

Ramsar Information Sheet

Text copy-typed (and categories re-ordered) from original document.

- 1. Date this sheet was completed:** 14 April 1998
- 2. Country:** Republic of Turkey
- 3. Name of wetland:** Lake Kus (Manyas)
- 4. Geographical co-ordinates:** 40°11'N 27°58'E
- 5. Altitude:** 15 m (average)
- 6. Area:** 20,400 ha

7. Overview:

There are plenty of marshy lands around the lake, located on a wide plain and surrounded by arable land. Lake Kus (Manyas) is a shallow lake with fresh water. Its water is always turbid because of its colloidal clay content. The water level of the lake changes depending on the season.

- 8. Wetland type:** O, Ts
- 9. Ramsar Criteria:** 1a, 2a, 2c, 2d, 3a, 3b, 3c
- 10. Map of site included:** The map is attached to this report.

11. Name and address of compiler:

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12. Justification of criteria selected under point 9:

no information available

13. General location:

It is located in the south of the Marmara Sea within the boundaries of the Bandirma and Manyas towns in Balikesir province.

14. Physical features:

Lake Kus is situated in a region between Uludag and Biga peninsula, in the south of Marmara Sea. Bird and Uluabat (Apoloyont) Lakes and the wide plains surrounding these lakes form the base of this subsidence, and high mountains and plateaux form the edges of it. The length of the lake, which is laying in the direction from west to east, is 20 km, and its width is 14 km.

Different comments have been made about the formation of the lake. A. Phillipson and E. Lahn inform that a large freshwater lake has been formed in the Bursa-Gönen depression subsidence area in Neocene; at the end of the Neocene or as a result of the movements that occurred in the Quaternary, 4 small sinks were formed in this lake area, and two of the sinks (Bursa and Gönen) were filled with alluvium, and Uluabat and Bird Lakes remained. Emre and Kazanci and colleagues (1977) accepted that, while the Bursa-Gönen subsidence area which formed in relation with the tectonism in the Pliocene was in terrestrial form from as a result of the blockage of the river beds of the winding rivers by the alluvions carried with them, Uluabat and Bird Lakes formed, and both of the lakes were typically alluvion-set lakes.

Bird Lake is a eutrophic wetland from the point of view of ecology, and an argilotrophic (clayey) wetland from the point of view of limnology. Since it contains colloidal clay, its water is always turbid. The depth of the deepest place of the lake is 4 meters and the average depth is 1 to 2 meters.

The water level of the lake changes according to the seasons. The water of the lake covers the edge by rising in spring, and withdraws in summer. This rhythmical event is repeated regularly each year. The area of the lake, at normal water level, is about 16,800 hectares.

The lake is fed with Kocaçay rivulet coming from the south, Sigirci rivulet coming from the north, the surface stream of the lakes drainage area, and rain falling on the lake area. The discharge of the lake occurs by evaporation, withdrawn water for irrigation purposes, and waters carried from the outlet of the lake to Susurluk brook by the stream called Karadere.

Continental climate peculiar to the Mediterranean prevails at the site.

The annual average temperature is 16°C

The annual average rainfall is 586.5 mm

The average relative humidity is 70%

15. Hydrological values:

The lake is fed by Kocaçai coming from the south, and Sigirci Creek coming from the north, and surface waters flowing within the lake's drainage area as well as rainfall. Discharge is through evaporation, drawing water for irrigation purposes, and waters carried from the outlet of the lake to Susurluk brook by the stream called Karadere.

16. Ecological features:

Lake Kus is a eutrophic lake. The edges of the lake, especially the places where the water is withdrawn, have a rich plant cover. The place having the richest plant cover is Bird Paradise National park. As a result of the investigations carried out in the area, 118 plant species having speed, were determined. The dominating tree species is *Salix alba*. There are *Potentilla reptans*, *Polygonum patalum*, *Ranunculus sanicufolius*, *Tamarix* sp., *Lythrum salicria*, *Athaea officinalis*, *Nymphaea alba*, *Roripa* sp., *Oenonte* sp., *Solanum dulcamara*, *Mentha aquatica*, *Veronica angalloides*, *Cirsium arvensa*, *Juncus* sp., *Iris pseudocorus*, *Cyperus longus*, *Typha* sp., *Phragmites* sp., *Carex* sp. as well at the edges.

The plant cover formed by maqui groups at the edges of the Aegean, dominate around the lake, and valonia oak, oak and olive groves cover wide areas. The big part of the thickly wooded area consists of *Pinus brutia*, *Pinus nigra* and *Quercus* sp., and the other part consists of *Fagus* sp., *Castanea sativa*, *Platanus* sp., *Tilia* sp. and *Alnus* sp..

