

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7, as amended by Resolution VIII.13 of the Conference of the Contracting Parties.

Note 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. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Bureau. Compilers are strongly urged to provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of maps.

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

Mehmet GÖLGE
Ministry of Environment and Forestry
General Directorate of Nature Conservation and National Parks
T.C. Gevreve Orman Bakanlığı
Söğütözü Caddesi No: 14/E
Söğütözü , ANKARA, TURKEY
mgolge@gmail.com

2. Date this sheet was completed/updated:

14.03.2006

3. Country:

Turkey

4. Name of the Ramsar site:

Yumurtalık Lagoons

5. Map of site included:

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

a) **hard copy** (required for inclusion of site in the Ramsar List): *yes* -or- *no*

b) **digital (electronic) format** (optional): *yes* -or- *no*

6. Geographical coordinates (latitude/longitude):

[UTM Grid Zone: 36 N; Datum ED1950;, 4065000 N, 735000 E] 36° 42' 12" N, 35° 37' 55" E

7. General location:

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

Mediterranean Region, Adana Province, Yumurtalık

8. Elevation: (average and/or max. & min.)

max: 2.9 m.; min: 0 m.; ave: 2 m.

9. Area: (in hectares)

19,853 ha.

10. Overview:

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

- Yumurtalık Lagoons is at Çukurova Delta which was formed as a result of alluvial deposit of Seyhan, Ceyhan and Tarsus rivers. It consists of many lagoons related with each other and the sea, fresh and salt water swamps, reed bed and large coastal sand dunes.
- This wetland complex is placed on bird migration routes, and bird populations reach higher values in winter time.
- Area, with its warm climate, is placed on a very important location for safe migration of birds.
- This lagoon system which has high aquaculture potential, supports the nutrition demand of the birds.

11. Ramsar Criteria:

Circle or underline 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).

① • ② • ③ • ④ • ⑤ • ⑥ • 7 • ⑧

12. Justification for the application of each Criterion listed in 11. 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).

Criterion 1

Criterion 1 has been applied for Yumurtalık Lagoon according to Annex I of the EU Habitats Directive (92/43/EEC).

The Çukurova Deltas where Yumurtalık Lagoons are located is one of the most extensive coastal ecosystems in the eastern Mediterranean and includes three major ecosystems: freshwater (rivers, former river beds, small inland lakes, and oxbows), coastal and saltwater ecosystems (sandy beaches, mobile and fixed sand dunes, salt marshes, salt flats, and lagoons), and agro-ecosystems. These support four main vegetation types: sand dune vegetation, salt marsh vegetation, stream bank and fresh water vegetation, and ruderal vegetation of field margins and roadsides.

Criterion 2

- Yumurtalık Lagoon is one of the rare habitats of Aleppo pine (*Pinus Halepensis*) in the country (2nd & 3rd criteria)
- This area is very important for two threatened species of sea turtle *Caretta caretta* and particularly *Chelonia mydas* in order to survive their lives. (see 4th criteria) These two species are endangered. Particularly, *Caretta caretta* is globally critically endangered according to the IUCN criteria

Criterion 3

Yumurtalık Lagoon is one of the rare habitats of Aleppo pine (*Pinus Halepensis*) in the country (2nd & 3rd criteria) Yumurtalık Lagoons have a surface area of 16,700 ha and are made up of lagoons, salt marshes, freshwater marshes, wet meadows, dunes and an Aleppo Pine forest by the Ceyhan and Seyhan rivers in eastern Çukurova Delta, and is considered to be one of the most important wetlands throughout the Mediterranean Basin.

The other places where Aleppo pine is found in Turkey is the Sırtlandağ Nature Conservation site (760 ha), which is one of two places where Aleppo pine is found in Turkey.

- In addition to the breeding birds Black Francolin (*Francolinus francolinus*), Kentish Plover (*Charadrius alexandrinus*) and Little Tern (*Sterna albifrons*); Wigeon (*Anas penelope*), Pied Avocet (*Recurvirostra avosetta*) and Little Stint (*Calidris minuta*) are wintering in the area.

Criterion 4

- It's observed that thousands of shore birds are staying during spring migration over the area. (2nd & 6th criterion) Particularly storks, pelicans and many raptors use this important area for resting and staying while migrating from north regions where they breed to Africa where they winter. 170 of 272 bird species observed at Çukurova Delta is listed in Annex-II of Bern Convention.
- In addition to the breeding birds Black Francolin (*Francolinus francolinus*), Kentish Plover (*Charadrius alexandrinus*) and Little Tern (*Sterna albifrons*); Wigeon (*Anas penelope*), Pied Avocet (*Recurvirostra avosetta*) and Little Stint (*Calidris minuta*) are wintering in the area. (5th criteria).
- Çukurova Delta is one of the key points where migratory birds migrating on Palaearctic-Africa route meet. Particularly storks, pelicans and many raptors use this important area for resting and staying while migrating from north regions where they breed to Africa where they winter. Many of the migratory birds stay in the area for nourishing, and go on their route; but also many bird species winter at the site. Because of the warm climate flamingos, many bird species, coot winter at lagoons, salty marshlands and swamps.

