nests with eggs and 1.200 (!) other occupied nests. Bird Report (1970-73) only noted 300 pairs on 3.6.72. Also in 1973, Le-74 recorded an "unchanged situation". On 5.6.75, about 200 pairs in a colony on an island (plus 2 pairs on the mainland) (LPW) and on 20.5.82, at least 200 pairs again bred in a colony on an island.

Thus, the population size was about 200 pairs in 1969, 1971, 1975, and 1982. Only in 1972 and 1973 was the exceptionally high number of breeding pairs noted and one wonders whether these figures are a misprint of that published information.

The earliest spring record is two on 9.3.86 (Ber).

Sometimes, the birds are seen at a great distance from the lake, e.g. 10 at flooded fields by the road crossing north of Kulu on 8.4.83 (GPP). This is typical for this species, which mainly feeds from fields.

24 nests checked on 6.5 contained three eggs each. Chicks were seen

on 5.6 and during a check on 14-15.7 many birds still had eggs, but many young had also already fledged.

**Caspian Tern** *Sterna caspica* **Hazar Sumrusu**  
Two on 10.5.85 (KPS) and one on 17-19.8.81 (La) are the only records.

**Common Tern** *Sterna hirundo* **Sumru**  
Wa-MS noted 5 (breeding?) pairs on 27.7.71. There are few other records, so breeding at least in other years can be ruled out.

**Little Tern** *Sterna albifrons* **Akalınlı Sumru**  
Only a few records from April to June in small numbers.

**Whiskered Tern** *Chlidonias hybridus* **Biylıklı Sumru**  
Migrant and summer visitor from May to July. Only small numbers have been seen (always less than 10).

● **Black Tern** *Chlidonias niger* **Kara Sumru**  
Wa-MS noted 50 pairs with freshly fledged young on 27.7.71. However, the few records from April and June in other years do not support breeding in the area. The earliest record is one on 28.4.85 (KPS).

**White-winged Black Tern** *Chlidonias leucopterus* **Ak kanatlı Sumru**  
Present from the end of April (about 6 on 28.4.85, KPS) to September. Concentrations have been seen in May (e.g. at least 50 on 3.5.78, Hol, and at least 70 on 10.5.84, Har) and August and September, when 400 were noted on 17-19.8.81 (La), 300 on 26.8.74 (HWF), and 250 on 6.9.68 (KP).

**Black-bellied Sandgrouse** *Pterocles orientalis* **Bağirtlak**  
Apparently breeding in the area surrounding the lake. A group of 30 individuals on 2.9.67 included one first-year bird (Vi-68). The small influxes of fresh water are used as drinking places. Doh saw at least 50 on 4.5.79, Hol 51 on 3.5.78, and HWF counted 200 on 26.8.74.

**Domestic Pigeon** *Columba livia (domestica)* **Kaya Güvercini**  
Pigeons can be seen throughout the year at and in the surroundings of the lake and in the town Kulu where it breeds. Colouration prove that some of them are Domestic Pigeons or crosses between Domestic

Pigeons and Rock Doves.

**Stock Dove** *Columba oenas* **Gökçe Güvercin**  
HK saw several groups near the lake on 29.12.68 and DK 30 individuals on 18.11.69.

**Collared Dove** *Streptopelia decaocto* **Kumru**  
Apparently rare breeding bird in the town of Kulu where KPS saw 2 on 10.5.85 and DW at least 2 on 22.1.87.

**Turtle Dove** *Streptopelia turtur* **Üveyik**  
Migrant in April/May and in August in small numbers. Breeding in the trees and scrub at the road crossing north of Kulu can be assumed, but actual records are lacking.

**Cuckoo** *Cuculus canorus* **Guguk**  
One traffic victim near Kulu on 3.5.78 (DTe) and two south of the lake on 10.5.85 (KPS) are the only records.

**Eagle Owl** *Bubo bubo* **Puhu**  
HK noted one with Teal as prey on 29.12.68

**Little Owl** *Athene noctua* **Kukumav**  
Apparently breeding in and near the villages and at Kulu, where it can be seen throughout the year.

**Swift** *Apus apus* **Karasağan**  
Although breeding can be assumed, actual records are lacking. Otherwise earliest on 28.4.85 (KPS), latest on 25.8.74 (HWF).