17. Noteworthy flora:

Shores of the lake, particularly areas which emerge after withdrawal of water during the summer season, have a rich flora. The thickest plant cover is seen in the Bird Paradise. *Salix* sp. is the most common tree. *Tamarix* sp. grows on the south and east shores of the lake. *Phragmites* sp., *Typha* sp., *Juncus* sp. and *Carex* sp. grow along the shores of the lake. There are hundreds of phanerogamous plants in the adjacent marshy meadows.

18. Noteworthy fauna:

The richness of plankton and benthic organisms have made possible the development and sheltering of a wild life which is at very high level from the standpoints of diversity and intensity. The presence of 23 different fish species is the best indicator of this. Although the considerable amount of these species have no commercial value, they are very important form the standpoint of ecological equilibrium of the lake. The lake and its surroundings are also quite rich in reptiles and amphibians. There are 4 species of salamanders, 4 species of frogs, 3 species of snakes, 2 species of lizards and 2 species of turtles. Among these, the *Triturus cristatus*, *Bufo viridis*, *Hyla arborea*, *Ablepharus kitaibeli*, *Emys orbicularis*, and *Testuda greaca* are the species taken under protection by the Berne agreement.

The *Erinaceus concolor*, *Talpa europea*, *Microtus nivalis*, *Myotis capaccini* and *Vulpes vulpes* are the principal mammals living around the lake. Among them, the *Microtus nivalis* has been taken under protection by the Berne agreement.

As can be understood from its name, the Bird Lake is one of the richest lakes in our country from the standpoint of bird groups. Nearly 3 million birds visit the lake, which is on one of the ways of bird migration between Europe, Asia and Africa continents during migration each year.

As a result of the observations carries out up to now, 255 bird species have been determined in the lake region. 22 of them breed in some years, but 66 of them breed regularly each year.

The lake with its mild climate conditions makes sheltering possible for the birds in all seasons. The lake habitats are suitable for feeding, sheltering and breeding, as the lake is rich from the standpoint of

insects, worms, frogs, fish and other foods which are necessary for feeding the birds. Altogether the lake forms an ideal environment for the birds.

The most important part of the lake for the birds is the delta, which was formed by Sigirci rivulet and declared as National Park in 1959. The delta, covering an area of 64 hectares, is one of the most important breeding areas of our country. The trunks of the trees remain under water by rising in spring, and this makes possible for the birds to nest on the trees, to breed in confidence far from men and beasts. Because of this quality, 3000 to 4000 pairs of birds breed regularly in this small region, having an area of approximately half km² in each year. The number of birds together with their chicks reaches up to 15000 to 20000 in breeding season at the National Park.

The lake is one of the important reproduction areas in our country for the threatened *Pelecanus crispus* and *Phalacrocorax pygmaeus*. The Dalmatian pelicans, naturally breeding on the ground, settle in the nests on the platforms prepared by men on willow trees in the west part of the National Park. This happened for the first time in 1968. 35 to 40 pairs of pelicans nest on these platforms, which are repaired and maintained by the National Park staff every year. Among the other bird species breeding in the area, there are 2000 pairs of *Phalacrocorax carbo*, 150 pairs of *Nycticorax nycticorax*, 100 pairs of *Ardea ralloides*, 250 pairs of *Ardea cinerea*, 10 pairs of *Plegadis falcinellus*, 200 pairs of *Platalea leucorodia* and 150 pairs of Turtle dove.

The other parts of the lake are also very important from the standpoint of bird life. The presence of the birds in the lake during migration and in winter reach up to considerable numbers. Ducks, geese, coots and white pelicans form crowded groups, especially during migration.

The *Pelecanus crispus* and *Oxyura leucocephala*, of which its generation is in danger of coming to an end, are among the bird species spending the winter regularly at the lake.

19. Social and cultural values:

The region is one of the oldest settlement places of the world. Although the exact information about the settlement of men dates back to 1200 BC, it is estimated that the first settlements date back to 4000 BC. Findings belonging to the first Bronze Age have been obtained in the excavations carried out in the region.

The region which has become a scene for various civilisations, remained under the sovereignties of Bithynians, Lydians, Persians, Romans, Byzantines and Ottomans, until the establishment of the Republic of Turkey.

It has been indicated in some sources that, the place of Bird Paradise national Park has also been called Paradiso, which has the same meaning as Paradise, in the Roman period.

