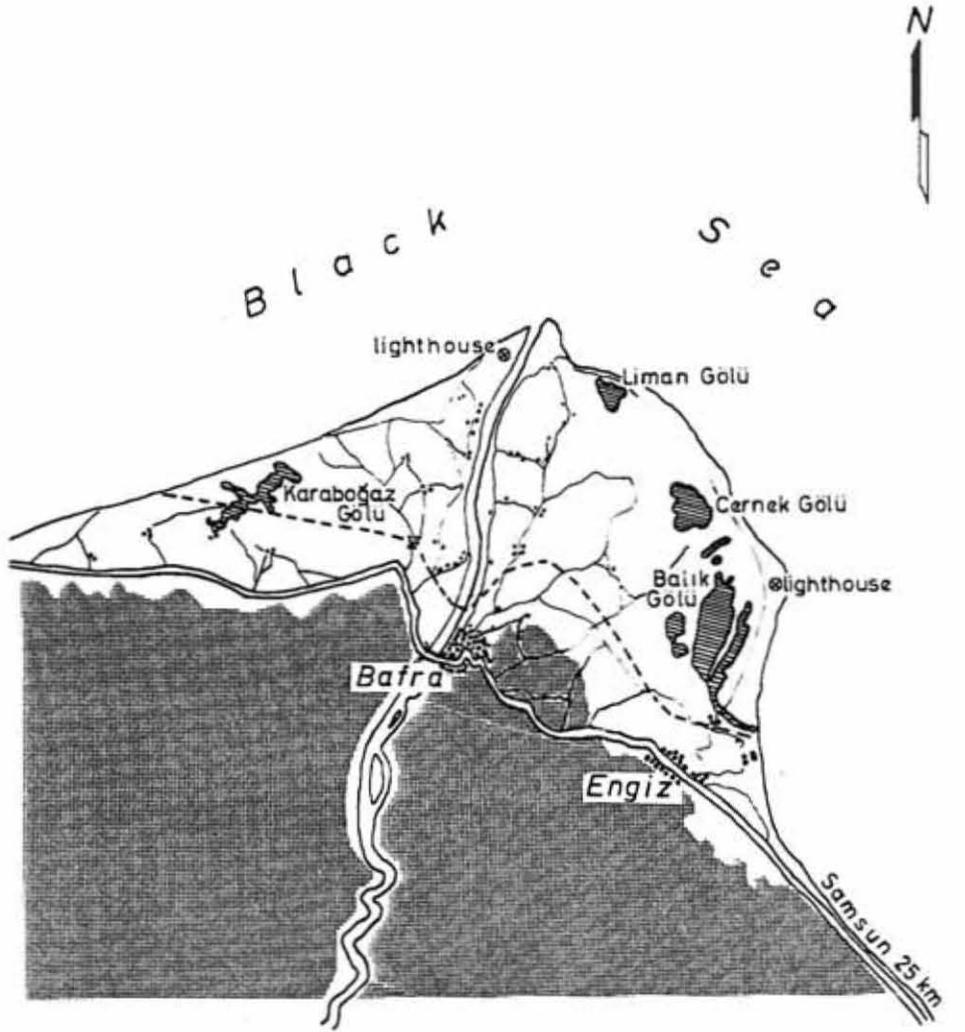




BIRDS OF TURKEY

TÜRKİYE KUŞLARI



grey: mountainous area  
broken line: former coastline

10 km



4

Kızılırmak Deltası

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edited by

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## The Birds of the Kızılırmak Delta

Kızılırmak deltası'nın kuşları

by Lieuwe Dijkse and Max Kasperek

### 1. Geographical position

The delta of the Kızılırmak is situated in the "central Black Sea coastal region" (region number 421) according to the classification of the natural regions of Turkey by EROL (1982). It lies to the north of the highway from Samsun to Sinop. This road also forms the southern border of the study area. It is about 50 km from Samsun. On the highway, within the study area, the town Bafra is situated. The delta stretches from 41°30' to 41°45' N and from 35°43' to 36°08' E.

### 2. Altitude

The delta is a little above sealevel. From the coast, the land rises towards the Samsun - Bafra - Sinop road which is at most a few metres above sea-level. The lakes are at about sea-level, but at the end of the dry season, they regularly fall below. This was also the case even in May 1982 (SU ÜRÜNLERİ 1983).

### 3. Surface and depth

The whole delta has an area of approx. 50,000 ha. The lakes on the east side of the delta are about 1900 ha (cf. map, Fig. 1): Balık Gölü 828 ha, Uzun Göl 294 ha, Tatlı Göl 63 ha, Gıcı Gölü 125 ha, Altın Göl 34 ha, Paralı Göl 8 ha, Cernek Gölü 369 ha and Liman Gölü 175 ha. The lakes including the surrounding marshes comprise approx. 5,000 ha. The surface of the only lake in the western part of the delta, the Karaboğaz Gölü, is not exactly known. The lake and the marshes there must be approx. 416 ha for the lake and 1350 ha for the total marsh/lake area. These areas are of course subject to great changes. The lakes seasonally show a great variety in the extension of their surface. AKŞIRAY (cited according to SU ÜRÜNLERİ 1983) for example gives for the lakes in the eastern part of the delta a minimum of 2440 ha in the dry season (which is more than the sum of the above mentioned sizes) to 9250 ha in the wet season.

The maximum depth of the Balık Gölü is about 3 m, but in the dry season only 1.5 m. Uzun Göl has a maximum depth of 1.25 m (0.6 m in the dry season). The

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fluctuation of the waterlevel is thus about 1.5 m. During the season of high-water (winter and spring) there is often footdeep water even in parts of the forest east of Uzun Göl and the marshes.

The forest area east of Uzun Göl is about 1400 ha.

#### 4. General description of the area

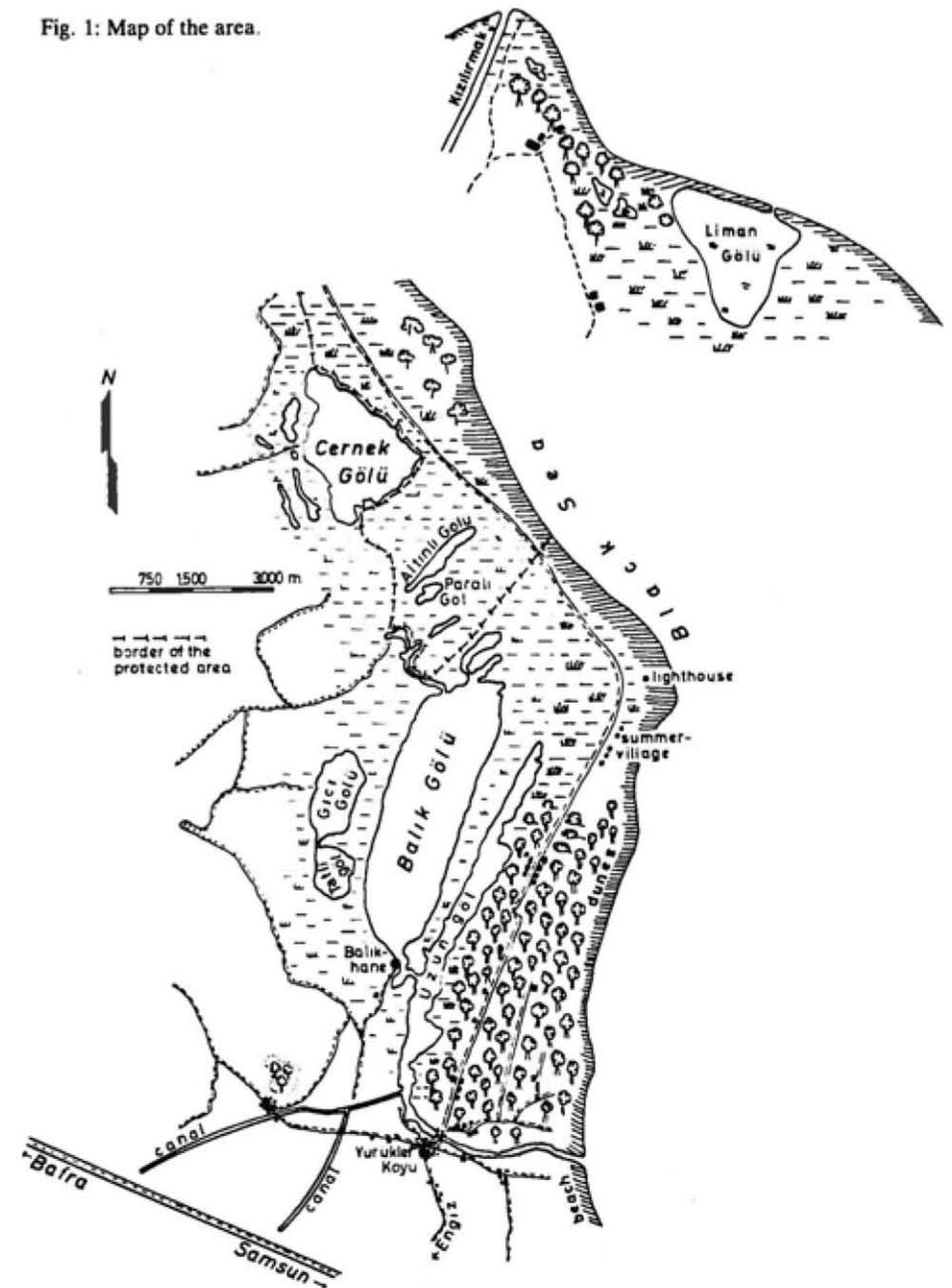
The delta of the Kızılırmak is, geologically speaking, a very young area. It was formed in the last 2000 years by the enormous amounts of erosion material brought by the Kızılırmak. Earlier, Anatolia was a heavily forested country. As a consequence of the destruction of these vast forests, erosion began and the rivers brought a lot of rubble and mud and deposited it at their mouths. This was also the case with the Halys which is the ancient name for the Kızılırmak. As it is the longest river of Anatolia, its erosion material is more voluminous than of other rivers. The town of Bafra was formerly situated on the coast. Nowadays it lies at a distance of more than 15 km from the sea. The delta has known different patterns of settlement, e.g. Bafra once had a harbour. Nowadays only the name "Liman Gölü" (= harbour lake) remembers it. Other settlements have also disappeared. There was once a town in the forest near the village Yürükler, where the ruins of the hamam (= public baths) can still be found.

The Kızılırmak is a powerful river. Between Bafra and the mouth of the river, there had been shipping movement in older days, but not now. The river has huge sandbanks, often covered with tamarisks. They are important places for birds.

In about 1915 a closed tribe of nomadic Turks, coming from the region of Adapazarı, settled in the delta. Nowadays, about 2500 people live there with 350 (mostly farm-) houses in the scattered village of Yürükler. A group of about 150 camels (owned by 50 - 60 people) still living half-wild in the forest north of the village and in the dunes is a reminder of the former nomadic life-style of these people.

In the older days, the delta consisted of enormous marshes and woodlands, where wolves, schakals and deer lived. Huge parts of the area have been drained and most of the forests have been cut down. Nearly 90 % of the area is now under agricultural use: maize, tobacco, sunflowers, clover and cereals including rice are the most important products. Tobacco is processed within the area: southeast of Yürükler Köyü, one of the biggest factories of the Turkish State Monopolies (TEKEL) is situated. Between the fields (especially in the western part of the delta) there are usually strips of woods which give the landscape a closed, attractive look. These woods normally consist of Poplar trees, willows, etc., and they have a thick undergrowth of Small Elder and especially Blackberry. In autumn when these fruits are ripe, many warblers of the Genus *Sylvia* and even *Acrocephalus* feed there.

Fig. 1: Map of the area.



Lakes survived on both sides of the delta although in the west, there is only one, the Karaboğaz Gölü. It is surrounded by vast reedbeds and rush-vegetation. Between the lake and marshes and the sea, there is a narrow strip of dunes. The lake has a (natural?) outlet to the sea, and some canals take surplus water from higher cultivated area further inland to the lake.

On the east side of the delta, one lake is situated near the mouth of the Kızılırmak, the Liman Gölü. It lies directly behind the dunes and has no vegetation at that side. Liman Gölü also has a (natural?) outlet to the sea. A set of lakes is situated further south. Sometimes Lake Balık (= fish lake) is not only used as name of the biggest lake, but also as a name for the whole set of lakes. In this paper, however, we do not use it in this way. Balık Gölü is separated from the Uzun Göl (= long lake) by a peninsula which is covered completely by reeds. Also the shores of this lakes have extensive reedbeds. Beside these, we find from south to north Tatlı Göl, Gıncı Gölü, Paralı Göl, Altınlı Gölü and Cernek Gölü. The extensive rushbeds are very typical of the area between these lakes.

Southeast of these lakes, a forest still exists. Parts of it are flooded in winter and spring, when the lakes reach their highest levels. The forest is divided into a large number of fenced holdings, and some fields are scattered between them. The owners of the forest are the villagers of Yürükler Köyü and especially of the settlement along the road to the lighthouse. Some farms are completely within the forest. The villagers procure their firewood from the forest and use it as grazing grounds for cattle. So, in some parts, hardly any undergrowth exists. The main tree species are Hornbeam (*Carpinus betulus*), Ash (*Fraxinus spec.*) and Alder (*Alnus spec.*), with some Oak (*Quercus spec.*).

The forest is separated from the sea by a strip of dunes which are, however, much lower than the dunes in the western part of the delta. The dunes vary in width, from more than 200 metres (with some forest in places) to only a few tens of metres. Just east of the mouth of the river, the sea has eroded the dunes away, judging from the roots of rushes on the beach. At the southend of Balık Gölü and Uzun Göl a canal connects these lakes with the sea.

## 5. Water-Quality

The brackish water has a mean electrolyte content of 2.8 g/l. It is only about 1/10th as salty as sea water, but e.g. the Chlorid-content is nearly 50 times that of drinking-water. SU ÜRÜNLERİ (1983) made a detailed study at the Balık Gölü and the Uzun Göl in 1982. They took water samples from four different points each month. The results are presented in Tab. 1.

The total electrolyte content varies with season between 2.1 g/l and 3.2 g/l (Fig. 2). The salt concentration rises in May and June. This is also reflected in the electric conductivity which rises from a level of about 3500 in January to about 5100 in May

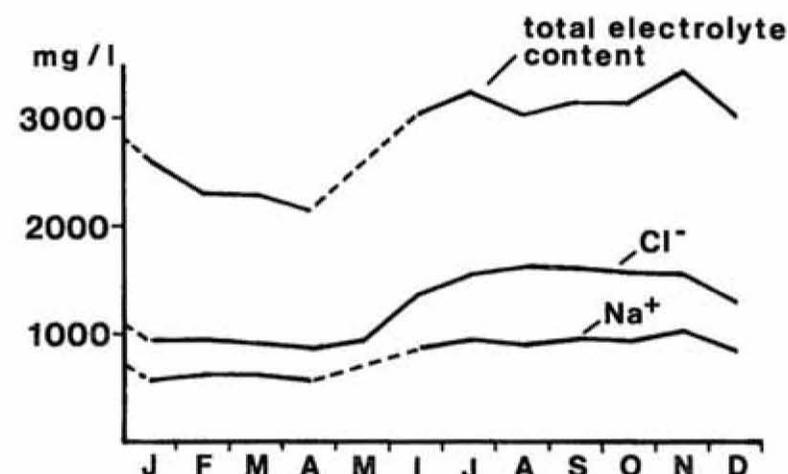


Fig. 2: Salt concentration of the Balık Gölü/Uzun Göl in 1982. Based on a study of SU ÜRÜNLERİ (1983).

( $EC_{x10^6}$  at 25°C). In December it falls again. From June to September, precipitation reaches a minimum (see below) and hence the water level of the lakes falls. Thus there is a concentration of the salts in the lakes. The influence of the incoming sea-water will be discussed below. The most important salt is NaCl. The pH-value shows little variation during the season SU ÜRÜNLERİ (1983).