- This area is very important for the reproduction of two threatened species of sea turtle *Caretta caretta* and particularly *Chelonia mydas* in order to survive their lives.

Criterion 5

Recent bird census (Kılıç, D.C. & Eken, G., 2004. *Important Bird Areas of Turkey 2004 Revision*, Doğa Derneği):

Species	Year	Season	Minimum	Maximum	Unit
<i>Casmerodius albus</i>	1993	Wintering	147		Individual
<i>Ciconia ciconia</i>	1990	Migration	12439		Individual
<i>Platalea leucorodia</i>	1999	Migration	300		Individual
<i>Phoenicopterus ruber</i>	1999	Migration	5000		Individual
<i>Anser anser</i>	1990	Wintering	301		Individual
<i>Anas Penelope</i>		Wintering	14320	27190	Individual
<i>Oxyura leucocephala</i>	1993	Wintering	191		Individual
<i>Fulicia atra</i>	1992	Wintering	26000		Individual
<i>Grus grus</i>		Wintering	22	86	Individual
<i>Recurvirostra avosetta</i>	1999	Wintering	1217		Individual
<i>Glareola prantincola</i>	1990	Migration	115		Individual
<i>Charadrius alexandrinus</i>		Wintering	356	805	Individual
<i>Charadrius alexandrinus</i>		Breeding	600		Pair
<i>Vanellus spinosus</i>		Breeding	10		Pair
<i>Calidris minuta</i>	1996	Wintering	2200		Individual
<i>Calidris alpine</i>	1992	Wintering	7239		Individual
<i>Limosa limosa</i>	1992	Wintering	1289		Individual
<i>Sterna albifrons</i>		Breeding	300		Pair
<i>Halcyon smyrnensis</i>	1996	Breeding	1		Pair
<i>Ceryle rudis</i>	2001	Breeding	1		Pair
Water birds		Wintering	30000	71000	Individual

Criterion 6

- It's observed that thousands of shore birds are staying during spring migration over the area.
Fulicia atra, 26000 Individuals (1% are 20,000)
Ciconia ciconia, 12439 Individuals (1% are 4,000)
Phoenicopterus rubber, 5000 Individuals (1% are 2,900)
Anas Penelope, 14,320 – 27190 Individuals (1% are 3,000)
Recurvirostra avosetta, 1217 Individuals (1% are 470)
Charadrius alexandrinus, 600 Pairs (1% are 410 individuals)
Calidris alpine, 7239 Individuals ((1% are 3,000)
Oxyura leucocephala, 191 Individuals (1% are 75)

Criterion 8

- This area is very important for the reproduction of fish. According to the seasons, fishes migrate to the lagoon to spawn and grownin up and finally migrating back to the sea. Amongst these are Mullet species (*Mugil* spp.) sea bream (*Sparus aurata*), sea bass (*Dicentrarchus labrax*), European eel (*Anguilla anguilla*) and blue crap (*Callinectes sapidus*).

(See table above about “Recent bird census”.) As seen in the table, the site supports 1% of “*Casmerodius albus*, *Ciconia ciconia*, *Platalea leucorodia*, *Phoenicopterus rubber*, *Anas Penelope*, *Oxyura leucocephala*, *Calidris minuta*” species according to “Waterbird Population Estimates”, 3d edition, Wetlands International.

13. 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):

Council Directive 92/43/EEC

14. 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.

- **Geology:** Belongs to sub-miocene epoch of 3rd neogene period. Main rock is lime-stone, also marn is dominant in some parts. There are salt hills on the sea-shore and salt next to lake. There exist alluvial planes which formed at 4th period.
- **Geomorphology:** Since it has been formed from old bed of Ceyhan River and lakes, the area increases with increasing water, and it decreases in summer. It appears as lake with deltas
- **Soil type and chemistry range:** It's formed by clay and sand mixed soil as a result of sedimentation deposit and precipitation of salt in sea water.
- **Origins:** Natural
- **Hydrology:** Yumurtalık is formed by small lagoons, canals, swamp areas, bays, tide areas and closed lakes. Yapı and Ömer lakes get dry in summer. There are water entrances to the lagoon from three different brooks. The heavy sediment load in the lagoon has an important contribution to the siltation which affects the site. Main water source of the lagoon is Ceyhan River. Maximum water level of the lagoon is between 1-4 m. Average flow is 180 m³/s and the maximum flow occurs in April.
- **Water quality:** pH is between 7 & 7.5. The dissolved oxygen concentration changes from 6 mg/L to 10 mg/L. Salinity for winter season is 20-30 ppt and for summer it is 38-95 ppt. While nitrate concentration is 80-160mg/L, the phosphate concentration is 0.9-1.5 mg/L.
- **Depth, fluctuations and permanence of water:** water depth changes from 0 to 4 m and water is permanent on the area whole year.
- **Climate:** Continental type of Mediterranean climate. Winter is warm, and precipitation is very high. In summer time average temperature increases and a drought becomes dominant. The climate data for the period of 1991-2000:
 - Average temperature: 18.9°C
 - Average total precipitation: 877.2 mm
 - Average high temperature: 23.2 °C
 - Average low temperature: 15.0 °C
 - Average relative humidity: % 70.0