**Kingfisher** *Alcedo atthis* **Yalıçapkını**  
Two on 17-19.8.81 (La) is the only record.

**Bee-eater** *Merops apiaster* **Arıkuşu**  
Several heard on 11.9.84 (Ka) is the only record. Certainly badly under-recorded.

**Roller** *Coracias garrulus* **Gökkuzgun**  
Several records in May, mainly along the roads.

**Hoopoe** *Upupa epops* **İbibik**

Breeding on the fringes of the town Kulu and perhaps at other places. One bird entering a hole in a wall where it was obviously nesting was seen by LPW on 5.6.75. 15 individuals observed on 17-19.8.81 (La) were probably migrants.

**Syrian Woodpecker** *Dendrocopus syriacus* **Alaca Ağaçkakan**

One on 18.5.79 (In) is surprisingly the only record. However, one would expect breeding in the park and the gardens of Kulu (under-recorded!).

**Calandra Lark** *Melanocorypha calandra* **Boğmaklı Toygar**

Common breeding bird in the fields and other agricultural land in the study area. Larger concentrations during winter, when e.g. MJ saw a group of 500-600 birds on 27.12.81. A flock of about 2,500 birds was recorded on 17.12.67 (Bird Report 1966-67).

**Bimaculated Lark** *Melanocorypha bimaculata* **Küçük Boğmaklı Toygar**

Although records include some breeding season observations (May and June), the species needs special attention with regard to its occurrence and distribution in the area. Breeding sites do not seem to be present along the shores and in the nearer surroundings of the lake, but rather to the north and south of the town of Kulu.

**Short-toed Lark** *Calandrella brachydactyla* **Bozkır Toygarı**

Several records including the breeding season. However, as this species is often confused with the Lesser Short-toed Lark not only by less experienced bird-watchers, special attention should be paid to its occurrence and distribution.

● **Lesser Short-toed Lark** *Calandrella rufescens* **Çorak Toygarı**

This is obviously the typical Lark species of the salt marshes and the sterile land along the shores of the lake. From there it is described as "common", "abundant" etc. by bird-watchers and the observations include individuals which were very agitated apparently because of nestlings (20.5.82, ZP) and newly fledged young on 13-15.7.71 (Bea).

**Crested Lark** *Galerida cristata* **Tepeli Toygar**

Typical species within and around Kulu and some villages. Also present in winter.

**Skylark** *Alauda arvensis* **Tarla Kuşu**

Three breeding season records. Special attention should be paid to this species. One observer for instance noted "several in fields", although the Skylark's typical habitat in Anatolia is freshwater marshes. In winter sometimes in larger flocks, e.g. several groups on 27.12.81, totalling more than 500 (MJ) and about 1,000 on 6.1.69 (Vit).

● **Sand Martin** *Riparia riparia* **Kum Kırlangıcı**

Migrant in May and from July to September. Several groups were seen migrating eastwards by Har on 10.5.84. A breeding colony was located in a sandpit 20 kms south of Kulu on 21.6.73 where about 30 pairs had their nesting holes (Bird Report 1970-73).

**Swallow** *Hirundo rustica* **Kır Kırlangıcı**

Nothing is known about breeding in the human settlements. Migrant in April and May, when e.g. several thousands were present on 4.5.79 (Doh), and in August and September.

**House Martin** *Delichon urbica* **Ev Kırlangıcı**

About 10 on 8.5.83 (KSi) and many on 17-19.8.81 (La) are the only records.

**Tawny Pipit** *Anthus campestris* **Kır İncirkuşu**

Records from April to August include singing males, indicating breeding by a number of pairs. Latest record: 3 on 2.10.67 (Vi-68).

**Meadow Pipit** *Anthus pratensis* **Çayır İncirkuşu**

One on 9.3.86 (Beç) is the only record.

**Red-throated Pipit** *Anthus cervinus* **Kızılgardan İncirkuşu**

Migrant only in spring (in autumn overlooked?) with peak numbers at the beginning of May. Hol counted 80 birds in a comparatively small area on 2 and 3.5.78. He noted that the total number is difficult to estimate, but must be very high as suitable habitat extended all around the lake. The situation was similar on 10.5.84 (Har), when 80-100 were confined to the short wet grass around the shoreline. The maximum estimated number is at least 250 on 4.5.79 (Doh). The only autumn record is of 3 individuals on 22.10.67 (Vi-68).

**Water Pipit** *Anthus spinoletta* **Su İncirkuşu**  
Only two records, one from December (29.12.68, IİK), and one from March (one on 9.3.86, Ber).