	O <sub>2</sub>	pH	K <sup>+</sup>	Na <sup>+</sup>	Ca <sup>++</sup>	Mg <sup>++</sup>	CO <sub>3</sub> <sup>-</sup>	HCO <sub>3</sub> <sup>-</sup>	Cl <sup>-</sup>	SO <sub>4</sub> <sup>-</sup>
January	11.6	8.2	18.7	561	63.0	748.0	13.0	263	937	16.6
February	11.5	8.2	20.0	627	66.0	81.0	18.0	232	969	304.3
March	11.2	8.3	12.5	627	64.8	82.0	10.5	268	933	314.5
April	9.1	8.3	12.5	577	66.2	85.5	24.0	270	895	254.0
May	8.9	8.6	-	-	67.3	85.7	39.0	262	972	-
June	8.5	8.4	14.8	862	76.5	112.8	30.8	259	1387	310.8
July	8.5	8.6	29.1	961	76.5	126.2	41.3	243	1567	243.2
August	8.1	8.3	28.9	912	54.8	108.5	26.3	223	1635	68.7
September	8.5	8.1	7.2	953	57.0	110.7	17.3	253	1609	172.5
October	8.9	8.2	28.3	930	61.5	109.7	20.3	271	1593	153.9
November	11.5	8.1	22.3	1025	60.5	110.7	18.0	258	1562	402.9
December	11.8	8.3	20.0	874	63.0	102.1	22.5	248	1308	401.9

Tab. 1 Concentrations of some ions in the Balık Gölü/Uzun Göl in 1982 according to SU ÜRÜNLERİ (1983). Each value is a mean value of four different samples. The values (with the exception of the pH) are given in mg/l.

## 6. Climate

The study area has the typical climate of the Black Sea coastal region (see Fig. 3): high precipitation and rather high temperatures. According to the results of the meteorological station in Bafra over an 23-year period (1929-33, 1953-70) the mean precipitation is 726 mm/year (DEVLET METEOROLOJİ BÜLTENİ). Even in July, the month with the lowest precipitation, there are still 25 mm. E.g. at the Seyfe Gölü in Central Anatolia, the mean precipitation is 436 mm/year (HUSBAND & KASPAREK 1984) and in Kızılcahamam which is at the border from the Black Sea Region to Inner Anatolia, 546 mm (BARİŞ, AKÇAKAYA & BILGIN 1984). The temperatures are less extreme over the year than in the inner regions of Anatolia. The mean temperature is 14.1°C (cf. Seyfe Gölü 10.1°C and Kızılcahamam 10.2°C) which is preliminary due to mild winters. Whereas the mean temperatures in Central Anatolia are about 0°C in January and February, the mean temperatures in Bafra are 6.2°C and 7.2°C respectively.

Snowfall occurs only on 5.5 days a year (mean value from the 23-year observation period), between November and April (c.f. Kızılcahamam: average number of days with snow cover is 40).

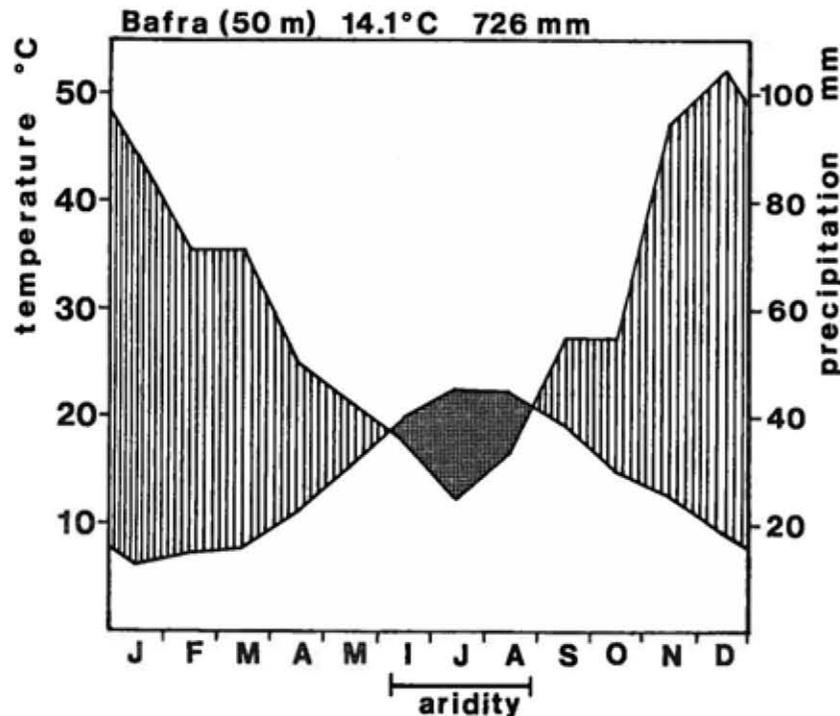


Fig. 3: Climate of the study area. The method of representation is according to WALTER.

## 7. Ornithological importance of the area

After drainage of 10,000 ha land in the delta of the Yeşil, these wetlands are the only ones of considerable size along the Turkish Black Sea coast. Its importance is clear. So far, 250 bird species have been recorded (records of 7 more species were not accepted). For 55 of these, breeding has been confirmed. It is not confirmed for 33 more species, which however surely breed in the delta. 12 others may breed. However, these must be regarded as minimum figures, as bird-watching activity is still too low to determine the status of species exactly.

A comparison of this figure with those from other wetlands of Turkey (Erçek Gölü: KASPAREK & VAN DER VEN 1983, Seyfe Gölü: HUSBAND & KASPAREK 1984, Sultansazlığı: KASPAREK 1985) clearly points out the importance of the Kızılırmak delta for Turkey. The number of species is higher than at the Erçek and the Seyfe Gölü, and is about the same as in the Sultan Marshes in Central Anatolia, where 249 species have been recorded. However, the number of breeding species is much higher in the Sultan Marshes (at least 136) whereas the Kızılırmak delta is a better area for migrants and vagrants.

Lake Balık was listed by MOLU & GÜRPINAR (1972) and by TURAN & GÜRPINAR (1976) as a wetland of international importance (category A: wetlands of major importance). This status is without any doubt valid for the delta as a breeding area as well as a resting and wintering area.

Among the breeding birds, there are species like Dalmatian Pelican, Bittern, Squacco Heron, Little Egret, Black Stork, White-tailed Eagle, Marsh Harrier, Osprey and Crane - some of these species are endangered in many parts of the world. Squacco Herons breed together with Little Egrets and Grey Herons in a mixed colony which comprises at least 130 nests. Black Storks breed at the same place, too. Also Night Heron, Purple Heron, Great White Egret, Bittern and Little Bittern are assumed to breed, but this has not yet been confirmed.

20 species of ducks were recorded, at least six breed here. For raptors, the delta is an excellent area; 28 species have been recorded. Breeding has been confirmed for White-tailed Eagle, Marsh Harrier, Osprey and Hobby. Also the Lesser Spotted Eagle is assumed to breed, as regularly present during the breeding season. Cranes breed around the Balık Gölü in about 10-15 pairs. The breeding populations of most of the waders (Black-winged Stilt, Stone Curlew, Little Ringed Plover, Kentish Plover, Lapwing etc.) seem to be relatively low, perhaps with the exception of that of the Redshank. No gulls breed in the area. In the forest, four species of Woodpeckers breed: Wryneck, Green Woodpecker, Lesser Spotted Woodpecker and Syrian Woodpecker. For some passerines, the low density is striking, e.g. for Reed Warblers, Tits and Reed Bunting.

Dalmatian Pelicans bred, apparently in up to 60-70 pairs. The latest breeding record is not later than 1977. It seems, that the population declined or breeding only

occurred irregularly in the last years. The population of the White-tailed Eagle seems to have disappeared. Until the early 1970s, 1-3 pairs bred, but there is only one more record from the breeding season (1977) since then. Osprey bred in 1966, but there are no later indications of breeding. These cases indicate that the area has lost some of its importance. Forestry, hunting, etc. are problems which must be addressed in an urgently needed management plan for the delta.

The importance of the area for migrating and wintering species is great, too. Total number of waterfowl counted during IWRB (= International Waterfowl Research Bureau) winter counts from 1967 to 1974 was usually about 25,000 with a peak count of 65,850 on 4./5. January 1973. Many of them feed on the inundated fields on the landward side of the lakes. When disturbed, the birds take refuge at sea. Most abundant are surface feeding ducks (Mallard, Teal, Pintail, etc.) and Coot, but, for instance, also White-headed Duck, Goldeneye and three species of *Merganser* were recorded. These are the only lakes in Turkey that holds Grey-lag Geese in numbers (up to more than 5,000) in winter. Also large numbers of raptors (Marsh and Hen Harriers, Buzzard spp., Peregrine), herons and grebes winter in the area. Because of the lack of tides in the Black Sea, there are no intertidal mudflats, so the numbers of waders in winter are small.

## 8. Nature conservation and human activities

### Fishery

The enormous richness of fish is exploited by the inhabitants of the villages Yürükler, Doğanca and Üçpınar. At the Balık Gölü, there is a so called "Balıkxhane", a place of several buildings where the fishes are brought and also sold. About 40 boats are found and about 200 persons regularly work there. Beside these two lakes, fishery also seems to take place at the Karaboğaz Gölü, where some boats and a lot of nets were seen in 1984.

The Balık Gölü is leased to a person who sub-lets fishing rights to others. As the rent rose steadily during the last years, the fishermen tried to compensate by catching even the smaller fishes. SU ÜRÜNLERİ (1983) therefore recommends lowering the rent in order to preserve the fish populations. The yearly harvest in the area is given by SU ÜRÜNLERİ (1975, 1983) as follows (in 1,000 kg's) in Tab. 2:

	1973	1980	1981	1982
Carp	150	150	175	200 (91)
Pike-perch	-	15	20	17 (30)
Golden Mullet	30	15	10	12 (18)
Whitefish	30	-	-	--
Rudd	0.3	-	-	--

For 1982, the two different sources give different values. Therefore, those of SU ÜRÜNLERİ (1975) are given in parantheses. As these values are based on an inquiry among fishermen, they might not be very accurate and the species-identification

must be subject of discussion (cf. paragraph 9). But the numbers show at least that (a) the yearly harvest is about 200 tons and (b) the annual catch size varies considerably.

The yearly harvest depends not only on the population size, but also on the demand. Several years ago, the export to countries of the Middle East played an important role, but now most of the harvest is sold to Samsun, to villages and also to a fish-meal factory. The fishery season is usually limited from August to October.

Diving ducks and grebes are incurring risks by the nets of the fishing. SCHMID & TURRIAN noted caught Pochard and Ferruginous Duck in nets.

### Hunting

The hunting pressure on the area is great. During the IWRB waterfowl censuses DIJKSEN & KONING often met large, well-equipped hunting parties that camped for some time at the lakes. Foreigners among them were no exception. As foreigners have not been allowed to bring guns to Turkey for some years, the hunting pressure seems to have diminished, but still exists. In spring 1984, hunting activity was registered after the closing of the hunting season and in August 1982 and September 1983, hunting of ducks was seen, although the season for ducks began in that year in October. The forest is known as a good hunting area for Woodcock. Hunting of forbidden species includes e.g. a Golden Oriole (seen in September 1983).

Part of the area (see map) is under protection since 1974. According to the decision of the Central Hunting Commission (cf. e.g. *Merkez Av Komisyonu Kararı no. 47* from 15.6.1983 for the 1983-84 hunting season), hunting is completely forbidden in that area. But as also pointed out by SEREZ (1984) this fact is usually not known by the villagers and hunters. No wardens protect the area. The protected area is also rather small and does not include valuable areas like the Balık Gölü or the Uzun Göl. Improvements are urgently needed.

### Recreation

An alarming development is the construction of 5 or 6 weekend houses for people from Samsun in the dunes just north of the forest. Another 15-20 houses are planned. It is said that water and electricity will be brought in the near future. Without doubt, this development means much disturbance in the forest, dunes and marshes at a hitherto rather remote place. The houses will also be occupied by hunters.

### Agriculture

The drainage canals in the study area are rather old. Many years ago, the area to the landward of the lakes (that means the southeast side of Karaboğaz Gölü and the southwest side of Balık Gölü) were drained by many canals. The lakes and marshland themselves were relatively unharmed. Even nowadays, many fields flood after heavy rainfalls in spring. In the late sixties, there were no plans for further drainage (DSI 1968).

The amount of pesticides used that reach the lakes and marshes via the canals, must be considerable. The effect on the ecosystem is not known.

#### Forestry

Woodcutting and grazing of the forest by cattle is a serious problem. By grazing, regeneration of the forest is prevented, while the forest area is getting smaller and smaller as a result of felling and cutting.

Wood-cutting also seriously effects the nesting places of herons and raptors. RENKHOFF noted that two trees which had been the nesting places for Black Stork had been cut before his visit in 1972.

#### Disturbances and bird-killing

RENKHOFF notes that a colony of the Grey Heron which still existed in 1971 was destroyed in 1972. Nestlings were killed by shooting in the nests. He also saw two young Black Storks killed in the nest. RENKHOFF also noted quite a lot of disturbance especially at the heron colonies by foreign bird-watchers, -photographers and egg-collectors.

#### Changes in the water regime

The connection between the Balık Gölü/Uzun Göl with the sea silts permanently. The reason is the drainage canals which slowly fill the outlet of the lakes to the sea. If there was no connection with the sea, the fauna would change considerably. The immigration of the Golden Mullet *Mugil aureatus* from the sea to the lakes is even of economic importance. SU ÜRÜNLERİ (1983) therefore claims to clean the outlet. The outlets of Liman Gölü and Karaboğaz Gölü are being dammed with sand. It seems, that the influx of sea water is therefore under human control, but we do not know the purpose of it.

At the lower Kızılırmak, one barrage had been constructed in the pasture and one more barrage is under construction. When completed, the river will deposit no more sediments at its mouth and as a consequence, the size of the delta will diminish. Although this must be regarded as a long-term danger, it should be seriously taken into account.

### 9. Fauna (excluding birds)

#### Vertebrates

As mentioned above, wolves, schakales and deer are said to have lived in the huge, ancient forests. Nowadays, these animals cannot be found here. Persian Squirrels (*Sciurus anomalus*) occur in the forest area, e.g. KASPAREK saw one of the red-coloured phase there on 28.8.84. A weasel (*Mustella nivalis*) was seen at Balıkhane on 27.8.84 (KASPAREK). SCHMID & TURRIAN found a dead Hedgehog (*Erinaceus europaeus*) at the road near Bafra. There are dolphins (*Delphinus delphinus*) in the Black Sea. Some were seen during the IWRB winter counts, KOCH found one dead

on the beach on 9.5.77 and two skulls were found in September 1982 (DIJKSEN & ZOOMER). SCHMID & TURRIAN saw some bats of the genus *Myotis* on 27.8.84.

In the marshes, especially in the places of open water within the forest, there are a lot of Marsh Tortoises (*Mauremys caspica*) which had not previously been known from the Black Sea coastland. In the dry dunes, the Spur-winged Tortoise (*Testudo graeca*) is not rare. A Grass Snake (*Natrix natrix*) was seen e.g. by GRÜTTER on 7.7.83 and by SCHMID & TURRIAN on 29.8.84, a Green Toad (*Bufo viridis*) by SCHMID & TURRIAN on 29.8.82. The Common Tree Frog (*Hyla arborea*) occurs e.g. in the forest west of Uzun Göl, but also at some other places (KASPAREK, SCHMID & TURRIAN).

The lakes are extremely rich in fish. KURU (1972) mentions Carp (*Cyprinus carpio*), Rudd (*Scardinius erythrophthalmus*), Vimba (*Vimba vimba tenella*), Mosquito Fish (*Gambusia affinis*), Pike-perch (*Lucioperca lucioperca*), Gudgeon (*Gobius fluviatilis*), Pipe-fish (*Syngnathus nigrolineatus*), Nordman's Shad (*Caspialosa nordmanni*) and Golden Mullet (*Mugil aureatus*). The occurrence of the last species depends on the connection of the lake with the sea, as it is a sea fish, very tolerable to differences in the salt concentration, which regularly comes in from the sea. The only fish species which KURU (1982) found in the river of Kızılırmak were *Barbus plebejus escherichi*, *Capoeta capoeta sieboldi* and the small Chantre's Toothcarp *Aphanius chantrei*. The original range of the last species is Central Anatolia (east of the Tuz Gölü). The population in the delta of Kızılırmak seems to be descended from there by the aid of the river.

