

Information Sheet on Ramsar Wetlands (RIS) – 2006-2008 version

Available for download from http://www.ramsar.org/ris/key_ris_index.htm.

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX.22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework and guidelines for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

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Designation date

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Site Reference Number

2. Date this sheet was completed/updated:

30.11.2007

3. Country:

Turkey

4. Name of the Ramsar site:

The precise name of the designated site in one of the three official languages (English, French or Spanish) of the Convention. Alternative names, including in local language(s), should be given in parentheses after the precise name.

Lake Burdur

5. Designation of new Ramsar site or update of existing site:

This RIS is for (tick one box only):

- a) Designation of a new Ramsar site ; or
b) Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area

The Ramsar site boundary and site area are unchanged:

or

If the site boundary has changed:

- i) the boundary has been delineated more accurately ; or
- ii) the boundary has been extended ; or
- iii) the boundary has been restricted**

and/or

If the site area has changed:

- i) the area has been measured more accurately ; or
- ii) the area has been extended ; or
- iii) the area has been reduced**

** **Important note:** If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site:

Refer to Annex III of the *Explanatory Note and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

- i) a hard copy (required for inclusion of site in the Ramsar List): ;
- ii) an electronic format (e.g. a JPEG or ArcView image) ;
- iii) a GIS file providing geo-referenced site boundary vectors and attribute tables .

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park, etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

Some part of Ramsar boundary is same with the ecological impact zone boundary of the Lake and some part of is same with the wild life protection site boundary.

8. Geographical coordinates (latitude/longitude, in degrees and minutes):

Provide the coordinates of the approximate centre of the site and/or the limits of the site. If the site is composed of more than one separate area, provide coordinates for each of these areas.

37° 44' N, 30° 11' E. Part of Burdur Lake catchment area, which lies between 37° 10' - 38° 10' N and 29° 35' - 30° 25' E.

9. General location:

Include in which part of the country and which large administrative region(s) the site lies and the location of the nearest large town.

South-west of Turkey, Mediterranean Geographical Region, lies at the border of Burdur and Isparta provinces.

10. Elevation: (in metres: average and/or maximum & minimum)

857m. (average)

11. Area: (in hectares)
24,800

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

Lake Burdur is a tectonic lake, without any outlet. The lake lies at northeast-southwest direction, with a length of 35 km., width 3 to 8 km. One of the deepest lakes in Turkey. Feeding of the lake is by the rainfall at the lake area, permanent rivers and seasonal streams. Typical continental Mediterranean climate prevails in the region. Lake water is salty, contains arsenic which prevents growth of aquatic life. Lake Burdur is a very important shelter for migrating water birds. Up to 300,000 water birds were recorded wintering at the lake. Particularly renowned for hosting 70 % of *Oxyura leucocephala* (white headed duck) population.

13. Ramsar Criteria:

Tick the box under each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11). All Criteria which apply should be ticked.

1 • 2 • 3 • 4 • 5 • 6 • 7 8 • 9

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Criteria 2: An endemic diatom species *Arctodiaptomus burduricus* which is listed as vulnerable, likewise *Aphanius burduricus* – an endemic fish species-,and *Oxyura leucocephala* (white headed duck) listed as endangered in IUCN list live in the lake.

Criteria 3: according to a study conducted in 1999, 49 plant family, 204 genus and 315 species found in the surrounding area of the lake. 20 of these species are endemic species. See also point 22

Criteria 4: *Oxyura leucocephala* winters within the site and it is also a breeding site for *Fulica atra* and *Anas clypeata*. See also point 22

Criteria 5: More than 300.000 birds live in the region. For example, in 1997 252.726 *Fulica Atra* (common coot) and 26.075 *Podiceps nigricollis* (black necked Grebe) were counted.

Criteria 6: In certain period of the year, Lake Burdur shelters 70% of world population of *Oxyura leucocephala* (white headed duck) in winter according to the Waterbird Population Estimates, 4th Edition, Wetland international.

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:

Mediterranean

b) biogeographic regionalisation scheme (include reference citation):

EEA – EU Habitats Directive (92/43/EEC)

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

It is a lake with a tectonic origin and it has no outlet. Water level rises during winter bringing the total area of the lake to 20,000 hectares.

The lake has a total drainage area of 32,225 km² EC of lake water is 30,000-38,000 mho/cm.

Direction of underground water flowing from formations located in the periphery of the Lake Burdur is towards the lake.