**Yellow Wagtail** *Motacilla flava* **Sarı Kuyruksallayan**  
The subspecies *feldegg* apparently breeds in small numbers in some freshwater areas along the shoreline of the lake. Higher numbers of migrants in May and in August/September. In migrating flocks several non-resident subspecies have been recognized (as far as field identification is possible): *flava* and *thunbergi* on 4.5.79 (Doh), *thunbergi* also on 18.5.79 (In), and *flava* on 17-19.8.81 (La), and *beema* on 11.9.84 (Ka).

**Citrine Wagtail** *Motacilla citreola* **Sarıbaşı Kuyruksallayan**  
A female on 3.5.78 (Hol) is the only record.

**Grey Wagtail** *Motacilla cinerea* **Dağ Kuyruksallayanı**  
One observation from March (1 on 9.3.86, Ber) and one from May (1 south of the lake on 3.5.78, Hol).

**White Wagtail** *Motacilla alba* **Ak Kuyruksallayan**  
Only twice seen: a single on 11.5.85 (FG) and 8 individuals on 2.10.67 (Vi-68).

**Nightingale** *Luscinia megarhynchos* **Bülbül**  
One was singing in some scrub along a ditch south of the lake on 10.5.85 (KPS).

**Redstart** *Phoenicurus ochruros* **Dağ Kızılkuyruğu**  
Two in the trees and bushes at the roadside north of Kulu on 21.8.74 (IIWF) is the only observation.

**Whinchat** *Saxicola rubetra* **Çayır Taşkuşu**  
Twice observed on spring migration (one each on 4.5.79, Doh, and on 8.5.83, KSi) and once on autumn migration (5 on 11.9.84, Ka).

**Stonechat** *Saxicola torquata* **Taşkuşu**  
Two on 17-19.8.81 (La) is the only record.

**Wheatear** *Oenanthe oenanthe* **Kuyrukkakan**  
One record in March (2 on 9.3.86, Ber) and four in the first half of

May. In summer and autumn, 3 on 17-19.8.81 (La), 10 on 2.9.67, 5 on 2.10 and 4 on 22.10.67 (Vi-68).

**Black-eared Wheatear** *Oenanthe hispanica* **Karakulaklı Kuyrukkakan**  
Hol found a singing male to the north of the lake on 3.5.78.

**Isabelline Wheatear** *Oenanthe isabellina* **Boz Kuyrukkakan**  
Reasonably common breeding species. It prefers dry, uncultivated areas.

**Blackbird** *Turdus merula* **Karatavuk**  
Only two observations, but perhaps breeding in the gardens of Kulu.

**Moustached Warbler** *Acrocephalus melanopogon* **Bıyıklı Saz Bülbülü**  
One sighting in a small reed bed on the western shore of the lake on 28.4.85 (KPS).

**Sedge Warbler** *Acrocephalus schoenobaenus* **Dere Bülbülü**  
Perhaps breeding in the small reed belts. Hol described the species as "quite numerous" on 3.5.78.

**Reed Warbler** *Acrocephalus scirpaceus* **Saz Bülbülü**  
4 on 11.5.85 (FG) and 6 on 26.8.74 (HWF) are the only records.

**Great Reed Warbler** *Acrocephalus arundinaceus* **Büyük Saz Bülbülü**  
A small breeding population (probably less than 25 pairs) exists in the reedy margins of the lake. The earliest spring record is on 28.4.85 (KPS).

**Olivaceous Warbler** *Hippolais pallida* **Ak Mukallit**  
Apparently breeding in the trees at Kulu, at the road crossing north of Kulu and to the south of the lake.

**Barred Warbler** *Sylvia nisoria* **Çizgili Ötleğen**  
One each on 11.5.85 (FG) and on 17-19.8.81 (La), and one at the road crossing north of Kulu on 25.8.74 (IIWF).

**Lesser Whitethroat** *Sylvia curruca* **Küçük Akgerdanlı Ötleğen**  
Migrant and probably breeding species. 5 or more around edge of the lake on 3.5.78 (Hol) were presumably migrants.

**Whitethroat** *Sylvia communis* Akgerdanlı Ötleğen  
One on 26.8.74 (IWWF) is the only observation.

**Garden Warbler** *Sylvia hortensis* Akgözlü Ötleğen  
IWWF saw one in the scrub at the road crossing north of Kulu on 21.8 and again on 25.8.74.