#### Non-Vertebrates

A common species of the Balık Gölü and the Uzun Göl is the Crayfish *Pontastacus leptodactylus*. Its occurrence is not natural, but results from introduction by fishermen several years ago. Now it is harvested in great numbers. *Palaemon elegans* and *Gammarus* (aff. *aequicaudata*) were found in August 1984. All these species are known to be tolerant to brackish water.

In the area, four species of molluscs have been recognized. *Radix peregra* and *Theodoxus fluviatilis* were identified in August 1984. These snails are tolerant to salt water and are known from brackish water. *Unio pictorum*, a mussel, was collected in spring 1984. *Anadonta* (*Gabillotia*) *pseudodopsis* seems to live in big numbers in the Balık Gölü and the Uzun Göl, as huge specimens of it are frequently found in the nets of fishermen. Leeches (*Hirudo medicinalis*) were seen at lake Balık (KASPAREK). *Naucoris* (aff. *cimicoides*) (Heteroptera) was found in big numbers in August 1984.

### 10. Limnological view

The study of SU ÜRÜNLERİ (1983) gives data on the biomass of zooplankton and benthos. The sample sites were the same as those for the chemical water analysis (see there) and the following values are thus meanvalues from four different places.

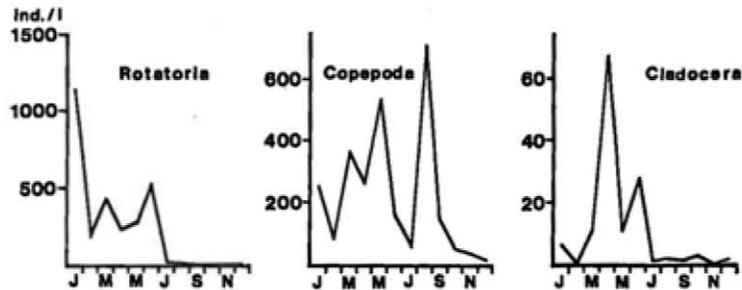


Fig. 4: Seasonal variation of the mass of some zooplankton in the Balık Gölü/Uzun Göl in 1982. All numbers are given in individuals per litre. After SU ÜRÜNLERİ (1983).

Nylon nets with a width of 125  $\mu$  were used. All counts were converted to amount per litre.

From the zooplankton, three groups were selected for a half-quantitative analysis: *Rotatoria*, *Copepoda* and *Cladocera*. *Rotatoria* (see Fig. 4) were found in up to 1.100 individuals/lt. (January), a relative maximum was reached in June, when this group took 78 % of all zooplankton. From August onwards, no appreciable amount of *Rotatoria* was found. *Copepoda* show a maximum in August (715 ind./lt). At that time no other zooplankton is present in an important amount, the copepods take 98.6 % of all. The amount of *Cladocera* rises from February to April, when it reaches a maximum (68 ind./lt) and then falls again to nearly zero in July. This low value is maintained to the end of the year. Even during the peak in April, *Cladocera* only takes 12 % of all zooplankton. Zooplankton of other groups than those mentioned yet is found only in small amounts, the relative number always stays below 5 %. Only in November and December 1982, these other groups took 13 % of all zooplankton, but this is due to the poor presence of *Rotatoria*, *Copepoda* and *Cladocera*.

In the benthos (see Fig. 5), *Oligochaetae* is the most common group. It comprises 77 % (July) to 96 % (May) of all animals of the benthic fauna. The absolute maximum is 19.400 ind./m<sup>2</sup> in February. The phenology of *chironomids* shows a minimum in May and June (in May 145 ind./m<sup>2</sup>) and two peaks, one in spring (max. of 780 ind./m<sup>2</sup> in February) and one in autumn (max. of 830 ind./m<sup>2</sup> in September). Other groups, including e.g. *ostrocods* and *gastropods*, took less than 5 % of the benthic fauna. The mass of the benthos, expressed as fresh weight, has a peak in March and May (cf. Fig. 5). It falls in summer and again slowly rises in autumn.

As described above, the area is important as a wintering area for ducks. Usually about 25,000 waterfowl winters in the area, most of them are surface-feeding ducks. On the other side, there is no markable concentration of waterfowl during the breeding or moulting season. One of the possible explanations may be the low amount of diet in this period. The rich food supply from December to April makes the area an attractive wintering area.

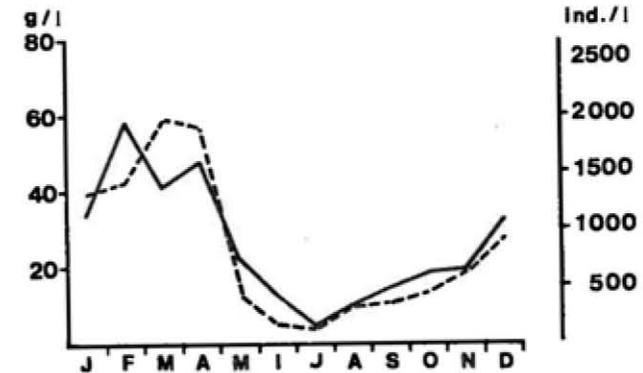


Fig. 5: Seasonal variation in the mass of the benthic fauna in the Balık Gölü/Uzun Göl in 1982. The broken line (left abscissa) gives the total mass of the benthos (fresh weight in g/l), the solid line the number of *Oligochaetae* per m<sup>2</sup>.

## 11. Bird-watching activity

The Kızılırmak delta has been regularly visited since 1966. Only for 1976, 1980 and 1981 are records missing. This paper is based on 195 observation days in 16 years. 84 % of all observations have been made from June to September, although the area has been visited in all months. As the area was included in the IWRB-waterfowl counts, there are also accurate results from November - February, especially from January.

In particular the long stays of RENKHOFF must be mentioned. From 1970 till 1981 he visited the area 9 times, mostly in summer. Only some of his findings in 1971 and 1972 which were published, could be included in this paper.

Most of the observers only visited the area around Balık-Gölü: Yürükler village, the forest north of it, Uzun Göl, sometimes Cernek Gölü and the surrounding marshes are the main observation points. Only a few observers went as far as to Liman Gölü. The Karabogaz Gölü on the west side of the delta was only visited during the IWRB-waterfowl censuses and once later, in October 1984. So we know nothing of the breeding birds of that part of the area.

- 1966 - 11./12.7. and 14.-16.7. ANONYMOUS (BR 1966/67)
- 1967 - 25.-27.1. H.H. HOEKSTRA & J. SZIJJ (SZIJJ & HOEKSTRA 1968 and BR 1966/67)
- 3.8. A. VITTERY (BR 1966/67 and unpublished)
- 26.8. and 28.9. J. VIELLIARD (VIELLIARD 1968)
- 1968 - 20.5. T. GÜRPINAR & N. TURAN (GÜRPINAR & TURAN 1968)
- 8./9.6. ANONYMOUS (BR 1968/69)
- 1969 - 10.1. A. VITTERY (BR 1968/69 and unpublished)
- 7.-9.6. B.A.E. MARR & R.F. PORTER (BR 1968/69 and unpublished)
- 9./10.12. L.J. DIJKSEN & F. KONING (KONING & DIJKSEN 1970, BR 1968/69 and unpublished)

- 1970 - 26./27.1. L.J. DIJKSEN & F.J. KONING (KONING & DIJKSEN 1970, BR 1970-73 and unpublished)  
 - 30.4.-2.5. M.J. HELPS & N.A.G. LORD (BR 1970-73)  
 - 18.11. L.J. DIJKSEN & F.J. KONING (KONING & DIJKSEN 1971, BR 1970-73 and unpublished)
- 1971 - 1./2.1. L.J. DIJKSEN & F.J. KONING (KONING & DIJKSEN 1971, BR 1970-73 and unpublished)  
 - 7.7.-6.8. M. RENKHOFF (RENKHOFF 1972 and BR 1970-73)  
 - 18.11. L.J. DIJKSEN & F.J. KONING (DIJKSEN, KONING & WALMSLEY 1972, BR 1970-73 and unpublished)
- 1972 - 22.1. F.J. KONING & J.G. WALMSLEY (DIJKSEN, KONING & WALMSLEY 1972 and BR 1970-73).  
 - 12./13.6. ANONYMOUS (BR 1970-73)  
 - 3.7.-26.7. M. RENKHOFF (RENKHOFF 1973 and BR 1970-73)  
 - 10./11.8. K. WARNCKE (BR 1970-73)
- 1973 - 4./5.1. L.J. DIJKSEN & F.J. KONING (KONING & DIJKSEN 1973, BR 1970-73 and unpublished)  
 - 20.6.-19.7. and 12.-14.8. ANONYMOUS (BR 1970-73).  
 - 6.-11.9. A.R. KITSON & M. ROBINSON (BR 1970-73)
- 1974 - 15./16.2. L.J. DIJKSEN & F.J. KONING (KONING & DIJKSEN 1974, BR 1974/75 and unpublished)  
 - 26./27.7. C.J. FISHER, C.A. HARBARD & T.A. WALSH (HARBARD et al. 1976 and BR 1974/75)  
 - 3.9. ANONYMOUS (BR 1974/75)
- 1975 - 9./10.6. R.F. PORTER & I.R. WILLIS (BR 1974/75 and unpublished)  
 - 13. and 19.7. ANONYMOUS (BR 1974/75)  
 - 3.8. B. HEREDIA, S.J. PERIS & F. SUAREZ (unpublished)  
 - 3./4.9. ANONYMOUS (BR 1974/75)
- 1977 - 9.-12.5. N. KOCH with a group of 29 bird-watchers (unpublished)
- 1978 - 7.5. S. ALBRECHT (unpublished)
- 1979 - 26.-31.5. N. KOCH with a group of 31 bird-watchers (unpublished)
- 1982 - 28.7. M. v. BECHTOLDSHEIM and a group of bird-watchers (unpublished)  
 - 28.-30.8. Group des Jeunes de "Nos Oiseaux" (9 members): Th. SCHMID, F. TURRIAN (TURRIAN & SCHMID 1984 and unpublished)  
 - 28.9. L.J. DIJKSEN & T. ZOOMER (unpublished)
- 1983 - 5.-14.7. H.-U. GRÜTTER, N. KOCH and three more bird-watchers (unpublished)  
 - 19.-22.9. CH. BRÄUNING and a group of bird-watchers (unpublished)
- 1984 - 24./25.3. M. KASPAREK (unpublished)  
 - 14.-21.6. E. BEZZEL and a group of bird-watchers (unpublished)  
 - 26.-29.8. M. KASPAREK (unpublished)  
 - 2.-5.10. L.C. v. BECKHOVEN & L.J. DIJKSEN (unpublished)

The trips of 9.-12.5.77, 26.-31.5.79, 28.7.82, 5.-14.7.83, 19.-22.9.83 and 14.-21.6.84 were organized trips by Dr. N. KOCH.

## 12. Hints for bird-watchers

The lakes are difficult of access. A good starting point for bird-watching in the eastern half of the delta is Yürükler village which can be reached from the main road via Engiz (note that Engiz is the same as Ballica). One has a good view over the Balık Gölü from the so called *Balkhane*. Also the outlet of that lake to the sea is a very interesting area and the dam in the

north is another good place. The Cernek Gölü and the Liman Gölü can be reached from the coast road, but after rainfalls, this way is completely inaccessible. Under such conditions, the Liman Gölü is better reached by the road from Bafra to the mouth of the river and then by following the tracks along the coast. The Karaboğaz Gölü can be reached by passing the bridge over the Kızılırmak west of Bafra and then taking the first road on the right and left after about 8 km. In the study area, there are no hotels apart from in Bafra.

## 13. Acknowledgements

We like to thank Mr. S. ALBRECHT (Cambridge, GB), Dr. E. BEZZEL (Garmisch-Partenkirchen, FRG), Mr. M. VON BECHTOLDSHEIM (Mainsondheim, FRG), Mr. Ch. BRÄUNING (Laatzen, FRG), Mr. H.-U. GRÜTTER (Thun, CH), Dr. N. KOCH (Malsch, FRG), Dr. S.J. PERIS (Salamanca, E), Mr. R.F. PORTER (Sandy, GB), Mr. T. SCHMIDT (Geneve, CH) and Mr. A. VITTEY (Cley, GB) for submitting their records from the area, Mr. M. RENKHOFF (Rhede, FRG), for providing other information, Prof. Dr. R. KINZELBACH (Darmstadt, FRG) and his co-workers for identifying some collected animals, Mr. S. TARHAN (Ministry of Agriculture and Forestry, Ankara, TR) for providing information on nature conservation and the staff of the "Su Ürünleri Daire Başkanlığı", Ankara, for providing the results of the limnological study.

## 14. Abbreviations

Al	= Albrecht
vB	= von Bechtoldsheim
Bz	= Bezzel
BD	= van Beckhoven & Dijkzen
Br	= Bräuning
DK	= Dijkzen & Koning
DZ	= Dijkzen & Zoomer
GK	= Grütter & Koch
GT	= Gürpınar & Turan
HL	= Helps & Lord
HPS	= Heredia, Peris & Suarez
HSz	= Hoekstra & Szi
HWF	= Harbard, Walsh & Fisher
Ka	= Kasperek
Ko	= Koch
KR	= Kitson & Robinson
KW	= Koning & Walmsley
MP	= Marr & Porter
PW	= Porter & Willis
Re	= Renkhoff
ST	= Schmid & Turrian
Vi	= Vielliard
Vit	= Vittery
Wa	= Warncke

BR = Bird Report

G. = Göl (or Gölü) = lake

● = breeding has been confirmed (ürediği kanıtlanmıştır)

## 15. Species list (birds)

**Black-throated Diver** *Gavia arctica* **Kızılboyunlu Dalgıç**  
Present offshore during the winter season. The earliest record is 28.9.67 (2 birds, Vit), but also e.g. about 40 on 3.10.84 (vBD). Usually less than 100, but HSz noted no less than 1,500 from 25.-27.1.67.

● **Little Grebe** *Tachybaptus ruficollis* **Küçük Batağan**  
Throughout the year. Although not rare, it is regularly recorded only in low numbers during the breeding season. The estimation of about 20 pairs (BR 70-73) might be too low for the whole area. Breeding was confirmed by a pair with 2 fully grown young on 10.6.75 (PW) and by a pair with 4 pulli on 15.7.71 (Re). Nearly all the figures from autumn and winter are below 50, but at least 100 on all lakes on 2./5.10.84 (vBD).

● **Great Crested Grebe** *Podiceps cristatus* **Bahri**  
Throughout the year. This species is a common breeding bird at the Balık G. and the Uzun G. Bz saw some pairs with young between 14.-21.6.84 and Ko saw young on 5.7.83. Re saw 2 pairs with young between 7.7. and 6.8.71. As a maximum he recorded 30 birds (adults and immatures) on 19.7. of that period. BR estimated at least 46 pairs in the period 1970-73.

Very common in January at sea and on lakes, fluctuating from thousands (at least 20,000 on 10.1.69, Vit) to hundreds (e.g. 965 on 22.1.72, KW, or 900 at sea on 26./27.1.70, DK). Smaller numbers in November/December and February (max. 39 on 15.2.74, DK).

**Red-necked Grebe** *Podiceps griseigena* **Kızılboyunlu Batağan**  
2 or 3 on 14.7.66 (BR) and one at Liman G. on 21.9.83 (Br).

**Black-necked Grebe** *Podiceps nigricollis* **Karaboyunlu Batağan**  
Only a few records from the breeding season: 1 ad. in breeding plumage at Balık G. on 17.6.84 (Bz), one adult at Altınlı G. on 19.6.84 (Bz) and one on 5.7.83 (Ko). Recorded also in September and from November to February in fluctuating numbers, e.g. 18.11.71, 4 (DK), and 25./27.1.67 about 600 (HSz). Maximum numbers regularly during January.

