

SULTANSAZLIGI, RAMSAR SITE IN TURKEY

NILGUL KARADENIZ
Ankara University
Faculty of Agriculture
Department of Landscape Architecture
06110 Diskapi Ankara TURKEY
Karaden@agri.ankara.edu.tr
tel&fax: +90.312.317 64 67

ABSTRACT

Sultansazligi (Ramsar site) covers the major part of an extensive wetland complex covering the lowest part of the Develi plain. It consists of the saline Lake Yay, nearby salt steppe, eutrophic freshwater marshes with small islands and small lakes, and wet meadows around the marshes. This ecosystem support about 25 species of mammals, 25 species of mollusks, 40 species of hymenoptera, 5 species of fish, 301 species of birds, and 125 species of algae. As one of the most important wetlands in the Mediterranean basin, Sultansazligi has been attracting more and more attention. However, there are still many problems such as uncontrolled burning and cutting of reeds, grazing, the flows of uncontrolled wastewater into area, etc. In order to define the boundaries of different uses and to ensure the co-operation among the agencies concerned with the area, a holistic approach that takes into account the entire area with all its various components including the natural, cultural and socio-economic aspects, is necessary.

RESUMEN

Sultansazligi (sitio Ramsar) cubre la mayor parte de un extenso complejo de humedales que cubre la parte baja de la llanura de Develi. Incluye el lago salado de Yay, junto a una estepa salina, marjales eutróficas de agua dulce con pequeñas islas y lagunas, y prados pantanosos alrededor de las zonas húmedas. Este ecosistema soporta alrededor de 25 especies de mamíferos, 25 especies de moluscos, 40 especies de himenópteros, 5 especies de peces y 125 especies de algas. Como una de las zonas húmedas más importantes del mediterráneo, Sultansazligi ha estado atrayendo cada vez más atención. Sin embargo, hay aún muchos problemas tales como la quema y corta incontroladas de carrizo, la caza, el acceso incontrolado de vertidos líquidos, etc. Para definir los límites de los diferentes usos y asegurar la cooperación entre las agencias competentes en el área, es necesaria una aproximación holística que tome en cuenta el área entera con sus variados componentes naturales, culturales y socio-económicos.

PHYSICAL AND HYDROLOGICAL NOTES

Sultansazligi covers most of Develi Plain that is located at Central Anatolia and surrounded with Yesilhisar, Develi and Yahyali townships which are connected to Kayseri Province. The Plain is limited with Erciyes Mountain on the north, Kizilirmak Basin on the north-east, Nevsehir and Nigde provinces on the west, Adana Province on the south and Seyhan Basin on the east. The most dominant feature of the area is Erciyes Mountain (3.916 m.), an extinct volcano that has played a big role to shape the region's visual quality. Sultansazligi are composed of three diverse but interconnect-

ed lake ecosystems. The first part called Sultan marshes or Southern marshes lies to the south of Yay lake. Ovaciftlik village can be considered as the starting point for visiting this part of the marsh. Here it can be seen floating islands made up of clusters of reeds and marsh. These places are wet and soft but they can be walked upon. The islands are hidden by tall marshes and therefore form perfect breeding grounds for nesting birds. Within the southern marshes (3.300 ha) Sarp Lake, Egri Lake and Bagnalti Lake are located. According to the map prepared by DSI, maximum depth of the southern marshes reach to 11.40 meters, but the average depth is much lower. The Southern marshes taper into smaller marsh lands



South-east part of Yay Lake and Camiz Lake Pump Station (by U. Ozesmi)

called the Sagrigol and Abbasagili marshes. At this point, the marshes are areas of transition between freshwater and salt water systems. This region is followed by Yay Lake, which is salt water ecosystem.

vital nutrients for the flocks of great flamingo living there. This shallow salt water ecosystem is very rich in microbiota and supports many species of waterfowl. Further north of Yay lake, there lies another fresh water ecosystem. This sys-



Ovaciftlik village and southern marshes (by U. Ozesmi)

Yay Lake, which is about 3.650 hectares in size, contains two important islands, called Kizilcikmadenotu and Bozot. The depth of water in the lake is about 1.50 meters. Red-colored crustaceans that live in the salt water of Yay Lake, provide

tem is called Kepir marshes and is 1.900 hectares in size and is replenished by Soysalli springs which flow from the sides of Mount Erciyes.

Aluvial soil cover most of Develi Plain. The water table is

alluvial soil is high and all of the water is salty. On the base of Plain, in the region where there is the temporary lake and marshes, there is hydromorphic alluvial soil rich in organic material. In some places in this area, upper soil zones stay continuously wet. This condition supports dense vegetation cover, especially at Kepir Marshes. The fact that salt and fresh water systems and dry steppes coexist here is the reason why the Sultansazligi can support such a tremendous diversity of living creatures.