**Blackcap** *Sylvia atricapilla* Karabaşlı Ötleğen  
Migrant in spring from the end of March (earliest one female on 31.3.85, Wit) to May (latest on 10.5.84, Har, and on 10.5.85, KPS). Also one record from August (one on 25.8.74, HWF).

**Chiffchaff** *Phylloscopus collybita* Sögüt Bülbülü  
Only a few observations from May and September, but apparently under-recorded.

**Willow Warbler** *Phylloscopus trochilus* Göçmen Sögüt Bülbülü  
Migrant from March (earliest on 31.3.85, Wit) to May (latest on 10.5.84, Har, and 10.5.85, KPS). Two records from August (17-19.8.81, La, and 21.8.74, HWF).

**Spotted Flycatcher** *Muscicapa striata* Benekli Sinekkapan  
Perhaps breeding species at Kulu and at the road crossing north of Kulu, although only a few records from May and August are available.

**Collared Flycatcher** *Ficedula albicollis* Yakalı Sinekkapan  
Wit saw one male on 31.3.85 and KIPP one pair on 13.4.80 (BKO). Both records are from the trees at the road crossing north of Kulu.

**Pied Flycatcher** *Ficedula hypoleuca* Kara Sinekkapan  
One in trees north of Kulu on 25.4.80 (BKO) is the only record.

**Flycatcher sp.** *Ficedula sp.* Sinekkapan  
One unidentified Flycatcher on 21.8.74 (IWWF) should be mentioned here, as it shows that *Ficedula* can also be met with on autumn migration.

**Bearded Tit** *Panurus biarmicus* Bıyıklı Baştankara  
HWF heard the calls of about 4 individuals on 26.8.74.

**Red-backed Shrike** *Lanius collurio* Kızılsırtlı Örümcekkuşu  
Breeding in scrub and trees along the roads and less commonly also close to the lake. Mostly observed on wires. Earliest record is from 28.4.85 (KPS), latest from 11.9.84 (Ka).

**Lesser Grey Shrike** *Lanius minor* Karaalınlı Örümcekkuşu  
Mainly observed along the roads in the area where the species breeds in trees. Earliest on 3.5.73 (DTe), latest on 11.9.84 (Ka).

**Great Grey Shrike** *Lanius excubitor* Büyük Örümcekkuşu  
Although there is one published record (2 on 29.8.57, Ba-58) and one unpublished, I assume mis-identification. Probably juvenile Lesser Grey Shrikes were seen.

**Woodchat Shrike** *Lanius senator* Kızılbaşlı Örümcekkuşu  
Hol saw one male to the north of the lake on 3.5.78.

● **Magpie** *Pica pica* Saksagan  
Breeding along the roads where it finds the necessary trees and telegraph-poles for nest construction. E.g. KPS noted many nests in trees on the way to Ankara and to Konya including the Kulu area on 10.5.85. At least one of the nests was occupied. On 8.5.87, KK noted nest-building birds along the road near Kulu.

**Jackdaw** *Corvus monedula* Küçük Karga  
Typical breeding species at Kulu and other settlements, although most observers apparently did not take note of this fact. Numerous throughout the year, maximum is at least 850 at Kulu on 22.1.87 (DW).

**Rook** *Corvus frugilegus* Ekin Kargası  
Obviously breeding in the area, although the site of the rookery is not known. Perhaps it is to the south of the lake. Several breeding season records indicate nesting and include one bird carrying food on 10.5.85 (KPS). Highest number during the breeding season is about 60 on 14.7.71 (Bea). Also present during autumn and winter, when Vi-68 saw a group of 150 on 2.10.67 and DW at least 10 on 22.1.87.

**Hooded Crow** *Corvus corone* Leş Kargası  
Uncommon breeding species. However, badly under-recorded.

**Starling** *Sturnus vulgaris* **Sığırcık**

Breeding can be assumed. Roosts and roosting flights have been noted even during the breeding season, apparently involving non-breeders. E.g. at least 500 on 2.5.78 (Hol) and about 2,000 on 5.6.75 (LPW). During winter, at least 10 on 22.1.87 (DW) and some flocks between Kulu and Konya on 9.1.73 (DK).