15. Physical features of the catchment area:

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

- **surface of the catchment area:** 2,193,195 ha.
- **general geology and geomorphological features:** Vast part of Davudi Mountains and Hills which is located on north and northeast part of Yumurtalık are formed by oligo-miosen limestones, claystones and marls geological materials. However, some part of Davudi Mountains and some location are formed by cretaseus and paleozoic age. In addition, especially east and northeast of Davudi Mountains are formed by Basalt-Dolarit and Andesite-Sipylite-Porphyrte geological structures.
Ceyhan basin is formed by steep areas and large alluvial planes. Water of the basin is collected at Ceyhan River.

- **general soil types:** alluvial soils, reddish brown Mediterranean soils, hydromorphic alluvial soils, brown forest soil, alluvial coastal swamps, regosols, colluvial soils.
- **general land use:** Agriculture, livestock and grazing, fishery, hunting, recreation, residence, industry, protection zones.
- **climate (including characterisation of climate type):** Continental type of Mediterranean climate. Winter is warm, and precipitation is very high. In summer time average temperature increases and a drought becomes dominant. The climate data for the period of 1991-2000:
 - Average temperature: 18.9°C
 - Average total precipitation: 877.2 mm
 - Average high temperature: 23.2 °C
 - Average low temperature: 15.0 °C
 - Average relative humidity: % 70.0

16. Hydrological values:

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

At Çukurova Delta, which is a coastal plane, irrigation and drainage canals are important for agricultural production. Rivers and the canals satisfy the sustainability of agricultural areas, and lagoons satisfy the water balance especially at the north part of the area. Ground water is at the surface or very close to the surface, and alluvion formed by clay, sand and gravel has aquifer properties.

17. 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.

Coastal freshwater lagoons (including freshwater delta lagoons) are dominant in the site.

Presence scheme of wetlands type following up from the dominant to smaller and smallest represented wetlands types: K, J, E, and F.3

18. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site.

The vegetation of the region called “eumediterranean” of this region is “always green” forests. Some of the typical east Mediterranean species are *Quercus coccifera*, *Ceratonia siliqua*, *Arbutus andrachae*, and *Larus nobilis*. Main biotopes are “dunes”, “dune pine forests (*Pinus halepensis* / *Pinus brutia* dune forests)”, “salty swamps, salty marshlands, lagoon and river outlet reed beds”. Main habitats are “inland-terrestrial-habitats”, “water habitats” and “coastal”.

Mullet species (*Mugil* spp.) sea bream (*Sparus aurata*), sea bass (*Dicentrarchus labrax*), European eel (*Anguilla anguilla*) and blue crap (*Callinectes sapidus*) live in the lagoons. Large fresh and salty water surfaces form very

important potential to amphibians for living and breeding. Site is also very important for two species of sea turtles, *Chelonia mydas* and *Caretta caretta*.

Çukurova Delta is one of the key points where migratory birds migrating on Palaearctic-Africa route meet. Particularly storks, pelicans and many raptors use this important area for resting and staying while migrating from north regions where they breed to Africa where they winter. Many of the migratory birds stay in the area for nourishing, and go on their route; but also many bird species winter at the site. Because of the warm climate flamingos, many bird species, coot winter at lagoons, salty marshlands and swamps.

19. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. 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.*

- Appearance of *Pinus halepensis* species in this area is very rare situation, so it must be protected

20. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in 12. 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.*

- Çukurova Delta is one of the key points where migratory birds migrating on Palaearctic-Africa route meet. Particularly storks, pelicans and many raptors use this important area for resting and staying while migrating from north regions where they breed to Africa where they winter. 170 of 272 bird species observed at Çukurova Delta is listed in Annex-II of Bern Convention.
- Especially two sea turtle species, *Chelonia mydas* and *Caretta caretta* nest in the coast of Çukurova Delta. These two species are endangered. Particularly, *Caretta caretta* is globally critically endangered according to the IUCN criteria

21. Social and 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.

Main use of the land in the site is agriculture. Ratio of irrigated agriculture is very high in the region. Livestock production and grazing are other benefits of the wetland. Yumurtalık Lagoons are very important for fishing since the environment is very suitable for fishing. Present fishery activities can be grouped under four categories: fishgarth fishery (According to the seasons, fishes come to the lagoon to grow up, then when they grown up, start to go the sea; and they are caught at the gates.), shore fishery, troll fishery and culture fishery. In addition, recreation properties of the site are very important, since it's close to Adana with its long and not crowded coastal line.