**Manx Shearwater** *Puffinus puffinus* **Yelkovan**  
Br recorded one bird at the mouth of the Kızılırmak on 21.7.83.

**Cormorant** *Phalacrocorax carbo* **Karabatak**  
During his stay from 7.7.-6.8.71 Re noted this species at the west side of Balık G. daily and he counted max. 42 (adults and immatures) on 31.7.71. Although he also saw the species regularly in the breeding season 1972, he could not find any evidence of breeding and there are no other records from the breeding season. Otherwise

earliest record on 3.8.75 (HPS). Small numbers during IWRB winter counts, with maximum of 60 on 26./27.1.70 (DK).

**Shag** *Phalacrocorax aristotelis* **Tepeli Karabatak**  
GK noted one on 5.7.83 and less than 10 at the mouth of the Kızılırmak and the Liman G. on 10.7.83.

**Pygmy Cormorant** *Phalacrocorax pygmeus* **Küçük Karabatak**  
There are four summer records, three from 1982 and one from 1984: at least one on 28.7.82 (vB), one on 28.8.82 (ST), one on 30.8.82 (ST) and three on 17.6.84 (Bz).

**White Pelican** *Pelecanus onocrotalus* **Ak Pelikan**  
8 records from June to September of less than five birds each. Maximum of 12 on 20.6.-19.7.73 (BR). Once recorded in winter: One on 25./27.1.67 (HSz).

● **Dalmatian Pelican** *Pelecanus crispus* **Tepeli Kutan**  
Breeding confirmed. According to BR about 25 pairs were breeding in July 1966. In 1968, GT confirmed breeding. Re saw 12 adults with 33 unfledged young at two breeding locations on 6.8.71. Maximum number at that time had been 92 at a roost on 19.7.71. At the same places, Re found about four week old young in the next year (3.-26.7.72). At the same time, he recorded 130 adults and immatures at these lakes. A more general population estimation of 60-70 pairs is given by BR for the period 1970-73. Subsequently only Ko saw one single bird on a nest on 12.5.77.

Re was told by villagers in 1971, that the breeding colony had existed for 25 years. Local hunters told Ka on 24.3.84, that 30-50 pairs breed at the inaccessible peninsula between the Uzun G. and the Balık G. In June of the same year, Bz was brought to the so called "breeding place" by fishermen, but he could not find any evidence of breeding.

Although Dalmatian Pelicans can still be seen regularly during the breeding season, it seems, that the breeding population has declined or that breeding has occurred only irregularly during the last decade. Maximum count during recent breeding seasons is at least 60 at 28.7.82 (vB), but e.g. Bz usually saw only singles (max. 16 birds) during his stay from 14.-21.6.84.

Outside the breeding season small numbers with a maximum of 106 on 22.1.72 (KW) and about 90 on 10.12.69 (DK).

**Bittern** *Botaurus stellaris* **Balaban**  
Usually 1-3 booming birds can be noted in the redbeds around Balık G. and Uzun G. from the end of April onwards. Maximum is three calling plus two seen on 7./8.6.69 (MP). Three winter records (January) with maximum of three on 26.1.70 (DK).

**Little Bittern** *Ixobrychus minutus* **Küçük Balaban**  
Nine records between May and July suggest breeding in small number.

**Night Heron** *Nycticorax nycticorax* **Gece Balıkçılı**  
Records from May to September. During the breeding season maximum of 20 on 29.5.79 (Ko) and 9 on 11.5.77 (Ko), but usually smaller groups or singles. ST counted 184 birds migrating to South between 14.00 and 18.35 hrs. on 28.8.82 and 52 birds between 15.30 and 19.30 hrs. on 30.8.82.

● **Squacco Heron** *Ardeola ralloides* **Alaca Balıkçıl**  
This species is a breeding bird in a mixed heron colony together with Grey Heron and Little Egret. Ko counted about 100 birds there on 27.-31.5.79. Ka found at least 10 pairs on 27.8.84 and also saw several dead young below the colony. The species is rather inconspicuous at the colony site, therefore not all observers noted this species. ST counted 106 birds migrating to South between 15.30 and 19.30 hrs. on 30.8.82. Earliest record 30.4.70 (5, BR), latest 20.9.83 (1, Br).

**Cattle Egret** *Bubulcus ibis* **Öküz Balıkçılı**  
Two (one of them in breeding plumage) on 7.5.78 (Al).

● **Little Egret** *Egretta garzetta* **Ak Balıkçıl**  
Breeding bird. Re suspected breeding, but could not find a colony. In 1971 he counted max. 106 on 6.8. and in 1972 max. about 400. Also in 1973, 400 birds were seen during the breeding season (5.7.73, BR). In 1979, Ko discovered a breeding site where this species is nesting together with Grey Herons, Squacco Herons and perhaps Black Storks. Between 27.-31.5.79 Ko recorded about 300 birds there. In 1984 the colony was at the same place. Bz estimated at least 50 breeding pairs on 15.6.84. Ka counted about 130 nests there (5-10% might have belonged to the Squacco Heron) on 27.8.84, but as some places could not be seen well, the real number might be somewhat higher. At that time, a lot of pairs still had nestlings, although most nests were empty. In the evening, the colony site was used as a roost. On 27.8.84, Ka counted 543 birds on the roosting flight, but as some of the birds had not left the colony before (those which had still young) and as the roosting flight could not be counted completely, 700 can be regarded as a minimum. Five weeks later, only 63 birds roosted there (4.10.84, vBD).

ST counted 142 birds migrating to South between 15.30 and 19.30 hrs. of 30.8.82. The number of birds decreases considerably at the end of September. But even in winter, singles or small groups remain (maximum 20 on 10.1.69, Vit).

**Great White Egret** *Egretta alba* **Büyük Ak Balıkçıl**  
Present during the breeding season in small numbers (max. 17 on 12.5.77, Ko). It is not known, whether the species breeds or not. More common from October (e.g. 80 on 4.10.84, vBD) onwards. Winter counts includes figures like 215 on 25.-27.1.67 (HSz) and 203 on 1.-2.1.71 (DK).

● **Grey Heron** *Ardea cinerea* **Gri Balıkçıl**  
Breeding bird. In a colony near Yürükler Köyü Re counted 48 occupied nests in July 1971, but the colony was destroyed in 1972, when they bred with White Storks (25

occupied nests in July 1972, Re). For 1970-73, BR gives an estimation of the population size of at least 52 pairs. Ko saw about 30 birds in the mixed heron colony between 27.-31.5.79. Bz recorded at least 30 nests, presumably more, at the same site on 14.-21.6.84. The young had nearly fledged. At the end of August of the same year, there was no trace of birds at the colony site, although there were some dead young which had fallen out of the nest.

50 birds, migrating southwards, were seen by ST between 14.00 and 18.35 on 28.8.82. On 30.8.82, they counted 157 birds between 15.30 and 19.30 hrs. Otherwise maximum in autumn 120 at Karaboğaz G. on 3.10.84 (vBD). Regularly also found in winter in moderate numbers, maximum 77 on 26./27.1.70 (DK).

**Purple Heron** *Ardea purpurea* **Erguvani Balıkçıl**  
Breeding suspected by Re in July 1971. Ko flushed one at the Balık G. presumably from its nest on 26./28.5.79. During the breeding season singles are regularly recorded at Balık G., Uzun G., Altınlı G., Cernek G. and Liman G.. Maximum during the breeding season is about 30 on 26.-28.5.79 (Ko) and at least 50 on 28.7.82 (vB).

A strong autumn migration was recorded by ST in late August 1982: 368 flew South on 28th. between 14.00 and 18.35 hrs. and 1400+ between 15.30 and 19.30 hrs. on 30th. The counts were made from the west side of Balık G.. In late August 1984, migration was recorded again. Ka watched a group of 151 birds coming from the North and landing on the sandbanks of the Kızılırmak some km north of Bafra. They then scattered over the area in smaller groups.

Recorded from 24.3.84 (1, Ka) till 4.10.84 (1, vBD).

● **Black Stork** *Ciconia nigra* **Kara Leylek**  
Breeding bird. Confirmed in 1971, when Re found five nests in July. One nest still contained 3 juvs. on 16.7.71. In 1972 he found three nests, two of which contained two and one three juvs. (3.-26.7.72, Re). In the Heron colony, Ko saw about 10 Black Storks on 27.-31.5.79. Ka saw one big nest in that heron colony at the end of August 1984 which presumably belonged to this species. MP estimated at least 20 breeding pairs on 9.6.69 and BR at least 12 for 1970-73. These estimates might still be valid for recent years.

Some migration can be noted in September/October, e.g. 52 birds on 3.9.75 (BR). vBD saw one ringed immature at the Karaboğaz G. on 3.10.84, proving the origin of the bird to be outside Turkey. Recorded from 7.5.78 (2, Al) till 5.10.84 (2, vBD).

● **White Stork** *Ciconia ciconia* **Leylek**  
Re counted 22 occupied nests in a colony near Yürükler village with five more occupied nests, in some distance from the colony site. The following year, there were 25 occupied nests. Other breeding season records from that place are less detailed ("nesting, no count" on 7./8.6.69, MP, "many nests" on 12.5.77, Ko, "at

least 2 pairs" on 7.5.78, Al, "about 10 birds in the colony" on 27.-31.5.79, Ko, "about 6 nests seen, but more presumed" on 25.3.84, Ka, and "several breeding pairs" from 14.-21.6.84, Bz). An exact count is urgently needed. In addition to it, Re also found 12 nests in a tree between Cernek G. and Liman G. on 3.7.72, but no recent information on that site is available. Earliest record 2 on 25.3.84 (Ka).

**Glossy Ibis** *Plegadis falcinellus* **Çeltikçi**  
Recorded in May (15 on 28./29.5.79, Ko), June (3 on 14.6.84, Bz) and July to September (8 records with max. at least 70 on 28.7.82, vB, and 65 on 28.8.82, ST).

**Spoonbill** *Platalea leucorodia* **Kaşıkçı**  
Five records from July to October with max. about 15 on 28.9.82 (DZ).

**Mute Swan** *Cygnus olor* **Kuşu**  
GT "confirmed breeding" on 20.5.68, but the observers do not list that species among the breeding birds in a later paper (TURAN & GÜRPINAR 1976). The breeding status therefore needs clarification. Besides this, only two records from January: 18 on 22.1.72 (KW) and one on 5.1.73 (DK).

**Whooper Swan** *Cygnus cygnus* **Ötücü Kuşu**  
Two on 10.1.69 (Vit).

**White-fronted Goose** *Anser albifrons* **Sakarca Kazı**  
Five records from November to March (still about 30 on 25.3.84, Ka, which is also the maximum count).

**Greylag Goose** *Anser anser* **Bozkaz**  
Apart from records in May (2 on 29.5.79, Ko) and August (14 on 29.8.82, ST) only seen during IWRB winter counts. Number fluctuating from 5 and 28 on 18.11.71 (DK) and 18.11.70 (DK) to more than 5,000 on 25./27.1.67 (HSz), 1./2.1.71 (DK) and 22.1.72 (KW). From February only 121 on 15./16.2.74 (DK).

**Red-breasted Goose** *Branta ruficollis* **Kırmızı Gerdanlı Kaz**  
According to reliable information from hunters, the species occurs from November/December to March (Br).

**Ruddy Shelduck** *Tadorna ferruginea* **Angıt**  
Four records from January, August, September and December, max. 17 birds on 13.9.73 (BR).

**Shelduck** *Tadorna tadorna* **Suna/Alakaz**  
One record from the breeding season (2 on 10.6.75, PW) and 6 records from IWRB winter counts with maximum of 45 on 15.2.74 (DK).

**Wigeon** *Anas penelope* **Fiyo**  
Breeding reported on 20.5.68 (GT), but as not mentioned in a later paper of the observers (TURAN & GÜRPINAR 1976), confirmation is required. 10 records from

IWRB winter counts (November - February) with a maximum of 3,000 on 25./27.1.67 (HSz) and 2,050 on 4./5.1.73 (DK). Apart from that, one at Liman G. on 5.10.84 (vBD) and about 40 in inundated fields south of Balikhane on 25.3.84 (Ka).

**Gadwall** *Anas strepera* **Boz Ördek**  
Presumably breeding resident, e.g. a pair on 9.6.69 (MP) and on 7.7.72 (Re), but also at least 100 on 14.6. and 17.6.84 (Bz). Highest numbers in winter with a maximum of 742 on 10.12.69 (DK) and 330 on 4./5.1.73 (DK).

● **Teal** *Anas crecca* **Çamurcun**  
Breeding resident. Ko found a nest still containing eggs on 29.5.79, Re saw a female with 9 young on 28.7.71 and one with 5 young on 6.8.71. Numbers usually are below 30, but higher in September (max. 80 at sea on 22.9.83, Br) and October (max. at least 250 on 4.10.84, vBD), but hundreds to thousands "small ducks" on 28.-30.8.82 (ST). From November to February regularly several thousands, max. 16,750 on 4./5.1.73 (DK). Still ca. 80 on 25.3.84 (Ka).

● **Mallard** *Anas platyrhynchos* **Yeşilbaş**  
Breeding confirmed in 1968 (20.5., GT), 1971 (2 females with 6 and 12 pulli on 24.7., Re) and 1984 (female with about 5 weeks old young on 14.6., Bz). During the breeding and moulting season a rare bird. E.g. Bz saw from 14.-21.6.84 only the above mentioned female with young and one other bird during his stay and Ka saw only three birds from 26.-29.8.84, one of them unable to fly because of moulting. But about 500 on 6.8.71 (Re). Fluctuating numbers during IWRB winterfowl counts from November to January, from 550 on 18.11.71 (DK) to 31,690 on 4./5.1.73 (DK) and about 40,000 on 25./27.1.67 (HSz). Of the high number of 4./5.1.73, more than half of the birds were seen on the sea near Karaboğaz G.

**Pintail** *Anas acuta* **Kalkuyruk**  
Present during the breeding season in very low numbers (regularly?), e.g. one female on 12.5.77 (Ko), one on 29.5.79 (Ko) and one male and two females on 17.6.84 (Bz). Strongly fluctuating numbers in winter, sometimes only a few or a few tens, but maximum of 4,360 on 4./5.1.73 (DK) and ca. 3,000 on 25./27.1.67 (HSz).

● **Garganey** *Anas querquedula* **Çıkrıkçın**  
Breeding bird. Breeding was confirmed in 1971 (pair with 7 pulli on 2.8., Re) and 1979 (one breeding on 28./29.5., Ko). At least 20 pairs were estimated breeding 1970-73 (BR). In spring earliest record on 24.3.84 (6, Ka) and maximum of about 100 on 25.3.84 (Ka). In the post-breeding season 100 on 3.8.67 (Vit), 200 on 11.8.72 (BR) and 400 on 7./13.9.73 (BR). Latest record 22.9.83 (less than 10, Br).

● **Shoveler** *Anas clypeata* **Kepçel/Kaşıkçın**  
Breeding resident. Re saw two females with 4 and 5 young respectively on 6./7.7.72. The size of the population does not exceed a few pairs. Common during IWRB waterfowl counts from November to February. Regularly several hundreds, with

maxima of about 8,000 on 25./27.1.67 (HSz), 4,234 on 10.12.69 (DK) and 1,100 on 4./5.1.73 (DK).

**Marbled Duck** *Marmaronetta angustirostris* **Dal Gagalı Ördek**  
2 at Balık G. on 3.8.67 (Vit).

● **Red-crested Pochard** *Netta rufina* **Macar Ördeği**

Breeding resident. Breeding was proved by Ko who saw 8 young (but no adults) on 27./28.5.79. During the breeding season maximum of about 50 on 14.6.84 (Bz) and at least 200 on 28.7.82 (vB), but less common in the migration periods and during winter (maximum 30 on 26.1.70, DK).