**Rose-coloured Starling** *Sturnus roseus* **Pembe Sığırcık**

Three records from May: 2 on 11.5.85 (FG), one south of Tavşançalı on 14.5.80 (Kuh) and several by the roadside on 18.5.79 (In). All records are from the typical migration season in Central Anatolia.

**House Sparrow** *Passer domesticus* **Serçe**

Breeding species at Kulu, the villages and at the inn to the north of Kulu.

**Spanish Sparrow** *Passer hispaniolensis* **Söğüt Serçesi**

6 on 4.5.79 (Doh) and several on 14.7.71 (Bca) are the only records, although breeding can be assumed.

**Goldfinch** *Carduelis carduelis* **Saka**

Breeding is not recorded. Also present during winter, e.g. some on 9.1.73 (DK), or at least 10 on 22.1.87 (DW).

**Linnet** *Carduelis cannabina* **Ketenkuşu**

Two groups of 30 and 40 individuals on 27.12.81 (MJ) is the only record.

**Reed Bunting** *Emberiza schoeniclus* **Batak Kirazkuşu**

Hol noted one male belonging to a thick-billed subspecies in the lakeside reeds on 2.5.78 and one female on the following day.

**Black-headed Bunting** *Emberiza melanocephala* **Karabaşlı Kirazkuşu**

Not uncommon breeding species in the agricultural areas. Earliest on 3.5.73 (DTe).

**Corn Bunting** *Miliaria calandra* **Tarla Kirazkuşu**

Breeding in the agricultural areas, described e.g. as "common" by Doh on 4.5.79.

**Özet (Turkish Summary)**

Kulu Gölü bir kaç haritada Düden Gölü yada Küçük Göl isimleriyle de geçer. Bu isimleri taşıyan birçok göl bulunması nedeniyle biz Kulu Gölü adını kullanıyoruz. Kulu Gölü Ankara'dan Aksaray yönüne ilerleyen E5 Karayolunda Konya kavşağının güneyinde yer alır. Doğuda Boz Dağı (ya da Boz Tepe) güneydoğuda Çalı ve Bağ Tepeleri ile çevrilir. Göl 930 m. yüksekliktedir. Aynı bölge içerisinde yer alan Tuz Gölü 905 m. Kulu kasabası ise 959 m. yüksekliktedir. Göl alanı 700 ha.dır.

Kulu Gölü tipik bir step gölüdür ve tuz konsantrasyonu düşük (15 gr./lt.), sığ, göl yüzeyinin mevsimlere göre çok farklı oluşu ve suyun kimyasal bileşimiyle ( $Na^+/Cl^-/SO_4^{--}$  açısından zengin) karakterize edilir. Göl çevresi ağaçsızdır. Sadece Kulu kasabasında ve gölün güney kısmında tek tük ağaçlara rastlanır. Ankara - Konya karayolu kenarındaki ağaçlar daha küçük olduklarından kuşlar için önemli değildir. Aksaray kavşağındaki ağaçlık alanlar (özellikle *Robinia* sp. ve *Pinus* sp. yaygındır) ise ötüçü kuşların kuluçka ve göçleri için zengin bir habitat.

Tarım alanları genişlediği için bölgede step bitki örtüsü giderek azalmaktadır, şu anda sadece yol kenarlarında ve gölün doğusundaki Boz Tepe'de görülebilir. Fakat bu bölgelerde de step florası değişikliğe uğramıştır. Otlama baskısı büyüktür ve *Stipa* otlaklarının yerini kokulu, dikenli ve sütlü değişik bir bitki örtüsü almıştır.

**Ornitolojik Önemi**

Bölgede şimdiye dek 183 kuş türü saptanmıştır, bunun 20si bölgede kuluçka yapmaktadır. Daha ayrıntılı bir çalışmayla bu sayının artacağı tahmin edilmektedir.

TURAN & GÜRPINAR (1976) tarafından Kulu Gölü su kuşları için uluslararası önem taşıyan bölgeler listesine alınmış ve bölgenin kuşlar için önemli olduğu belirtilmiş fakat A kategorisi gibi nadir ve yüksek sayılarda kuş içermediği için B kategorisine sokulmuştur.