Lake Burdur formed after the tectonic depression of gutter pipe shape between the Söğüt Mountain and the masses of Suludere – Yayladağ, lying from North-east to southwest, has been filled with water. There are nummulitic pyllite at the west and North, Neocene calcers at the east, high masses formed by basic and ultra basic rocks such as serpentine and gabbro at the South and South west of the lake.

Because of the fault which lies along the west part of the lake, the water side of the lake is very narrow and the lake is very deep in this area. By piling up the alluvional sediments, the formation of the coast plain and delta has started up in appearance of salty marsh covered with at the South and North.

It is one of the deepest lakes in Turkey. The depth of the lake reaches to 100 metres near the Kapı tip located at the north-west. Feeding of the lake is made by the rain fall of the lake area, permanent rivers and seasonal streams running to the lake, and subterranean current, and the emptying of it by evaporation. The main running waters feeding the lake are: Bozçay stream which enters the lake from South-west point, and through east Kravgaz, Kurna, Çerçin, Lengüme streams respectively and the Adalar stream which comes from Keçiborlu district. The amount of flowing water of these running waters is low and some of them dry up in summer.

The terrace and shore cliffs found at the coasts of the lake, which are 30, 40, 50, and 80 meters in depth, shows that the water level has changed several times from quaternary to now because of climatic changes. Since no flowing occurs through out side, the lake water level and area differs depending on to the rain falls, years, and seasons.

Continental climate peculiar to the central Anatolia region prevails in the region. The annual average temperature is 13.1⁰C with a relative humidity of %57. Average wind speed is 2.2 m/sec, annual rainfall 424.9 and insolation is 7.5 hours.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, and climate (including climate type).

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Feeding of the lake is made by the rain fall of the lake area, permanent rivers, and seasonal streams running to the lake, subterranean current, and the emptying of it by evaporation. Since no flowing occurs through out the side, the lake water level and area differs depending on to the rain falls, years and seasons. In spite of the one meter oscillation of the lake water which occurs depending on the seasons, along with the Karamanlı and Karataş Barrages, and Tefenni and Beleni Dams, the draught observed last years caused also aridness.

19. Wetland Types

a) presence:

Circle or underline the applicable codes for the wetland types of the Ramsar “Classification System for Wetland Type” present in the Ramsar site. Descriptions of each wetland type code are provided in Annex I of the *Explanatory Notes & Guidelines*.

Marine/coastal: A • B • C • D • E • F • G • H • I • J • K • Zk(a)

Inland: L • M • N • O • P • Q • R • Sp • Ss • Tp Ts • U • Va •
Vt • W • Xf • Xp • Y • Zg • Zk(b)

Human-made: 1 • 2 • 3 • 4 • 5 • 6 • 7 • 8 • 9 • Zk(c)

b) dominance:

List the wetland types identified in a) above in order of their dominance (by area) in the Ramsar site, starting with the wetland type with the largest area.

Q

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

Lake Burdur takes place at the Mediterranean floristic area by plant geography. Aquatic plants can not be seen in the lake water, because the amount of arsenic, sodium sulphate and chlorine in the lake water is high. Plants exist only at the south, between Yazikent and Karakent villages where the river mixes with the lake and the saltiness of the water is less. The dominant plant cover at this areas includes 6 species of Cyperaceae family which are (*Cyperus sp.*, *Carex diluta*) *Schoeneoplectus lacustris*, *Bulboschoenus maritimus*, *Eieocharis palustris*), 2 species of Juncaceae family (*Juncus heldreichianus* subsp., *Juncus gerardi* subsp.), 2 species of Typaceae family (*Typha laxmannii lepechin*, *Typha domingensis*) and of the Poaceae family *Phragmites australis*. There are hills covered with forest and bushes and mountains around the lake. At the high elevation of the mountain which is located at the north of the lake, *Pinus nigra* forms the plant cover.

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

Juncus, *Hordeum*, *Lepidium*, and *Rumex* species grow at places where creeks flow into the lakes.

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 14. Justification for the application of the Criteria) indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.

Aquatic fauna of the lake water is poor because it contains arsenic. *Aphanius burduricus*, which is a small fish and special for the lake, exists at the places where the rivers mix with the lake. Along with the *A. burduricus*, the existence of the *Arctodiaptomus burduricus* zooplankton species which is also endemic for the lake, cause the lake to gain importance in view of fauna.