● **Pochard** *Aythya ferina* **Elmabaş**

Perhaps the most common breeding duck. Confirmed in 1968 (20.5., GT) and 1984: Bz saw two females with about 3 weeks old young on the north side of Balık G. and a female with about 5 days old young near Balikhane on 14.6.84. On 19.6.84, he saw at least 12 females with young at the northside of Lake Balık. The figures from March to September usually do not exceed 100, more common from November to February: maximum 1,085 on 4./5.1.73 (DK).

● **Ferruginous Duck** *Aythya nyroca* **Pasbaş**

Breeding confirmed in 1971 (female with 7 pulli on 6.8.71, Re). During the breeding season usually not more than 10, but e.g. 30 on 14./16.7.66 (BR). During IWRB winter counts only recorded on three occasions, with maximum of 61 on 26.1.70 (DK).

● **Tufted Duck** *Aythya fuligula* **Tepeli Patka**

Resident. Breeding confirmed on 28.5.68 (GT). Small numbers in spring and summer, but higher in winter. Maximum 380 on 1.1.71 (DK). The species is much more common at sea near Samsun.

**Scaup** *Aythya marila* **Deniz Dalağanı**  
This species is mentioned by MÖLÜ & GÜRPINAR (1976) as a wintering species at Balık G., but no details are available.

**Eider** *Somateria mollissima* **Pupla Kazı**  
One male at Cernek G. on 20.9.83 (Br).

**Common Scoter** *Melanitta nigra* **Kara Ördek**  
One offshore on 11.9.73 (KR).

**Velvet Scoter** *Melanitta fusca* **Kadife Ördek**  
42 offshore on 27.7.71 (Re).

**Goldeneye** *Bucephala clangula* **Altıngöz**  
Only during IWRB winter counts in January in very small numbers, maximum of 16 on 4./5.1.73 (DK). Also 3 on 15.2.74 (DK).

**Smew** *Mergus albellus* **Ak Tarakdiş/Sütlabi**  
Only four records, all from January. Maximum of 11 on 22.1.72 (KW).

**Red-breasted Merganser** *Mergus serrator* **Küçük Tarakdiş**  
One offshore on 27.1.70 (DK), one at Balık G. on 18.11.70 (DK) and two there on 15.2.74 (DK).

**Goosander** *Mergus merganser* **Tarakdiş**  
One on 1.1.71 (DK).

**White-headed Duck** *Oxyura leucocephala* **Dikkuyruk**  
Six records from September, November, December and January, four of which relate to less than 10 birds, but 44 on 20.9.83 (Br) and 59 on 10.12.69 (DK).

**Honey Buzzard** *Pernis apivorus* **Arı Şahini**  
The six records are from May, June, July and September. No clear migration pattern established. 4 were migrating south on 12.7.72 (Re) and 8 were migrating "along the coast" (direction?) on 9.7.83 (GK).

**Black Kite** *Milvus migrans* **Kara Çaylak**  
8 records from May to July (max. 7 on 29.5.79, Ko) and one late bird on 18.11.71 (DK).

● **White-tailed Eagle** *Haliaeetus albicilla* **Deniz Kartalı**  
(Former?) breeding resident. MP found a nest ca. 30 m up in a tree and watched 2 pairs on 9.6.69. Re found 5 nests, one in an oak, the others in Ashes in July 1971. He could not determine, whether the nests were occupied or not but, in that period he saw 1-3 birds daily and two adults and 2 young on 22.7. So the estimate of 2-4 pairs in BR for 1970-73 seems fairly accurate. After 1971, there is only one more record from the breeding season (2 on 9.5.77, Ko) and one from August (present on 3.8.75, HPS). No records since 1977, despite rather intensive bird-watching activity! It can be concluded, that this locality has either been deserted or breeding only takes place very irregularly!

At the end of the 1960s and the beginning of the 1970s, a more or less regular winter visitor, maximum 4 adults and one immature on 10.12.69 (DK), but the last winter record is from 1974.

**Egyptian Vulture** *Neophron percnopterus* **Mısır Akbabası**  
5 on 10.5.77 (Ko).

**Short-toed Eagle** *Circus gallicus* **Yılan Kartalı**  
One on 3.8.67 (Vit) and one on 27.5.79 (Ko).

● **Marsh Harrier** *Circus aeruginosus* **Saz Delicesi**  
Throughout the year. Breeding was confirmed by Re in July 1971, when he watched

4 pairs and 5 young. One of the pairs was still feeding young. BR estimated at least 8 pairs for 1970-73 which might be too low. E.g. MP saw 35 birds (21 at one time) on 7./9.6.69. Bz's careful estimation only for Balık G. and Uzun G. is at least 30 pairs (14.-21.6.84).

Also common during the migration periods and in winter. Several records of 30-50 birds even in January. After counts at all wetlands of the delta from 3.-5.10.84, vBD estimated a population of 100-200 birds.

**Hen Harrier** *Circus cyaneus* **Gök Delice**  
Winter visitor. Recorded from the beginning of October (one male on 3.10.84, vBD) to the end of March (one female on 24.3.84, Ka) with a maximum of 22 on 9./11.12.69 (DK).

**Pallid Harrier** *Circus macrourus* **Bozkır Delicesi**  
Migrant at the end of September and the beginning of October (4 records of single birds).

**Montagu's Harrier** *Circus pygargus* **Çayır Delicesi**  
Only two records from August: TS saw one immature male on 28.8. and one male on 29.8.82.

**Goshawk** *Accipiter gentilis* **Çakır Kuşu**  
One near Yürükler on 14.7.83 (GK).

**Sparrowhawk** *Accipiter nisus* **Atmaca**  
7 records distributed over the whole year, including during the breeding season.

**Buzzard** *Buteo buteo* **Şahin**  
Resident. Small numbers throughout the year, mostly in the more open agricultural land. Maximum 14 on 26./28.1.70 (DK). Some of the observed birds were identified as *B.b.vulpinus*: two on 9.6.75 and one on 10.6.75 (PW), one on 28.8.82, 29.8.82 and two on 30.8.82 (ST), whereas e.g. also *B.b.buteo* was observed on 30.8.82.

**Long-legged Buzzard** *Buteo rufinus* **Kızıl Şahin**  
8 records from August to January in max. 9 on 2.1.71 (DK). In some cases, confusion with *B.buteo menetriesi* cannot be excluded.

**Rough-legged Buzzard** *Buteo lagopus* **Paçalı Şahin**  
5 records of 1-2 birds from December to February.

**Lesser Spotted Eagle** *Aquila pomarina* **Küçük Bağırğan Kartal**  
Breeding is assumed. MP saw two birds, probably a pair, on 9.6.69. From 13.7.-3.8.71 Re saw two birds daily which were carrying food to the nearby forest and returning without prey shortly afterwards, but he could not find the nest. According to BR "up to 4 from late April to mid September" in 1970-73. PW watched one adult

on 10.6.75, Ko two birds at different places on 12.5.77. From 27.-29.5.79, Ko saw up to five birds and also noted courtship display on 27.5. and 28.5. In 1982 three on 28.8. and about 4 on 30.8. (ST). In 1983 two soaring on 8.7.83 (GK).

**Spotted Eagle** *Aquila clanga* **Bağırğan Kartal**  
Apart from one immature on 9.6.69 (MP) all records from November to February. Maximum of 3 on 15.2.74 (DK).

**Steppe Eagle** *Aquila rapax* **Bozkır Kartalı**  
Present on 3.8.75 (HPS).

**Imperial Eagle** *Aquila heliaca* **Şah Kartal**  
One immature mid July 1966 (BR). In July 1971 Re saw one to two birds several times. On 24.7. he saw two birds flying to a tree nest, but it was not clear whether the birds really bred there.

**Bonelli's Eagle** *Hieraetus fasciatus* **Tavşancıl**  
One immature on 13.8.72 (BR).

● **Osprey** *Pandion haliaetus* **Balık Kartalı**  
Breeding was confirmed in July 1966, when an occupied nest was found (BR). No indication of breeding during the following years, although sometimes seen during the breeding season (recently: one near Yürükler on 14.6. and 15.6.84, Bz). Latest date 5.10.84 (vBD).

**Lesser Kestrel** *Falco naumanni* **Küçük Kerkenez**  
Two on 3.8.67 (Vit).

**Kestrel** *Falco tinnunculus* **Kerkenez**  
Resident. All records refer to less than 10 birds, mostly from agricultural land.

**Red-footed Falcon** *Falco vespertinus* **Aladoğan**  
Migrant in May and the beginning of June (5 records with maximum of 15 on 10.5.77, Ko).

**Merlin** *Falco columbarius* **Bozdoğan**  
Scarce winter visitor from November to March (earliest 18.11.70, DK, latest 15.2.74, DK).

● **Hobby** *Falco subbuteo* **Delice Doğan**  
The forest west of Uzun G. is an excellent breeding area, a fact which was noted by many bird-watchers. Re found 12 occupied nests there in July 1971, one of them still containing three eggs on 27.7. Also e.g. at least 15 together at dusk on 15.6.84 (Bz). Breeds also in other parts of the delta. Ka, e.g. saw three birds in the western half of the delta on 29.8.84: one of two adults gave prey to an juvenile bird in the air.

Earliest record 10.5.77 (10, Ko) and latest 5.10.84 (3, but at least 30 around all lakes from 2.-5.10.84, vBD).

**Lanner** *Falco biarmicus* **Bıyıklı Doğan**  
One or two on 9./11.12.69 (DK).

**Saker** *Falco cherrug* **Uludoğan**  
Present on 3.8.75 (HPS).

**Peregrine** *Falco peregrinus* **Doğan**  
13 records of single birds throughout the year, except for two on 4./5.1.73 (DK).

**Chukar** *Alectoris chukar* **Kinalı Keklik**  
Present on 3.8.75 (HPS).

**Quail** *Coturnix coturnix* **Bıldırçın**  
Some records from the breeding season indicate breeding in a few pairs. Present also during winter: 2 at Balık G. on 10.1.69 (Vit) and one at Balık G. and one at Karaboğaz G. on 18.1.70 (DK).

**Phasant** *Phasianus colchicus* **Sülün**  
Formerly present in the delta according to locals (Ko). A rearing station is in the Yeşilirmak delta east of Samsun.

● **Water Rail** *Rallus aquaticus* **Su Kılavuzu**  
Breeding resident. Re regularly saw adults and juveniles at the edges of the reed beds in July 1971. He also saw two juveniles which had been caught by locals on 28.7. and 29.7.71. Fairly common in winter, maximum at least 30 on 10.1.69 (Vit).

● **Moorhen** *Gallinula chloropus* **Su Tavuğu**  
Breeding resident whose numbers seem to fluctuate a lot. Re mentions e.g. for July 1971 "adults and juveniles everywhere" and BR estimates more than 200 pairs for 1970-73. But in 1984 Bz noted the species only once during his stay from 14.-21.6. In winter small numbers recorded in all years.

● **Coot** *Fulica atra* **Sakarmeke**  
Breeding resident. Breeding was confirmed 1971 (one adult with 9 young on 19.7., Re), 1982 (many with young on 28.8., ST) and 1984 (adult with young at Balık G., Altınlı G. and Cernek G. from 14.-21.6., Bz). BR estimated at least 100 pairs for 1970-73. During the breeding season, e.g. at least 300 non-breeders at the Balık G. (north side) on 19.6.84 (Bz). Very common from October to March: 300 on 25./27.1.67 (HSz), but usually 2-6,000. Exceptionally 15,295 on 4./5.1.73 (DK).

● **Crane** *Grus grus* **Turna**  
Breeding bird. MP noted at least 65 birds, mostly in pairs, with behaviour as if breeding, around the Balık G. on 7.-9.6.69 (the note in BR of "at least 50 pairs, over 100 pairs estimated" is based on this record, but is almost certainly an over-

estimate). Re noted 11 pairs in July 1971 and "less" in the following year, in July 1972. BR estimated at least 15 pairs in 1970-73. PW saw 18 birds at the NE edge of the Balık G., nearly all males, calling and display was noted, on 9./10.6.75. Bz estimated 8-10 breeding pairs. "but perhaps more", in the area between Yürükler village and the first lighthouse from 14.-21.6.84. So, the breeding population seems to be about 10-15 pairs, but was perhaps somewhat higher before 1970. It is not known, whether the Crane breeds also at other places than around the Balık G. Ko, e.g. saw 15 at Liman G. on 17.5.77.

Breeding was confirmed several times, e.g. in 1968 (20.5., GT), 1971 (6 pairs with one young, one pair with two young in July, Re), 1972 (one young on 12.7. and two pairs with one young each on 14.7., Re) and 1983 (three adults and one young on 5.7., Ko). During the breeding season, there are always some non-breeders or unsuccessful breeders in the area. For example, Re noted 26 non-breeders (in two groups of 11 and 15 birds) in July 1971 and 18 non-breeders in July 1972.

In winter irregularly and in low numbers. Maximum of 20 on 2.1.71 at Karaboğaz G. (DK). Highest count outside the breeding season 55 at Karaboğaz G. on 3.10.84 (vBD).

**Oystercatcher** *Haematopus ostralegus* **Poyraz Kuşu**  
MP recorded two pairs "alarming" at the Liman G. on 8.6.69, but no other indications of breeding. Apart from that, only on 30.4.70 (BR) and 10.5.77 (Ko), one each.

● **Black-winged Stilt** *Himantopus himantopus* **Uzunbacak**  
Breeding bird. At least 15 pairs, estimated by BR for 1970-73, might be valid for recent years, too. Re saw one pair with two and two pairs with one young in July 1971. Ko saw one bird breeding on 29.5.79. Higher numbers during the breeding season, e.g. at least 50 on 9./10.6.75 (PW) and at least 100 on 5.7. and 7.7.83 (GK, Ko) might be prevailing non-breeders.

One winter record (1 on 10.1.69, Vit) indicates irregular wintering in low numbers.

**Avocet** *Recurvirostra avosetta* **Kılıçgaga**  
8 ads. and 3 juvs. on 4.7. and 3 ads. and 3 juvs. on 23./24.7.72 might be indications of breeding, but records from the breeding season from other years are completely missing. Some concentrations after the breeding season: in August a maximum of 90 on 26.8.84 (Ka) and at least 90 on 30.8.82 (ST). In September 250 on 13.9.73 (BR). Two winter records (13 on 4./5.1.73 and 2 on 26.1.70, DK).

● **Stone Curlew** *Burhinus oedicnemus* **Kocagöz**  
Breeding bird in the dunes along the coast and in some other dry areas. Bz counted at least 5-6 pairs between Yürükler village and Cernek G. on 14.6. and 19.6.84; BR estimated at least 8 pairs 1970-73. Breeding confirmed 1969 (nest with one egg at Liman G. on 8.6., MP) and 1971 (one young caught on 30.7., Re). On 29.8.84, a group of 9 and one single bird on the sandbanks of the Kızılırmak (Ka).

**Collared Pratincole** *Glareola pratincola* **Bataklık Kırlangıcı**  
Breeding bird near the Cernek Gölü. At one colony, GK saw more than 100 birds on 9.7.83 and Bz at least 20 at a probable breeding site there on 19.6.84.

- **Little Ringed Plover** *Charadrius dubius* **Küçük Halkalı Yağmurcun**  
Breeding bird in the southern part of Balık G., at the beach near the lighthouse, near Cernek G. and at Liman Gölü. Population size at least 10-15 pairs. Three pairs with four young each on 24.7.71 (Re), nest on 5.7.83 (Ko) and 3 pairs apparently with young on 14.6.84 (Bz). 80 birds on 2.8.71 (Re) - an unusually high count for this species and confusion with any other Plover should not be excluded.

**Ringed Plover** *Charadrius hiaticula* **Büyük Halkalı Yağmurcun**  
Present during autumn from the end of August (about 25 on 30.8.82, ST) to mid-November (some on 18.11.70, DK). Also one on 2.1.71 (DK). Maximum of 50 on 10.9.73 (BR).

As the observation of 2 ads. and 2 juvs. on 24.7.71 is very unusual (the observer does not exclude breeding), this record should be treated carefully.