Bu çalışmada açıkça görüldüğü gibi bölge su kuşları için çok önemli olup uygun bir koruma statüsü gerekmektedir. Aşağıdaki 4 madde Kulu Gölü'nün uluslararası önemini göstermektedir;

- Tüm dünyada nesli azalan Dikkuyruk türü Kulu Gölü'nde yaklaşık 30 çift kuluçkaya yatmaktadır. Kuluçka mevsiminden sonra gölde 500 civarında Dikkuyruk bulunur.
- Tüm Avrupa'da nesli azalan İnce Gagalı Martı, bölgede 100 çift kuluçkaya yatmaktadır. Gölde kuluçka mevsiminden sonra 550

civarında İnce Gagalı Martı bulunur.

- c) Bölgede 10.000 Angıt, 6.050 Kaşıkçın, 45.000 Elmabaş, 640 Kılıçgaga sayılmıştır (verilen sayılar maximum değerlerdir). Bu sayılar aynı türlerin Avrupa - Karadeniz - Akdeniz popülasyonunun %10'unundan daha fazladır.
- d) Kılıçgaganın kuluçka popülasyonu 150-200 çift civarındadır. Bu sayı yine uluslararası standartların üzerindedir.

Diğer kuluçka türlerine gelince: 100-150 çift Karaboyunlu Batağan, 50 çift Angıt, 10-15 çift Suna, 10 çift Poyraz Kuşu, 80 çift Uzunbacak, 10-20 çift Küçük Cilibit, 5 çift Büyük Cilibit, max. 30 çift Akdeniz Martısı, 50 çift Karabaş Martısı ve 200 çift Gülen Sumru vardır. Toy göl çevresinde kuluçkaya yatmaktadır. Bu sayılar bölgenin ulusal ve uluslararası önemini çok net göstermektedir.

Kuluçka mevsiminden sonra göl bir çok ördek, kaz ve çullukgil türü için önemli bir dinlenme ve tüy değişimi yeridir. Örnek olarak bir kaç maximum sayı verilebilir; 800 Boz Kaz, 10.000 Angıt, 100 Pasbaş, 700 Tepeli Patka, 500 Dik Kuyruk Temmuzda, 2.000 Çıkrıçın, 5.000 Sakar Meke 700 Uzunbacak, 640 Kılıçgaga, 250 Küçük Cilibit, 500 Küçük Kumkuşu, 550 İnce Gagalı Martı ve 300 Ak kanatlı Sumru, ve 200 Bağırtlak Ağustosta, 25 Kocagöz, 300 Sarıbacaklı Kumkuşu Eylülde sayılmıştır.

Kasım ayında göl ördekler için çok önemlidir. Göl çevresinde max. 19.000 Sakarca Kazı sayılmıştır. 9.000 Yeşilbaş, 6.000 Kaşıkçın ve 45.000 Elmabaş yine bu ayda görülmüştür. Gölün kış aylarında bazen donması yüzünden kuş sayısı Aralık ve Ocak aylarında düşüktür.

Tuz Gölü'nde bazen kuluçkaya yatan Flamingo Kulu Gölü'nde düzenli olarak görülmektedir (max. 1.500).

Kulu Gölü'nde nadir olarak gözlenen türlere Öküz Balıkçılı, Tarla Kazı, Bozkır Kartalı, Şah Kartal, Kara Doğan, Telli Turna, Dağ Cilibiti, Uzungagalı Kumkuşu, Kıyı Çulluğu ve Sarıbaşlı Kuyruksallayan örnek verilebilir.

#### İnsan Etkinlikleri

Bölgenin şu anda yasal bir koruma statüsü yoktur. Ünlü bir avlak olan Kulu Gölü'ne çok uzak mesafelerden avcılar gelmektedir. Kaz ve ördek en çok avlanan gruplardır. Ama nadir ve avı yasak olan türler de (örneğin: Toy ve Flamingo) avlanmaktadır. Gölün kıyılarında sık sık görülen çok sayıda kuş ölüsü bölgedeki avcılık konusunda bir fikir verebilir.