The surroundings of the lake are highly rich of reptiles. The species of the reptiles seen in the area are: *Testudo graeca*, *Lacerta trilineata*, *Lacerta saxicola*, *Ophisops elegans*, *Eryx jagulus*, *Typhlops vermicularis*, *Coluber caspius*, *Eirenis modestus*, *Elaphe quatuorlineata*, *Malplon monspessularis*, *Narix natrix* L. and *Vipera xanthina*.

Like all wet-lands, the animal species seen frequently around the Burdur Lake are frogs. *Rana ridibunda* Pall.a and *Bufo viridis* Laur. are the species seen mostly.

The bushes and forest areas located around the lake show differences in mammal species. The main mammals existing at the area are: *Erinaceus concolor*, *Talpa caeae*, *Lepus europaeus*, *Canis lupus*, *Canis aureus*, and *Vulpes vulpes*.

Lake Burdur is one of the important lakes of Turkey for bird presence. Though it is a deep lake, it shelters over 100,000 birds each year on fall and winter periods. Some years this number reaches up to 300,000. Since the lake water does not freeze in winter, some ducks species form crowded groups here. Wide and open water surface create a secure condition for the birds which winter here. Shallow areas at the south-west and north-east parts of the lake and muddy plains near the shores provide possibility with their rich food stuff for birds to feed.

Many duck species in big numbers winter at the lake. *Netta rufina*, *Aythya ferina*, *Aythya filugila*, *Anas platyrhynchos*, and *Anas clypeata* are among them. *Anser albifrons*, *Heliaetus albicilla*, and *Serinus pusillus* are other bird species which winter at the lake. From time to time in winter *Aquila heliaca* is also seen at the lake.

Lake Burdur is very important for *Podiceps nigricollis*, *Fulica atra* both during fall migration and winter months. In October 1997 26,075 *P. nigricollis*, and 252,726 *F. atra* have been counted at the lake. During the migration many *Chilidonias niger* and Flamingos stay temporarily at the area.

Hoplopterus spinosus, *Tadorna ferruginea*, *Irania gutturalis*, and *Emberiza caesia* are among the important species which breeds at the lake. In addition *H. spinosus*, *Tadorna tadorna*, *F. atra*, *Himantopus himantopus*, and *Podiceps cristatus* brood at the lake and its surrounding.

Real importance of the Lake Burdur is that 70% of the world population of *Oxyura leucocephala* winters at the lake, this species is under the danger of extinction world wide.

23. Social and cultural values:

a) Describe if the site has any general social and/or cultural values e.g., fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values:

The history of Burdur, which was located at a place named Psidia in the antique age, belongs to the distant past. The findings were obtained from the archaeological excavations, done at the antique Tymbrinassos city near the Hacilar village 8 km. The south-west tip of the lake has shown that since the neolithic age there has been occupation at the area. The antiques found during the diggings are displayed at the Burdur museum.

The area has been dominated by Hitites, Phrygians, Lydians, Persians, Romans, and Byzantiums, and after 1100 BC with the Anatolian Selchuks the area has been transferred to Turks domain.

There are many works of art belonging to the Anatolian Selchuks and Ottomans. The Muzafferiyi Library in the center of the province built in Hamidoğulları period is one of the oldest libraries of Turkey.

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning?

If Yes, tick the box and describe this importance under one or more of the following categories:

- i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:
- ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:
- iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:
- iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

24. Land tenure/ownership:

a) within the Ramsar site:

State property.

b) in the surrounding area:

Agricultural lands are private property; meadows, pastures, and bushy areas are public property.

25. Current land (including water) use:

a) within the Ramsar site:

Bird watching

b) in the surroundings/catchment:

Local people mostly practice agriculture for living. But, although the rate of the soils for cultivation is high insufficient watering facilities, dominating natural conditions for agriculture, insufficient modern techniques limit the productivity and varieties. Main vegetal productions are wheat and barley. Beet sugar, rose, and anise are the main vegetal industrial products. Vegetable productions are done at the places which can be watered. Fruit trade gaining importance, and depending on the climatic conditions apple, pear, grape and pitch production are increasing.

Stock breeding is mostly accepted as a secondary job. the natural conditions suitable for stock breeding since the maintenance and production techniques are not modern the productivity is low.

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

a) within the Ramsar site:

Main polluting sources include sewage network of Burdur city. The project of the treatment systems of Burdur city is due to be completed within 2007. There are Burdur sugar and milk factories near the east coast of the lake. These factories have treatment plants, treated wastewater from these plants is discharged to the lake.