- **Kentish Plover** *Charadrius alexandrinus* **Akgerdan Yağmurcun**  
One nest found on 1.5.70 (BR). Present during the breeding season only in small numbers. More common in August/September (e.g. 23 on 30.8.82, ST, 30 on 6.9.70, BR, and about 15 on 28.9.82, DZ). Also one on 4./5.1.73 (DK).

**Greater Sand Plover** *Charadrius leschenaultii* **Büyük Yağmurcun**  
One on 1.5.70 (BR).

**Golden Plover** *Pluvialis apricaria* **Altın Yağmurcun**  
Only during IWRB winter counts from mid November to mid February, with maximum of 723 on 18.11.71 (DK).

**Grey Plover** *Pluvialis squatarola* **Gümüş Yağmurcun**  
Usually less than 10 in late autumn and winter to February (3 on 15.2.74, DK), but higher numbers during autumn migration in September (70 on 6./10.9.73, KR, and at least 100 on 28.9.82, DZ). Also two records from spring/summer: Singles on 9.5.77 (Ko) and 18.7.72 (Re).

**Lapwing** *Vanellus vanellus* **Kızkuşu**  
Over 20 pairs estimated breeding 1970-73 (BR), but the real population size might be lower. Suspected breeding of 3 pairs in July 1971 (Re) and about 8 pairs in mid-June 1984 (Bz). No indication of moult migration, but common winter visitor: regularly hundreds to thousands from November to February with a maximum of 2,830 on 18.11.71 (DK).

**White-tailed Plover** *Chettusia leucura* **Akkuyruk Kızkuşu**  
3 at Liman G. on 11.5.77 (Ko).

**Sanderling** *Calidris alba* **Akkumkuşu**  
Usually less than 15 in May and August to October. Maximum 80 on 6./10.9.73 (BR). 12 on 26.1.70 (DK).

**Little Stint** *Calidris minuta* **Küçük Kumkuşu**  
Migrant in May (20 on 1.5.70, BR, about 15 on 9.5.77, Ko, and 50 on 12.5.77, Ko) and from the end of July (6 on 22.7.74, HWF) to the end of September. Maximum of 100 on 13.9.73 (BR) and 22.9.83 (Br). Two winter records (3 on 4./5.1.73, DK, and one on 22.1.72, KW).

**Temminck's Stint** *Calidris temmincki* **Sarıbacaklı Kumkuşu**  
One on 6.9.73 (BR).

**Curlew Sandpiper** *Calidris ferruginea* **Kızıl Kumkuşu**  
One spring record (2 on 9.5.77, Ko) and migrant in August and September with a maximum of 26 on 7.9.73 (BR).

**Dunlin** *Calidris alpina* **Kumkuşu**  
Once recorded in spring (10 on 12.5.77, Ko). Migrant from early August (5 on 3.8.67, BR) onwards with a peak end of September/beginning of October (e.g. hundreds on 28.9.82, DZ), but the highest numbers usually are noted in winter, e.g. 150 on 4./5.1.73 (DK) and 120 on 15.2.74 (DK).

**Broad-billed Sandpiper** *Limicola falcinellus*  
2 on 11.8.72 (Wa) and one on 6./7.9.73 (KR).

**Ruff** *Philomachus pugnax* **Dövüşken Kuş**  
Recorded from February to September with maximum counts of about 150 on 25.3.84 (Ka), 76 on 11.5.77 (Ko) and about 350 on 30.8.82 (ST).

**Snipe** *Gallinago gallinago* **Bekasin - Su Çulluğu**  
Recorded from early August (3 on 3.8.67, Vit) till late May (2 on 28.5.79, Ko), outside this period only 12 on 12.7.75 (BR). Numbers usually below 15, but 30 on 28.9.67 (Vi), at least 40 on 4.10.84 (vBD), some tens on 18.11.70 (DK) and at least 100 on 10.1.69 (Vit).

**Woodcock** *Scolopax rusticola* **Çulluk**  
One on 14.1.73 (DK) is the only record, but the species is well-known to villagers in the forest east of Uzun G. (Ka).

**Black-tailed Godwit** *Limosa limosa* **Bataklık Çulluğu**  
Throughout the year with the exception of April to June. Maximum counts are about 70 on 28.8.82 (ST), 52 on 4./5.1.73 (DK) and 40 on 15.2.74 (DK).

**Whimbrel** *Numenius phaeopus* **Yağmur Kervançulluğu**  
Re recorded the species daily in July 1971 with a maximum of 6 on 23.7.71. Also 2 on 11.8.72 (Wa).

**Curlew** *Numenius arquata* **Kervan Çulluğu**  
Throughout the year, but the pattern of records and the number of birds does not give a clear indication of status. During spring and summer maximum of 169 on 23.7.72 (Re) and 27 on 10.6.75 (BR), during autumn maximum of 34 on 22.9.83 (Br) and about 40 on 4.10.84 (vBD) and during winter maximum of 500 on 25./27.1.67 (HSz) and 140 on 2.1.71 (DK).

**Spotted Redshank** *Tringa erythropus* **Benekli Kızılbacak**  
Recorded throughout the year with maximum counts of about 35 on 19.6.84 (Bz), at least 30 on 14./16.7.66 (BR), 30 on 22./23.7.72 (Re) and about 60 on 4.10.84 (vBD).

**Redshank** *Tringa totanus* **Kızılbacak**  
Common breeding bird around the Balık G. and the Cernek G. Maximum during breeding season is about 400 on 22./23.7.72 (Re). A peak in September of several hundred. During IWRB winter counts regularly less than 100, but maximum of 158 on 18.11.70 (DK). In spring maximum of about 80 on 25.3.84 (Ka).

**Marsh Sandpiper** *Tringa stagnatilis* **Bataklık Düdükçünü**  
From June (3 on 10.6.75, PW) to the beginning of October (2 on 4.10.84, vBD). Usually singles or small groups, but at least 30 on 28.7.82 (vB) and 20 on 30.8.82 (ST).

**Greenshank** *Tringa nebularia* **Yeşilbacak**  
Throughout the year. Usually up to 25, highest number exceptionally 200 on 24.7.71 (Re).

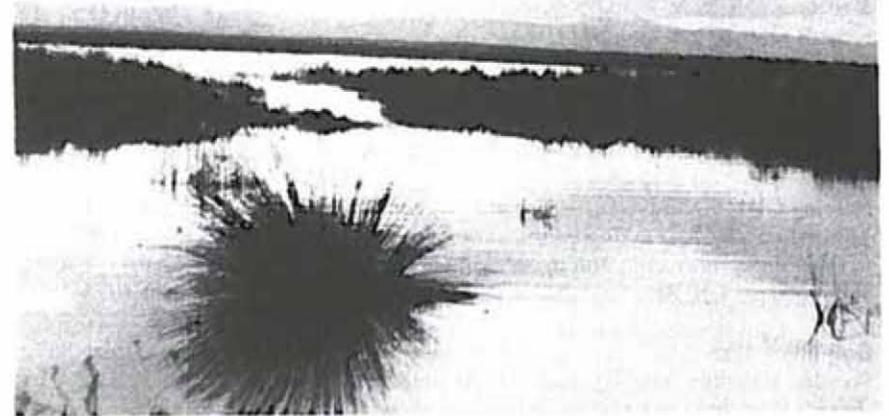
**Green Sandpiper** *Tringa ochropus* **Yeşil Düdükçün**  
Throughout the year, usually less than 10, but higher numbers from July to September: 60 on 26./27.7.74 (BR), 20 on 3.8.67 (Vit) and 40 on 11.9.73 (BR).

**Wood Sandpiper** *Tringa glareola* **Orman Düdükçünü**  
Migrant in April/May and July to November in moderate numbers. Maximum in spring about 200 on 26.5.79 (Ko), in autumn 100 on 11.8.72 (BR) and about 85 on 28.8.82 (ST). Earliest on 11.5.77 (5, Ko), latest on 18.11.70 (one, DK).

**Terek Sandpiper** *Xenus cinereus* **Sarıbacak**  
One on 1.5.70 (HL); one on 6.9. and 2-3 on 7.9.73 (KR).

**Common Sandpiper** *Actitis hypoleucos* **Dere Düdükçünü**  
Recorded in May (less than 10) and July to early October. Usually singles, higher numbers from late July to late August: 31 on 27.7.74 (HWF), 36 (including a flock of 30) on 3.8.67 (Vit) and 18 on 27.8.84 (Ka).

**Turnstone** *Arenaria interpres* **Taşçeviren**  
Two records from spring migration in May (2 on 9.5. and one on 12.5.77, Ko) and 11 records from early August (earliest 4 on 2.8.71, Re) to early October (latest 2 on 5.10.84, vBD).



Picture: Typic rush-vegetation around the lakes in the Kızılırmak delta. (Photograph: F. Koning).

**Wilson's Phalarope** *Phalaropus tricolor* **Büyük Deniz Düdükçünü**  
One in winter plumage at Balık G. on 19.9.83 (Br).

**Red-necked Phalarope** *Phalaropus lobatus* **Deniz Düdükçünü**  
One at Uzun G. on 22.9.83 (Br).

**Arctic Skua** *Stercorarius parasiticus* **(Yırtıcı Martı)**  
Three offshore on 1.5.70 (HL) and 3 offshore on 7.9.73 (KR).

**Great Black-headed Gull** *Larus ichthyaetus* **Büyük Karabaş Martı**  
Four records from January/February: One immature (2nd winter) on 10.1.69 (Vit), one on 26.1.70 (DK), three on 22.1.72 (KW) and one on 15.2.74 (DK).

**Mediterranean Gull** *Larus melanocephalus* **Akdeniz Martısı**  
40 offshore on 1.5.70 (BR) and one on 29.8.82 (ST).

**Little Gull** *Larus minutus* **Küçük Martı**  
From late July (BR) to late January (15 on 22.1.72, KW), with maximum of 365 on 4./5.1.73 (DK) and 350 offshore migrating to West on 7.9.73 (BR).

**Black-headed Gull** *Larus ridibundus* Karabaş Martı  
Resident. Usually less than 100, but 420 on 22.1.72 (KW) and 5,000 on 10.1.69 (Vit).

**Slender-billed Gull** *Larus genei* Incegagalı Martı  
5 records from May to October, with maximum of three birds.

**Common Gull** *Larus canus* Küçük Gümüş Martı  
5 records, all from January with maximum of 151 on 22.1.72 (KW). The other records refer to less than 50.

**Lesser Black-backed Gull** *Larus fuscus* Karasırtlı Martı  
Records from May to October in small numbers (less than 20), but 800 offshore on 1.5.70 (BR) and 200 offshore on 6.7.9.73 (BR).

**Herring Gull** *Larus argentatus* Gümüşü Martı  
Throughout the year in fluctuating numbers. In the breeding season small groups up to some tens, more common in autumn (max. of 500 offshore on 17.9.73, BR, and about 400 on 4.10.84, vBD) and winter (max. of at least 1,000 on 10.1.69, Vit).

**Gull-billed Tern** *Gelochelidon nilotica* Gülen Sumru  
Possible breeding bird. ST watched an adult feeding a juvenile on 29.8.82. More records from June to October. Maximum about 50 on 28.7.82 (vB).

**Sandwich Tern** *Sterna sandvicensis* Karagaga Sumru  
Two records from July (2 on 5.7. and 8.7.83, GK and Ko), one from September (2 on 28.9.67, Vi), one from November (present on 18.11.71, DK) and three from January (max. of 60 on 10.1.69, Vit).

**Common Tern** *Sterna hirundo* Sumru  
Presumably breeding bird. More than 30 in July 1966 ("breeding has almost certainly taken place", BR). A pair chasing off *Corvus corone* on 8.6/69 (MP) and ads. and juvs. "everywhere" in July 1971 (Re). Maximum of 300 on 6./12.9.73 (BR). Latest 4 on 28.9.67 (Vi).

**Arctic Tern** *Sterna paradisaea* Kuzey Sumrusu  
The records of 5 on 19.7. and 4 on 23.7.71 are not accepted.

**Roseate Tern** *Sterna dougalli* Ak Sumru  
In July 1971, one pair feeding one young was daily observed. Record not accepted.

**Little Tern** *Sterna albifrons* Küçük Sumru  
Records from the breeding season in low numbers (including 6 alarming at Cernek G. on 9.5.77, Ko) indicates breeding. Earliest on 30.4.70 (One, BR), maximum of 50 on 6./13.9.73 (BR).

**Whiskered Tern** *Chlidonias hybridus* Bıyıklı Sumru  
One on 22.9.83 (Br).

**Black Tern** *Chlidonias niger* Kara Sumru  
On spring migration 10 on 29.5.79 (Ko). Autumn migration from the end of August (several on 28.8.82, ST) to the end of September (about 20 on 28.9.67, Vi). As Re regularly saw up to 150 ads. and juvs. in July 1971, breeding in some years cannot be excluded.

**White-winged Tern** *Chlidonias leucopterus* Akkanath Sumru  
Present from the end of April to the end of September. During spring migration maximum of 320 on 30.4.70 (BR). During autumn migration 300-500 *Chlidonias*, the majority this species, on 28.8.82 (ST) and 200 on 13./14.9.73 (BR). Records from May to July indicate possible breeding.

**Stock Dove** *Columba oenas* Gökçe Güvercin  
One near Yürükler on 14.7.83 (GK).

**Woodpigeon** *Columba palumbus* Tahtab  
One on 10.6.75 (PW) and less than 10 on 4.7. and 5.7.83 (GK).

**Collared Dove** *Streptopelia decaocto* Kumru  
This species was first mentioned by FISHER (1953) for Bafra. Other records include also two as far away from human settlements as the woods near the Liman Gölü (8.6.69, MP).

● **Turtle Dove** *Streptopelia turtur* Üveyik  
Breeding bird in the hedges and in the forest east of Uzun G., where Re found 8 occupied nests on one ha in July 1971. Flocks of 50-100 can be seen even in the breeding season (flocks of 16, 20 and 30 on 28.5.79, Ko, and flocks of 80 and 10 on 8./9.6.69, MP), but also during autumn migration (50 on 3.8.67, Vit, "numerous everywhere" on 29.8.82, ST, and up to 50 on 6./12.9.73, BR). Latest 2 on 4.10.84 (vBD).

**Great Spotted Cuckoo** *Clamator glandarius* Tepeli Guguk  
An adult and a young on 10.8. and one young on 11.8.72 (Wa). A wing of this species was found on 18.11.70 (DK).

**Cuckoo** *Cuculus canorus* Guguk  
Present from May (one on 11.5.77, Ko) to the end of August (one on 30.8.82, ST). A dead juv. found in July 1971.

● **Little Owl** *Athene noctua* Kukumav  
Breeding bird, although the density may be low. Al found two nesting pairs on 7.5.78. Present also in winter (one on 4.1.73, DK).

**Tawny Owl** *Strix aluco* Alaca Baykuş  
One or two calling males from January to July.

- Long-eared Owl** *Asio otus* **Kulaklı Baykuş**  
Two winter records: One east of Bafra on 10.1.69 (Vit) and two in the Balık G. area on 9.12.69 (DK).
- Short-eared Owl** *Asio flammeus* **Batak Baykuşu**  
One found dead on 4.1.73 (DK) is the only record.
- Nightjar** *Caprimulgus europaeus* **Çobanaldatan**  
Up to five churring males are regularly recorded in the forest area. Earliest 11.5.77 (Ko), latest 3.9.75 (BR).
- Swift** *Apus apus* **Karasağan**  
Only a few records from May, July and August. Over-looked?
- Alpine Swift** *Apus melba* **Akkarınlı Sağan**  
About 50 flew over the Uzun G. on 14.6.84 (Bz).
- Kingfisher** *Alcedo atthis* **Yalıçapkını**  
Some records from May (about 20 were estimated on all the lakes together on 26./28.5.79, Ko) and regularly from August to January (usually less than 10, but 20 on 10.1.69, Vit, and at least 21 on 1.1.71, DK).
- Bee-eater** *Merops apiaster* **Arikuşu**  
Presumably breeding bird: ST found four nest holes in a canal bank on 28.8.82. Only few records of small numbers, maximum of about 30 on 11.5.77 (Ko).
- **Roller** *Coracias garrulus* **Gökkuzgun**  
Several pairs breed in the forest, where Rollers fighting with Jackdaws over nest holes were seen on 28.5.79 (Ko). Display was noted on 9./10.6.75 (PW), four pairs were seen carrying food to holes in Ashes in July 1971 and fledged young were seen on 29.7.71 (Re) and daily from 5.-12.7.83 (GK). Earliest 4 on 11.5.77 (Ko), latest one on 29.8.82 (ST).
  - **Hoopoe** *Upupa epops* **İbibik**  
Not rare breeding bird. One carrying food on 9./10.6.75 (PW), two occupied nest holes in July 1971 (Re), fledged young on 31.5.79 (Ko) and two pairs with fledged young on 8./9.6.69 (MP).
  - **Wryneck** *Jynx torquilla* **Boyunçeviren**  
Breeding was confirmed: an occupied nest hole in the forest area where adults were feeding on 31.5.79 (Ko). Latest one on 29.8.84 (Ka).
  - **Green Woodpecker** *Picus viridis* **Yeşil Ağaçkakan**  
Breeding bird: Re saw one pair with two and two pairs with one young in the forest in July 1971. A few mid July 1966 (BR) is the only other breeding season record. One on 28.9.82 (DZ) and a few records from January and February (DK).