#### References

- AINSWORTH, W. F. (1842): Travels and researches in Asia Minor, Mesopotamia, Chaldea, and Armenia. - 2 vols., London.
- BALLANCE, D. K. (1958): Summer observations on the birds of the Anatolian plateau and northwestern Cilicia. - Ibis, 100: 617 - 620, London.
- BEIRS, M. VAN (1982): Ornithologische paradizzen in Turkije. - De Wielewaal, 48: 134 - 143, Turnhout.
- CARP, E. (ed.): Wetlands Directory. Turkey, p. 428 - 447. - ed. by International Union for the Conservation of Nature, Gland.
- DIJKSEN, L. J. & F. KONING (1986): Midwinter Waterfowl Census Turkey January 1986 with a review of previous counts. - WIWO Report No. 13, 85 pp., Zeist.
- ERARD, CH. & R. D. ETCHÉCOPAR (1968): Observations de printemps en Turquie. - L'Oiseau et la Revue Française d'ornithologie, 38: 87 - 102, Paris.
- FREY, W. & H. KÜRSCHNER (1982): Vegetation. Beispiele. - Tübinger Atlas des Vorderen Orients (TAVO), map A VI 10, Wiesbaden.
- GORIUP, P. D. & D. PARR (1983): Report on a survey of bustards in Turkey March 22 to May 10, 1981. - Internat. Council Bird Preserv. Study Rep. 1 (56 pp.), Cambridge.
- GORIUP, P. D. & D. PARR (1985): Results of the ICBP Bustard Survey in Turkey, 1981. - Bustard Studies, 2: 77 - 98, Cambridge.
- HARBARD, C. A., T. A. WALSH & D. J. FISHER (1976): The Report of an Ornithological Expedition to Turkey 8 July - 1 October 1974. - privately published, 27 pp.
- IRION, G. (1973): Die anatolischen Seen, ihr Chemismus und die Entstehung ihrer chemischen Sedimente. - Arch. Hydrobiol., 71: 517 - 557, Stuttgart.
- KASPAREK, M. (1985): Die Sultanssümpfe - Naturgeschichte eines Vogelparadieses in Anatolien. - Heidelberg, 154 pp.
- KASPAREK, M. (1987a): The Demoiselle Crane, *Anthropoides virgo*, in Turkey: distribution and population of a highly endangered species. - Zoology in the Middle East, 2 (in press), Heidelberg.
- KASPAREK, M. (1987b): Status and distribution of the Great Bustard (*Otis tarda*) and the Little Bustard (*Otis tetrax*) in Turkey. - Bustard Studies, 3 (in press), Cambridge.
- KASPAREK, M. & D. RISTOW (1986): On the occurrence of Eleonora's Falcon, *Falco eleonora*, in Turkey. - Zoology in the Middle

- East, 1: 60 - 69, Heidelberg.
- KILINÇ, A. (1984): Türkiye göllerinden bir kısmının kimyasal analizi. – Hacettepe Üniv., Mühendislik Fak., Jeoloji (Hidrojeoloji) Mühendisliği Bölümü, 24 pp., unpublished thesis.
- KUMERLOEVE, H. (1970): Zur Kenntnis der Avifauna Kleinasiens und der europäischen Türkei (Ergänzungen - Hinweise - Fragestellungen). – Istanbul Üniv. Fen Fak. Mecmuası, Ser. B, 35: 85 - 160, Istanbul.
- KÜRSCHNER, H. (1980): Vegetationsanalytische und physiognomisch-ökologische Untersuchungen in Hochgebirgen Südost- und Zentralanatoliens (Aladağları, Erciyes Dağı, Türkei). – Diss. Univ. Tübingen, 262 pp.
- LEHMANN, H. (1974): Brutkolonien im Hochland Zentralanatoliens. – Jahresber. naturwiss. Ver. Wuppertal, 27: 80 - 104, Wuppertal.
- MYCOCK, J. (1987): Some autumn observations in Turkey. – Bull. Orn. Soc. Middle East, 18: 1 - 3, Sandy.
- PANS, J. (1976): Tweede Wielewaalreis naar Anatolie van 7 tot 24 mei 1975. – De Wielewaal, 42: 301 - 342, Turnhout.
- TURAN, N. (1969): Toy. – Av Dergisi, 2(11): 7 - 10, Ankara.
- TURAN, N. & T. GÜRPINAR (1976): Turkey. – Proc. Internat. Conf. Conservation of Wetlands and Waterfowl. Heiligenhafen 1974, p. 158 - 163, Slimbridge.
- VIELLIARD, J. (1968): Résultats Ornithologiques d'une mission à travers la Turquie. – Istanbul Üniv. Fen Fakültesi Mecmuası, 33: 67 - 170, Istanbul.
- WARNCKE, K. (unpubl. manuscript, about 1972): Über die Häufigkeit einiger Brutvögel Zentralanatoliens. – 24 pp.

**Author's address:** Max Kasparek, Bleich Str. 1, D-6900 Heidelberg, West Germany.