This lake has played an important role in the economic, cultural and social life of the people living around it, along the history. The groups living at the edges of the lake had utilised the sources of the lake for covering their needs for selling, in the past as well as today.

20. Land tenure/ownership of:

a) The site is public property.

b) Surrounding areas: The surrounding area consists of land by state, private persons, village legal entities. There is a National Park of Bird Paradise with a total area of 64 hectares owned by the Ministry of Forest.

21. Current land use/principal human activities:

As the lake water which is enriched with the droppings of the thousands of birds, the presence of a very high fish population is possible. As a result of the investigation carried out in the lake, 23 fish species have been determined. Among them, the principal fish species which is fished for commercial purposes, are *Cyprinus carpio*, *Silurus glanis*, *Esox lucius*, *Leuciscus cephalus* and *Caspiola maotica*. More than 90% of the fish fished per year is carp in the amount of 400 to 500 tonnes.

One of the other important water products of the lake is *Astacus leptodactylus*. While about 150 tonnes of freshwater crayfish was produced, the *Myxosporidiosis* which began at the end of the 1980s caused the freshwater crayfish population to drop very low at Lake Kus, as it did in the other lakes.

9 co-operatives having 790 members dealing with water products, have activities at the lake. The region, with its suitable climate conditions and lands having quality, is one of the most productive areas of our country. The people of the area provide their livelihood generally from the agricultural products. The main products cultivated extensively, are sugar-beet, wheat, sun-flower, corn and leguminosae. Fruit and vegetable cultivation have also an important place in the agriculture of the region.

Cattle breeding and modern poultry rearing have quite developed, and they are important sources of income.

The industry and trade in the region cover the small enterprises mainly based on agriculture. These are canned food plants, fertiliser plants, tomato sauce plants, flour plants and vegetable oil plants. There are borax, boric acid, and sulphuric acid factories in Bandirma.

With the construction of the Bandirma port, the province has become a trade centre country-wide.

22. Factors adversely affecting the site's ecological character, including changes in land use and development projects:

The regular rise and fall of the water level at Lake Kus is the main reason for the formation of bird paradise and its ecosystem. During the last 6-7 years, the water level has risen, and the trees start to rotten because of the inadequate water release from the Ergili regulator which is used for irrigation. Another major threat is the severe pollution from over 50 industries and numerous farms in Bandirma, which is carried into the lake by the Sigirci stream. The Kocasu stream also carries industrial and household pollution into the lake. The sources and types of pollution are well-known, many studies on solutions of the problem have been carried out. Most of the industries have their own treatment facilities, but their capacity and operation are insufficient.

Due to over fishing, Crayfish plague, pollution and possibly effects of the changing water regime, fish catches have declined drastically.

23. Conservation measures taken:

The delta formed by Sigirci River and having an area of 64 hectares was declared as National Park on 27th of July 1959, the area of 25000 hectares covering the whole area of the lake was declared as Wild Life Protection Area in 1977. The National Park and around of it was also declared as 1st Degree Natural Area site in 1981.

The Paradise National Park was awarded with an "A" class diploma in 1976, which is given to the well-protected and well-managed protection areas by the European Council. The diploma was renewed for four times with five-year intervals in 1981, 1986, 1991 and 1996.

24. Conservation measures proposed but not yet implemented:

no information available

25. Current scientific and research facilities:

A project was started in November 1977, to establish a management plan for the whole lake with the co-operation of the Ministry of Environment, the Faculty of Agriculture of Ankara University, and the Ministry of Forest.

26. Current conservation education:

A booklet for giving general information about Lake Kus (Manyas) and surrounding areas published by the Ministry of Environment is being distributed to local schools and related institutions.

There is a museum and service building within the National Park. promotion showcases attract the interest of visitors. The bird observation tower built in 1972 is the largest of its kind in the world with a height of 15 meters from the ground. It can accommodate 40 visitors at the same time.

27. Current recreation and tourism:

The Bird Paradise national park (Sigirci Delta) is a unique open air laboratory exhibiting the complex relations in a wetland ecosystem and the creative power of the nature, skilfully. The Park is visited by tens of thousands of naturalists, bird watchers, scientists and researchers every year.

28. Jurisdiction:

The regional organisation of the Ministry of Forest
The State Hydraulic Works (DSI) Regional Organisation
Balikesir Provincial Organisation of the Ministry of Environment

29. Management authority:

The Ministry of Environment, General Directorate of Environmental Protection
The Ministry of Forest,
The Ministry of Culture,
The Ministry of Energy and Natural Resources.

30. Bibliographical references:

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