**Great Spotted Woodpecker** *Dendrocopus major* **Dağ Ağaçkakanı**  
Three pairs with young in July 1971. But as the delta is outside the range of the species and the observer does not mention *D. syriacus* and *D. medius*, we do not accept this record.

**Middle Spotted Woodpecker** *Dendrocopus medius* **Albaşlı Ağaçkakan**  
Breeding resident in the forest east of Uzun G., where up to about 10 singing males (28.8.84, Ka) were recorded.

**White-backed Woodpecker** *Dendrocopus leucotos* **Aksırtlı Ağaçkakan**  
One on 11./12.8.72 might be a mis-identification.

- **Lesser Spotted Woodpecker** *Dendrocopus minor* **Küçük Alaca Ağaçkakan**  
At least four pairs breed in the forest. Ko found an occupied nest-hole on 9.5.77. PW saw a family party on 10.6.75 and Re noted two pairs with two young and two pairs with one young in July 1971. Present also during winter (at least 2 on 1.1.71, DK).

- **Syrian Woodpecker** *Dendrocopus syriacus* **Alaca Ağaçkakan**  
Breeds in the forest and hedges with bigger trees. An occupied nest-hole east of Uzun G. on 14.-21.6.84 (Bz). Present also during winter.

**Calandra Lark** *Melanocorypha calandra* **Boğmaklı Toygar**  
One south of Baltkhane on 25.3.84 (Ka).

**Short-toed Lark** *Calandrella brachydactyla* **Bozkır Toygarı**  
About 20 well observed in the rushy area on 28.8. and some on 29.8.82 (ST).

**Lesser Short-toed Lark** *Calandrella rufescens* **Küçük Bozkır Toygarı**  
About 60 migrating SW along the beach NE of Karaboğaz G. on 3.10. and about 10 near the lighthouse on 4.10.84 (vBD).

**Crested Lark** *Galerida cristata* **Tepeli Toygar**  
Breeding resident not only in and near the villages, but also in the dunes and other sandy areas.

**Woodlark** *Lullula arborea* **Orman Toygarı**  
One on 29.8.82 (ST), some on 18.11.70, one on 18.11.71 (DK) and 30 on 10.1.69 (Vit).

**Skylark** *Alauda arvensis* **Tarlakuşu**  
Present from the end of September (less than 10 on 20.9.82, Br) to mid February ("regularly" on 15.2.74, DK) with a maximum of 30 on 10.1.69 (Vit). Apart from this, one on 29.5.79 (Ko).

**Sand Martin** *Riparia riparia* **Kum Kırlangıcı**  
Migrant with a peak mid May (maximum of about 1,000 on 11.5.77, Ko) and end of

August/early September (thousands on 28.8.82, ST, and a flock mixed with *H. rustica* of about 10,000 on 13.9.73, BR). Latest 28.9.67 (Vi).

**Swallow** *Hirundo rustica* **Kırlangıç**  
Present from May to early October (latest on 4.10.84, vBD). Apparently a late spring migration: Still 200-500 on 26./28.5.79 (Ko) and a small westerly passage on 10.6.75 (PW). Autumn passage in September with 2,000 on 6.9.73 (BR), a flock mixed with *Riparia riparia* of 10,000 on 13.9.73 (BR) and 400 on 28.9.67 (Vi).

**House Martin** *Delichon urbica* **Ev Kırlangıcı**  
Some records from May to August with a maximum of about 150 on 29.8.84 (Ka).

**Tawny Pipit** *Anthus campestris* **Kır İncir Kuşu**  
Three on 8.7.83 (GK), one on 30.8.82 (ST) and one on 4.1.73 (DK).

**Tree Pipit** *Anthus trivialis* **Ağac İncir Kuşu**  
Only recorded on autumn passage from late August (some heard at a roost in the reeds on 28.8.82, ST) to early October (at least 10 on 5.10.84, vBD). Maximum of 100 on 7.9.73 (BR).

**Meadow Pipit** *Anthus pratensis* **Çayır İncir Kuşu**  
Common, but fluctuating numbers during IWRB winter counts (November to February). Also present on 10.5. and 12.5.77 (Ko).

**Red-throated Pipit** *Anthus cervinus* **Al Göğüslü İncir Kuşu**  
On spring passage, 3 on 10.5. and one on 12.5.77 (Ko). In autumn, several records of small numbers in late September and early October and one on 18.11.71 (DK).

**Water Pipit** *Anthus spinoletta* **Dere İncir Kuşu**  
Present from early October (3 on 4.10.84, vBD) to late March (about 10 on 24.3.84, Ka) with a maximum of 50 on 10.1.69 (Vit).

● **Yellow Wagtail** *Motacilla flava* **Sarı Kuyruksallayan**  
Breeding bird (ssp. *feldegg*). Pair with 4 young on 24.7.71 (Re). Bz recorded the species only twice during his stay from 14.-21.6.84 and Re saw up to 8 in July 1971, indicating a small population size. Earliest late March (3 on 24.3.84, Ka). During autumn migration from late August to early October, other subspecies can be seen (e.g. birds identified in the field as *M.f.flava* on 29.8.82, ST). Maximum counts in autumn: "Hundreds" on 27.8.84 (Ka) and on 29.8.82 (ST), 100 on 6.9.73 (BR) and 100 and 110 on 3.10. and 4.10.84 (but at least 300 estimated for all the lakes - vBD).

**Grey Wagtail** *Motacilla cinerea* **Dağ Kuyruksallayanı**  
One on 24.3.84 (Ka) and on 30.8.82 (ST).

● **Pied Wagtail** *Motacilla alba* **Ak Kuyruksallayan**  
Breeding bird. 3 feeding pairs with 4 young each in July 1971. Maximum at least 40 at a roost on 4.10.84 (vBD). Also present in winter in small numbers.

**Wren** *Troglodytes troglodytes* **Çıt Kuşu**  
Apparently breeding in the forest. Present also during winter: described as "common" on 18.11.70 (DK).

**Duncock** *Prunella modularis* **Çıt Serçesi**  
Winter visitor from November to the end of March (latest 3 on 24.3.84, Ka).

**Robin** *Erithacus rubecula* **Kızılgerdan**  
Present in winter from November to March (latest 5 on 24.3.84, Ka). Maximum 30 on 10.1.69 (Vit). According to BR also in spring and summer (no other records).

● **Nightingale** *Luscinia megarhynchos* **Bülbül**  
Fairly common breeding bird. Ko estimated about 50 singing males on 26./28.5.79, MP counted about 30 singing males in the woods around Balık G. on 8./9.6.69 and Re recorded 6 singing males in July 1972. A nest containing 4 pulli on 21.7.72 (Re). Earliest 7.5.78 (Al), latest 29.8.82 (ST) and 29.8.84 (Ka).

**Bluethroat** *Luscinia svecica* **Buğdaycıl**  
One on 10.1.69 (Vit).

**Black Redstart** *Phoenicurus ochruros* **Dağ Kızılkuyruğu**  
Two on 30.8.82 (ST).

**Redstart** *Phoenicurus phoenicurus* **Kızılkuyruk**  
One record from spring passage (one on 1.5.70, BR) and a striking autumn migration from the end of August to early October: hundreds were seen on 28.9.82 (DZ) and at least 75 on 4.10.84 (vBD). One on 20.9. and two on 21.9.83 were identified as *Ph.ph.samamiscus*. (Br).

**Whinchat** *Saxicola rubetra* **Çayır Taşkuşu**  
Only one spring record (one on 27.5.79, Ko). Regularly in autumn from the end of August (earliest 5 on 30.8.82, ST) to the beginning of October (latest at least 6 on 4.10.84, vBD). DZ noted "some hundreds" in the area on 28.9.82.

**Stonechat** *Saxicola torquata* **Taşkuşu**  
One pair near Liman Gölü on 8.6.69 (MP) and present on 10.6.75 (PW). Also two on 27.7.74 (HWF). Breeding cannot be excluded. Some records from August, September, December and January.

**Wheatear** *Oenanthe oenanthe* **Kuyrukkakan**  
Migrant from late August to early October with a peak end of September ("some hundreds" on 28.9.82, DZ) and the beginning of October (30-40 - presumable totalling hundreds in the whole delta - from 2.-4.10.84, vBD). Still one on 18.11.71 (DK). No records from spring.

**Black-eared Wheatear** *Oenanthe hispanica* **Karakulaklı Kuyrukkakan**  
Two autumn observations: One male on 28.8.82 (ST) and two on 6.9.73 (BR).



Picture: A half-wild population of camels is living in the dunes and the area around Balık Gölü (photograph: M. Kusperek)

- **Blackbird** *Turdus merula* **Karatavuk**  
Breeding in some tens in the forest east of Uzun G. and also in hedges and villages. Young seen on 9./10.6.75 (PW). Present also in winter in low numbers.
- Fieldfare** *Turdus pilaris* **Tarla Ardıcı**  
Winter visitor with records from November to mid February.
- Song Thrush** *Turdus philomelos* **Öter Ardıç**  
Although not regularly recorded during the breeding season, probably breeds in the forest. About 25 singing males there on 24.3.84 (Ka), one on 30.4.70 (BR), one alarming on 12.5.77 (Ko) and less than 10 on 7.7.83 (GK). Present also during winter (Maximum 30 on 10.1.69, Vit).
- Redwing** *Turdus iliacus* **Kızıl Ardıç**  
Winter visitor from mid November to late January. Fluctuating numbers (e.g. "common" on 26.1.70, DK)
- Mistle Thrush** *Turdus viscivorus* **Ökse Ardıcı**  
Some on 18.11.70 (DK).

- Cetti's Warbler** *Cettia cetti* **Çalı Ötleğeni**  
Breeding resident, e.g. more than 20 on 24.3.84 (Ka) and 9 on 8./9.6.69 (MP).
- Fan-tailed Warbler** *Cisticola juncidis* **Yelpazekuyruk**  
One on 28.8., 29.8. and 30.8.82 (ST) and one on 26.1.70 (DK).
- Savi's Warbler** *Locustella luscinioides* **Dere Bülbülü**  
Singing males from May to July in small numbers (usually not more than three). More than 30 singing males on 30.4.70 (BR) might have been on migration.
- Moustached Warbler** *Acrocephalus melanopogon* **Bıyıklı Bülbül**  
Probably breeds, although only three records: One singing male on 4.6.84 (Bz), less than 10 on 14.7.83 (GK) and 4 on 11./13.8.72 (BR).
- Sedge Warbler** *Acrocephalus schoenobaenus* **Çıt Bülbülü**  
One on 30.4.70 (BR), two singing males on 8.6.69 (MP) and one on 12.7. and 14.7.83 (GK). Breeding cannot be excluded.
- Marsh Warbler** *Acrocephalus palustris* **Bataklık Bülbülü**  
One on 27.5.79 (Ko), one on 27.8.84 (Ka) and about 15 in the Blackberry scrub on the western half of the delta on 28.8.84 (Ka).
- Reed Warbler** *Acrocephalus scirpaceus* **Saz Bülbülü**  
Breeding bird in low numbers in the reed beds around the Balık G. Usually less than 10 singing males. Latest on 6./7.9.73 (BR).
- Great Reed Warbler** *Acrocephalus arundinaceus* **Büyük Saz Bülbülü**  
Up to 6 singing males from May to July, earliest on 2.5.70 (BR), latest 29.8.84 (Ka).
- Icterine Warbler** *Hippolais icterina* **Sarı Mukallit**  
One singing male on 31.5.79 (Ko) and one well observed on 29.8.82 (ST).
- **Olivaceous Warbler** *Hippolais pallida* **Beyaz Ardıç**  
The most common passerine bird in the woods. MP recorded singing males at intervals of 30-100 m in the forest east of Uzun G. and estimated at least 75 singing males. One feeding pair on 23.7.71 (Re) and 10 feeding pairs on 19.7.75 (BR). Earliest one on 11.5.77 (Ko), latest 3 on 7.9.73 (BR).
- **Sardinian Warbler** *Sylvia melanocephala* **Maskeli Ötleğeni**  
Breeding in low numbers. Two feeding on 27.5.79 (Ko), one male carrying food on 9.6.75 (PW) and five pairs in July 1971 (one pair with two, one with three and one with four young, Re). One winter record: One on 26.1.70 (DK).
- Barred Warbler** *Sylvia nisoria* **Çizgili Ötleğeni**  
A few pairs probably breed. Latest records: One on 29.8.84 (Ka) and at least three on 20.8.82 (ST).

- Lesser Whitethroat** *Sylvia curruca* **Küçük Akgerdan**  
Migrant in August and September in low numbers.
- **Whitethroat** *Sylvia communis* **Çalı Ötleğeni**  
Fairly common breeding bird. Breeding was confirmed by one pair feeding young on 9.6.69 (MP). Several observers noted singing males in the rushes (*Juncus*). Earliest 50 on 30.4.-2.5.70 (BR), latest on 30.8.82 (ST).
- Garden Warbler** *Sylvia borin* **Bahçe Ötleğeni**  
Migrant in April/May (one on 30.4.70, BR, and one singing male on 10.5.77, Ko) and in August/September (present on 3.8.75, HPS, one on 29.8.84, Ka, and 20 at the mouth of the Kızılırmak on 7.9.73, BR).
- Blackcap** *Sylvia atricapilla* **Karabaşlı Ötleğen**  
Migrant in spring (one female on 9.5.77, Ko, and one male on 26./28.5.79, Ko) and autumn from late August to early October (latest one on 5.10.84, vBD).
- Wood Warbler** *Phylloscopus sibilatrix* **Orman Söğüt Bülbülü**  
One on 7.9. and 12.9.73 (BR).
- Chiffchaff** *Phylloscopus collybita* (Söğüt Bülbülü)  
Present from mid September (earliest one on 19.9.83, Br) to the end of March (latest two singing males on 24.3.84, Ka).
- Willow Warbler** *Phylloscopus trochilus* (Söğüt Bülbülü)  
Migrant in May (two records: one singing on 7.5.78, Al, and one on 10.5.77, Ko) and from August to October.
- Goldcrest** *Regulus regulus* **Çalığışu**  
Winter visitor in low numbers from December (one on 9.12.69, DK) to late March (one on 24.3.84, Ka).
- **Spotted Flycatcher** *Muscicapa striata* **Benekli Sinekkapan**  
Breeding bird. PW saw one pair copulating on 10.6.75, BR noted one pair with fledged young on 19.7.75 and Re saw two pairs with three young each in July 1971. Earliest 12.5.77 (Ko), latest 22.9.83 (Br).
- Red-breasted Flycatcher** *Ficedula parva* **Küçük Sinekyutan**  
Four records from the spring migration in May - up to 4 birds (10.5.77, Ko).
- Flycatcher spp.** *Ficedula spp.*  
One on 28.8.82 (ST).
- Bearded Tit** *Panurus biarmicus* **Bıyıklı Baştankara**  
At least 10 on 10.1.69 (Vit) is the only record.