Analyses of water samples taken from the lake, and its tributaries have shown zinc, potassium, tin, chromium, and bromine contents. Further observations indicated that a large part of phosphate and nitrogen accumulating in the lake has come from sewerage networks and the lake has an oligotrophic structure in terms of phosphorus. All these results indicate that Lake Burdur differs from the rest of the lakes in the region due to its alkaline and brackish water with a high element concentration which makes it unfit for survival of water creatures.

b) in the surrounding area:

27. Conservation measures taken:

a) List national and/or international category and legal status of protected areas, including boundary relationships with the Ramsar site:

In particular, if the site is partly or wholly a World Heritage Site and/or a UNESCO Biosphere Reserve, please give the names of the site under these designations.

The area of 38,125 hectares at the Burdur Lake, and its surroundings was declared as "Wildlife Protection Area" by Ministry of Forestry, General Directorate of National Parks and Game Animals – Wildlife Protection in 1993. Hunting has been totally prohibited in the area.

Lake has been declared as Primary Natural Site by the Ministry of Culture and Tourism.

b) If appropriate, list the IUCN (1994) protected areas category/ies which apply to the site (tick the box or boxes as appropriate):

Ia ; Ib ; II ; III ; IV ; V ; VI

c) Does an officially approved management plan exist; and is it being implemented?:

d) Describe any other current management practices:

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

Lake Burdur Wetland Management Plan Subproject has been completed of Ankara University in 1999.

The Management Plan is being prepared in a participatory methodology by the governorships of Burdur, and Isparta, local municipalities, local and national NGOs, under the supervision of General Directorate of Nature Conservation and National Parks of the Ministry of Environment and Forestry.

29. Current scientific research and facilities:

e.g., details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

A research on biological and ecological characteristics of the lake was made Hacettepe University and sponsored by the Ministry of Environment.

The project of Management Planning for Lake Burdur is being carried out.

For protection of the living areas of *Oxyura leucocephala*, International Water-birds and Wetlands Searching Association and International Searching and Protection Program since 1989 Turkey and Russia come first among the countries which are given most importance. Protecting the Burdur Lake is very important for this species to be able to continue its generation.

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitors' centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

Posters and booklet published by the Municipality of Burdur and the Association for Conservation of Wildlife with the objective of promoting and protecting some species, particularly *Oxyura leucocephala*, is being distributed to local schools and hunting clubs.

A booklet for giving general information about Lake Burdur and surrounding area published by the Ministry of Environment is being distributed to local schools and related institutions.

Constructions of Entrance Unit, and Bird watching Hut were finished by December 2005, as part of the Lake Burdur Bird Paradise Project.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Sheltering of the Burdur Lake the crowded bird groups during fall and winter periods; being an important winter passing area on earth for the cocked tail ducks.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept of Agriculture/Dept. of Environment, etc.

The Ministry of Environment and Forestry, General Directorate of Nature Conservation and National Parks.

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

- Burdur Provincial Organization of the Ministry of Environment and Forestry.

Addresses: Bahcelievler Mah. Stad Cad. No:1 15100-Burdur

<http://www.burdur-cevreorman.gov.tr/>

- Regional Organization of General Directorate of State Hydraulic Works (DSİ) Regional Organization.

Addresses: DSİ XVIII. Bölge Müdürlüğü Eğridir Yolu Üzeri / ISPARTA

- Burdur Municipality.

e-mail: belediye@burdur-bld.gov.tr

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see 15 above), list full reference citation for the scheme.

Erdem, O., (1995), Bird Paradises of Turkey, Ministry of Environment, General Directorate of Environmental Protection, Green Serial 5, p.76.

Kazancı, N., (1997), Research of Internationally Known Wetlands by Ecological and Biological Point of View Project, Ministry of Environment, General Directorate of Environmental Protection.

Lahn, E., (1948), Lakes of Turkey, MTA., p.36.

Seçmen, Ö., Leblebici, E., (1987), Flora and Vegetation Present in the Lakes and Marshy lands of the Thrace, Marmara, West and Middle Black Sea, Interior Anatolia, and East Mediterranean.

Seyhan Reservoir Administration Plan Project, Environment Ministry, General Directorate of Environmental Protection.

Wetlands Mid-Winter water birds counting of Turkey, Association of Protecting the Nature Life, İstanbul. (1993), Wetlands of Turkey, Turkish Environment Foundation, Ankara.

Lake Burdur Wetland Management Plan Subproject Result Report, 1999, Ankara University.

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