22. Land tenure/ownership:

(a) within the Ramsar site: 100 % state-owned

(b) in the surrounding area: state-owned and also individules.

23. Current land (including water) use:

Total human population on the site is 9712 according to 2000 census.

(a) within the Ramsar site:

General land use: Agriculture, livestock and grazing, fishery, hunting, recreation, residence, industry, protection zones.

(b) in the surroundings/catchment:

General land use: Agriculture, livestock and grazing, fishery, hunting, recreation, residence, industry, protection zones.

24. 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:

- Decrease in the area of pasture. Most of the pasture areas were turned to agriculture area.
- Intrusion of sediment coming with the rivers to the lagoons.

(b) in the surrounding area:

- The area of crowded settlement and agricultural areas is increasing.
- High population increase.
- There are many industrial plants in the catchment area, and their wastes may adversely affect the site.
- occasionally landfill.
- Decrease in the area of pasture. Most of the pasture areas were turned to agriculture area.
- Intrusion of sediment coming with the rivers to the lagoons.
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25. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

- Nature Conservation Site (boundary is almost same with Ramsar site's boundary)
- Nature SIT area of 1st Degree

26. Conservation measures proposed but not yet implemented:

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

- Preparation of wetland management plan was started. It will be carried out by NGO's and institutions with collaboration of Ministry of Environment and Forestry
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27. Current scientific research and facilities:

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

- One of the current and detailed research on the whole Çukurova Delta including Yumurtalık Lagoons is "Çukurova Deltası Biyosfer Rezervi Yönetim Planı – Çukurova Delta Biosphere Reserve Management Plan-" which was prepared by Türker ALTAN, Mustafa ARTAR, Meryem ATİK, Gülay ÇETİNKAYA as collaboration of Çukurova University and Life 3rd Countries Programme.
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28. Current conservation education:

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

- Training of trainers and the experts about the Yumurtalık Lagoons with the collaboration of ministry, university, and NGO's are held on.
- Some information books and booklets about the whole delta (Çukurova Delta) are published.
- Trainings for schools and local people about the area, environment, agriculture and eco-tourism are held on.
- Field trips are organised.

29. Current recreation and tourism:

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

Since the delta is close to Adana city and has a long coast with natural beauties, the area is attractive for tourism. Main tourism activity is seasonal (especially summer) and there are many summer houses of the local people close to the site. Also fishing is one of the important activities at the site.

30. Jurisdiction:

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

The area is under responsibility of different authorities;

- The Ministry of Environment & Forestry (Department of Nature Conservation) is responsible because of the "Ramsar Site" status,
- The Ministry of Environment & Forestry (Department of National Parks) is responsible because of "Nature Conservation Site" status,
- The Ministry of Culture & Tourism is responsible because of "Natural SIT area of 1st Degree" status.

However, the National Wetlands Committee (the uppermost decision making mechanism on wetlands) is the main responsible and it also provides the coordination among these authorities. The Governor of Adana implements the legislation with the name of these authorities.

31. 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.

Ministry of Environment and Forestry
General Directorate of Nature Conservation and National Parks
Department of Nature Conservation
Wetlands Division.

Responsible person: Ms. Tülay BACIK (Enginner)
Phone: +90.322.322 06 02
Fax: +90.322.325 07 63
Adana İl Çevre ve Orman Mudurlugu,
DKMP Sube Mudurlugu,
Adana TURKIYE

32. Bibliographical references:

scientific/technical references only. If biogeographic regionalisation scheme applied (see 13 above), list full reference citation for the scheme.

- Altan, T.; Artar, M.; Atik, M.; Çetinkaya, G. (2004). **Çukurova Deltası Biyosfer Rezervi Yönetim Planı**. Çukurova Üniversitesi (*In Turkish, unpublished*)
- Çakan H., Yılmaz, K. T., Düzenli, A. (2005). **First comprehensive assessment of the conservation status of the flora of the Çukurova Deltas, southern Turkey**, Oryx, 39(1) pp. 17-21, UK.

Please return to: **Ramsar Convention Bureau, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +41 22 999 0170 • Fax: +41 22 999 0169 • e-mail: ramsar@ramsar.org