- **Long-tailed Tit** *Aegithalos caudatus* **Uzun Kuyruklu Baştankara**  
Breeding resident in the forest. Three family parties there 8./9.6.69 (MP) and one on 10.6.75 (PW).
- Coal Tit** *Parus ater* **Çam Baştankara**  
Some on 18.11.70 (DK).
- **Blue Tit** *Parus caeruleus* **Gök Baştankara**  
Breeding resident. Family parties on 10.6.75 (PW) and on 15.6.84 (Bz).
- **Great Tit** *Parus major* **Büyük Baştankara**  
Breeding resident. A nest in a hole of a tree in which a pair was feeding young was found on 8./9.6.69 (MP), one pair feeding young on 27.5.79 (Ko) and fledged young on 10.6.75 (PW) and 15.6.84 (Bz).
- Treecreeper** *Certhia familiaris* **Dağ Tırmaşık Kuşu**  
At least one on 18.11.70 (DK) and some on 15.2.74 (DK).
- **Short-toed Treecreeper** *Certhia brachydactyla* **Tırmaşık Kuşu**  
Breeding resident. At least 10 pairs. Two pairs with 4 young each in July 1971 (Re).
- Penduline Tit** *Remiz pendulinus* **Çulha Kuşu**  
Only recorded in autumn: 6 on 10.8.72 (BR), some on 28.8.82 (ST) and 4 on 19.9.83 (Br).
- **Golden Oriole** *Oriolus oriolus* **Sarı Asma**  
Breeding bird: probably less than 10 pairs. A newly fledged young fed by adults on 15.7.71 (Re). Earliest 9.5.77 (Ko), latest 30.8.82 (ST).
- **Red-backed Shrike** *Lanius collurio* **Örümcekkuşu**  
Breeding bird. A male carrying nesting material on 10.6.75 (PW). Re counted 8 pairs (nests found or young seen) in 1.75 km at the edge of the forest in July 1971. Latest clutch on 18.7.71, young fledged on 23.7. (Re). Migration peaks in the first half of May and at the end of August. Earliest 7.5.78 (Al), latest 4.10.84 (vBD).
- Lesser Grey Shrike** *Lanius minor* **Kara Aınlı Örümcekkuşu**  
Sparse breeding bird, present from May (9.5.77, Ko) onwards. ST counted 5 as a mean for 100 m pasture-fence on 30.8.82.
- Great Grey Shrike** *Lanius excubitor* **Büyük Örümcekkuşu**  
Singles on 11.12.69, 18.11.70 and 5.1.73 (DK).
- Jay** *Garrulus glandarius* **Alakarga**  
Winters in the forest but also records from the breeding season (maximum of 16 on 8./9.6.69, MP).

- Magpie** *Pica pica* **Saksağan**  
Seems to be only a rare breeding bird in the delta. No winter records.
- Jackdaw** *Corvus monedula* **Küçük Karga**  
Breeding resident. Fighting with Rollers for nestholes in trees on 28.5.79 (Ko). No quantitative dates known.
- Rook** *Corvus frugilegus* **Tohum Kargası**  
Present from early October to mid February, sometimes in some hundreds. Exceptionally 5 on 10.5.77 (Ko).
- **Hooded Crow** *Corvus corone* **Leş Kargası**  
Breeding bird, perhaps in fluctuating numbers. Described by Ko as "common, about 100 birds" on 26./28.5.79, but e.g. Bz saw only once 5 during his stay from 14.-21.6.84. A nest was found on 26./28.5.79 (Ko). Few reports from winter, but "many" on 10.1.69.
- Starling** *Sturnus vulgaris* **Sığircık**  
During the breeding season up to 5,000 (19.7.75, BR). At a roost at least 2,000 on 28.8.82 (ST). Few winter records but several flocks on 10.1.69. Perhaps unreported.
- Rose-coloured Starling** *Sturnus roseus* **Ala (Pembe) Sığircık**  
60 on 27.5. and 20 on 28.5.79 (Ko) as well as one on 9.6.75 (PW).
- **House Sparrow** *Passer domesticus* **Serçe**  
Common breeding bird in the villages (nests seen on 7.5.78, Al), but also at Balikhane and in the new summer village (Bz).
- Spanish Sparrow** *Passer hispaniolensis* **Söğüt Serçesi**  
5 on 11.5.77 (Ko) and two in the western part of the delta on 30.8.82 (ST).
- Tree Sparrow** *Passer montanus* **Ağaç Serçesi**  
DK found the species common near human habitations on 4./5.1.73.
- Chaffinch** *Fringilla coelebs* **Ispinoz**  
Breeding bird. Regular also in winter, e.g. at least 50 on 10.1.69 (Vit).
- Brambling** *Fringilla montifringilla* **Dağ Ispinozu**  
Winter visitor from December (earliest 9.12.69, DK) to January (latest 26.1.70, DK).
- Serin** *Serinus serinus* **Kanarya**  
3 on 10.1.69 (Vit).
- **Greenfich** *Carduelis chloris* **Florya**  
Scarce breeding bird. Newly fledged young on 15.6.84 (Bz). Small numbers in winter, too.

- Goldfinch** *Carduelis carduelis* **Saka**  
Breeding resident. Up to 100 on 10.1.69 (Vit).
- Siskin** *Carduelis spinus* **Iskete**  
Winter visitor: Some on 18.11.70 (DK), 10 on 11.12.69 (DK), some on 2.1. and 18.11.71 (DK) and one on 25.3.84 (Ka).
- Linnet** *Carduelis cannabina* **Keten Kuşu**  
Only a few records from November and January, and one from May.
- Crossbill** *Loxia curvirostra* **Çaprazgaga**  
10 on 9.6.69 (PM) and one juv. on 7.7.72 (Re).
- Bullfinch** *Pyrrhula pyrrhula* **Şakrak Kuşu**  
6 on 22.1.72 (KW).
- Hawfinch** *Coccothraustes coccothraustes* **Kocabaş**  
One on 20.9.83 (Br), 8 on 1.1.71 and one on 22.1.72 (DK, KW).
- Yellowhammer** *Emberiza citrinella* **Sarı Kirazkuşu**  
One on 10.1.69 and 9.12.69 (Vit, DK).
- Ortolan Bunting** *Emberiza hortulana* **Kirazkuşu**  
ST noted one bird on 28.8., 29.8. and 30.8.82.
- **Reed Bunting** *Emberiza schoeniclus* **Bataklık Kirazkuşu**  
Breeding bird in fluctuating numbers. At least 60 pairs according to BR 1970-73, but other observers never noted more than 5 singing males. Breeding was confirmed by Re in July 1972: two pairs with four and one with three young. In winter described as "common" (even "very common" on 18.11.70, DK).
- **Black-headed Bunting** *Emberiza melanocephala* **Karabaşlı Kirazkuşu**  
Re noted a feeding female in July 1971 and a feeding pair on 7.7.72. Apart from this, only one on 27.5.79 (Ko) and one juv. on 30.8.82 (ST).
- Corn Bunting** *Miliaria calandra* **Ekin Kiraz Kuşu**  
Breeding suspected. No records from December to April, apart from some on 15.2.74 (DK).

### Özet (turkish summary)

Kızılırmak Deltası Samsun'un batısında Samsun-Sinop karayolunun kuzeyinde yer almaktadır. Delta genellikle deniz seviyesinde olup maksimum yükseklik bir kaç metredir. Kurak mevsimlerde ise göller bazen deniz seviyesinden düşüktür. Deltanın toplam büyüklüğü 50.000 hektardır. Deltanın doğusunda yer alan göller yaklaşık 1900 hektar, göller bataklıklarla birlikte yaklaşık 5000 hektardır. Deltanın batısındaki Karaboğaz Gölü yaklaşık 416 hektar, yine bataklıklarla birlikte 1350 hektardır. Ama doğal olarak bu büyüklükler su seviyesine bağlı olarak değişmektedir. Balık Gölü en derin yerinde 3m.dir. Fakat kurak mevsimde sadece 1,5m.dir. Orman alanı 1400 hektardır.

Jeolojik bakımdan Kızılırmak Deltası çok gençtir. Yaklaşık 2000 yaşındadır. Örneğin, eskiden Bafra deniz kıyısındayken şimdi Bafra'nın denize uzaklığı 15km.dir. Bu güne kadar deltanın % 90'ı tarıma açılmıştır. SU ÜRÜNLERİ araştırmasına göre Balık Gölü ve Uzun Göl'de tuz oranı düşüktür (2,8 gr./lt). Ayrıca mevsimsel değişim ve ayrıntılar için bkz. Tablo 1 ve Grafik 2.

#### Ornitolojik önemi:

Yeşilirmak Deltasında 10.000h.da drenaj yapıldıktan sonra Kızılırmak Deltası Karadeniz bölgesinin en önemli sulak alanı olmuştur. Bölgede şimdiye kadar 250 kuş türü saptanmıştır. 55 tür ise bölgede kuluçka yapmaktadır. 33 türünde kuluçka yaptığı sanılmaktadır. Ancak henüz kanıtlanmamıştır. 12 türün ise kuluçka durumu belli değildir.

Bölge daha önce MOLU & GÜRPINAR (1972) ve TURAN & GÜRPINAR (1976) tarafından uluslararası önem taşıyan sulak alan olarak tanıtılmıştır. Bu statü hem kuluçka bölgesi olarak hemde göç bölgesi olarak geçerlidir. Kuluçkaya yatan kuşlar arasında örneğin: Tepeli Kutan, Balaban, Alacabalıkçıl, Akbalıkçıl, Karaleylek, Deniz Kartalı, Saz Delicesi, Balıkkartalı ve Turna sayılabilir. Bu türlerin bir çoğu korunması zorunlu kuşlardan olup *Red Data Book* listesine alınmıştır. Alacabalıkçıl, Akbalıkçıl ve Gribalıkçıl ile birlikte bir kolonide kuluçkaya yatmaktadır. Koloni büyüklüğü yaklaşık 130 yuva olup aynı yerde Karaleylek te yuva yapmaktadır. Ayrıca bölgede 20 ördek türü tespit edilmiştir. En azından 6 tür bölgede yuva yapmaktadır. Bölge yırtıcı kuşlar için de önemli bir alandır. Deniz Kartalı, Saz Delicesi, Balık Kartalı ve Delice Doğanın kuluçka yaptığı tespit edilmiştir. Küçük Bağırğan Kartalında yuva yaptığı sanılmaktadır, çünkü kuluçka zamanında sürekli görülmektedir. Yine bölgede 10-15 çift Turna yuvalamaktadır. Kızılbaşak, Kocagöz, Küçük Halkalı Yağmurcun, Akgerdanlı Yağmurcun ve Kızıkuşu kuluçkaya yatmaktadır. Martı kuluçka kuşu olarak bölgede bulunmamaktadır. Ormanda ise: 4 tür ağaçkakan kuluçka kuşu olarak bulunmamaktadır. Bunlar Boyun Çeviren, Yeşil Ağaçkakan, Küçük Ağaçkakan ve Alaca Ağaçkakan'dır.

Tepeli Kutan için en son kuluçka tespiti 1977'dendir. 60-70 çift kuluçkaya yatmıştır. Geçen sürede populyon azalmıştır. Bölgede sürekli bulunmakla birlikte kuluçka

yapmamaktadır. Yinede bazı yıllar az sayıda kuşun kuluçka yapması olasıdır. Deniz Kartalının populyonu da herhalde yok olmuştur. 1970'li yılların başlarında 1-3 çift kuluçkaya yatmıştır. Fakat bundan sonra kuluçka mevsimi için sadece tek tespit vardır. Balık Kartalının kuluçka yapması sadece 1966 yılında tespit edilmiştir. Bu örneklerden anlaşılacağı gibi delta eski önemini kaybetmektedir. Bu ormancılık, avcılık vs. gibi insan etkinliklerinin sonucudur. Bir koruma planı acele gereklidir. Bu planda insan zararlarına karşı etkin önlemler alınmalıdır.

Ayrıca bölge göçmen kuşlar ve kış kuşları için de önemli bir bölgedir. Nitekin IWRB (Uluslararası su kuşları bürosu) su kuşları sayımlarında ortalama 25.000'den fazla ördek sayılmıştır. Bu sayımın en yüksek değeri 65.850 ördektir.

Ayrıca bölgede yaşayan diğer hayvanlar için bkz. 9. paragraf.

#### İnsan Etkinleri:

**Balıkçılık:** Balıkçılık için çok önemli bir bölgedir. Sazan ve Kefal büyük miktarlarda bulunmaktadır. Yılda yaklaşık 200 ton avlanılmaktadır.

**Avcılık:** Bölgenin bir kısmı (haritaya bakınız) Merkez Av Komisyonu Kararlarıyla korunmasına rağmen bölge çok ünlü bir av bölgesidir. Çok uzak bölgelerden gelen avcılar, kara avcılığı yapmaktadır. Yalnız av mevsiminde değil, av mevsimi dışında da avlanılmaktadır. Ayrıca buna ek olarak yasaklanmış türler de avlanılmaktadır. Bölgede kuşlar için önemli bölgeler Balık Gölü, Uzun Göl ve ormanlık alan koruma bölgesi değildir. Bu alanları da koruma altına alınması kanımızca uygun olacaktır.

**Turizm:** Bataklık kenarında bir site kurulmaktadır. Bu bölge yine kuşlar için oldukça önemli bir alan olup, sadece insan varlığı bile bölgede zararlı olmaktadır. Ayrıca sitenin getireceği diğer zararlı etkiler de kolayca düşünülebilir.

**Tarım:** Bir kaç drenaj kanalı oldukça eskidir. Şimdi bu kanallar Balık Gölü'nün deniz ile bağlantısını doldurmaktadır.

**Ormancılık:** Ağaç kesimi ve orman içinde hayvan otlamak büyük sorundur. Genç filizlerin yenmesiyle ve ağaç kesimiyle orman giderek yok olmaktadır. Ağaçlardaki balıkçıl kolonileri köylüler tarafından "nedense" rahatsız edilmektedir. Yuvalara aşağıdan ateş edildiği saptanmıştır.

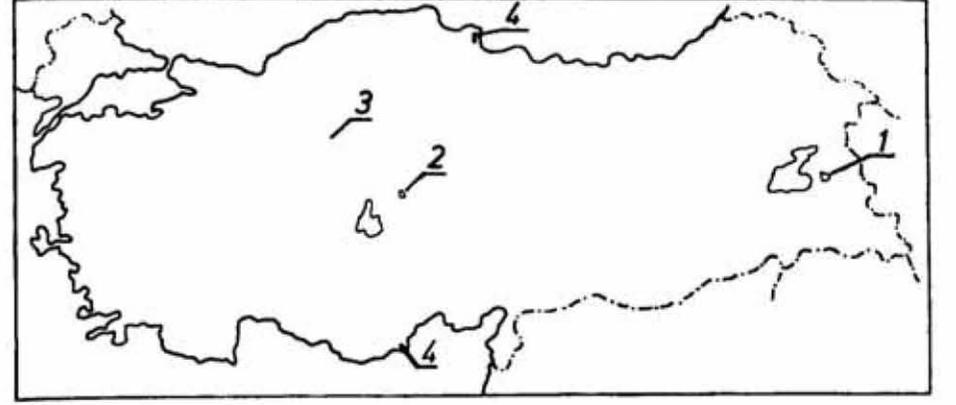
Tüm sayılan özellikleriyle Balık Gölü de korunması mutlak gerekli bölgelerden biridir. Gerek etkili önlemler alınması, gerekse de bu önlemlerin sıkı kontrolüyle bölgede koruma başlatılabilir. Yok olmaya başlayan türleriyle Balık Gölü ilgi beklemektedir.

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- 1 - Erçek Gölü (published in October 1983)
- 2 - Seyfe Gölü (published in January 1984)
- 3 - Kızılcahamam (published in June 1984)
- 4 - Kızılırmak Delta (published in January 1985)
- 5 - Göksu Delta (in preparation)