BIOLOGICAL NOTES

This specific nutrient-rich ecosystem support about 25 species of mammals, 25 species of mollusks, 40 species of hymenoptera, 5 species of fish, 301 species of birds, and 125 species of algae. Hydrophyte plants as well as halophytes

Crane (20 pairs), Avocet (15 pairs), Collared Pratincole (50 pairs), Kentish Plover (100 pairs), Greater Sand Plover, Spur-winged Plover (20 pairs), Gull-billed Tern (50 pairs), Little Tern (100 pairs), and Whiskered Tern (400 pairs). Ruddy shelduck (max. 2283) occur in summer, whilst large numbers of Greater Flamingo (max. 59.150), Crane(max. 1200) and Avocet (max. 2115) use the wetland in autumn. Large numbers of waterfowl occur during migration and in winter (Magnin and Yazar 1997).

Other breeding birds of note include Great Crested Grebe, Little Bittern, Greylag Goose (15 pairs), Teal, Mallard, Garganey Pochard, Coot, Black-winged Stilt (200 pairs), Black-headed Gull (90 pairs) Slender-billed Gull (100 pairs), Common Tern (30 pairs) and Black-bellied Sandgrouse. Greater Flamingo is an irregular breeder, with the most recent confirmation from 1970 when an estimated 1.500 pairs



Bird-eye view from southern marshes and Yay Lake (by U. Ozesmi)

belonging to different ecosystems are found in this area. The flora of the Sultansazligi has been thoroughly studied, and 401 species have been documented. 10% of the vegetation is native to the area. Families of Compositae, Poaceae, Chenopodiaceae are represented in vast number here. Hydrophytes are plentiful in the area and provide shelter and nutrition to fish and birds; they include *Phragmites australis*, *Thypha patiofolia*, *Schoenoplectus lacustris*, *Butomus umbellatus*, *Sparganium erectum*, *Potamogeton lucens*, *P. pectinatus*, *Ranunculus sphaerospermus*, *Nymphaea alba*, *Myriophyllum spicatum*, *Utricularia australis* and *Lemna gibba* (Oztan, Sezer, Percin, Karadeniz, and Karaoglu, 1996).

The site holds significant breeding populations of Pygmy Cormorant (200 pairs), Squacco Heron (70 pairs), Glossy Ibis (75 pairs), Spoonbill (10 pairs), Gadwall (20 pairs), Marbled Teal (5 pairs), Red-crested Pochard (400 pairs), Ferruginous Duck (20 pairs), White-headed Duck (20 pairs),

bred on islands in Yay Lake. Whited-tailed Plover apparently bred in 1996 (Magnin and Yazar 1997).

CONSERVATION MEASURES

Sultansazligi was declared a Permanent Wildlife Reserve in 1971 as an area of 45.000 ha. In 1988 it was granted Nature Reserve Status, covering 17.200 ha; in 1993 it was declared a "natural sit" and finally in 1994 it was designated as one of Turkey's first five protected sites under the Ramsar Convention.

HUMAN USES AND ADVERSE FACTORS

Although Sultansazligi has both international and national protection statues, it is still sharing the common problems of the wetlands in Turkey. One major threat came from the



Southern marsh (by N. Karadeniz)

Develi drainage project of DSI (State Hydraulic Works). Within the natural hydrological structure of Develi Plain, it is accepted that, water coming from Yahyali, Develi, Agcasar and Yesilhisar streams and flowing from springs such as

Soysalli and Cayirozu firstly fill marshes and excessive water first flow into Yay Lake and afterwards flow into Col Lake and they evaporate here and it is also agreed fact that there is no natural flow of water outside the area. But functioning of



Reed beds. Southern marsh (by N. Karadeniz)



Southern marsh (by N. Karadeniz)

water essence in Develi Plain have completely changed due to irrigation and drainage activities conducted by DSI (State Hydraulic Works).

Several thousands of hectares of the area were drained during the 1940s as part of an anti-malaria scheme. In the 1960s DSI prepared an irrigation plan which included the drainage of the entire wetland. After recognising the high ecological value of the area, this plan was revised. Then it has been determined that for the survival of this complex system the optimum water level at Yay Lake should not fall below 1071.00 m. and a levee at that level was built north of Yay Lake. In spite of this, reduced water input and shortage of rainfall led to the entire wetland drying up in 1990 and 1991. Additionally, the drains have carried polluted water into the wetland, moreover one (the Yahyali drain in the east) have carried freshwater straight into the salt lake, whilst another have carried salt water from leached lands in the south-east into the freshwater marshes. For solving the problems related with Yahyali drains, DSI firstly has changed the direction of it into the southern marshes. In order to help for solving the problems of the southern marshes, DSI has set an equipment near Camiz Golu pumping station to measure the salinity of the water from drains.

Water from the springs is used at will by local farmers, whilst many large pumps pump up several tens of millions m³ of ground water annually. This situation exacerbates the water problem. In the 1950s tracts of Kepir marshes were transferred to local ownership by the government. So, the 1900 ha Kerpil marshes have been largely converted to agricultural area for cereal, sugar beet and sunflower fields. Sheep are

grazed on the surrounding steppe whilst cattle are grazed within the marshes. Reed cutting is an important activity with an annual production of 1500 tons, which is mainly exported to the Netherlands but also used locally for animal fodder and roof thatching. Four species of fish have been found in the area but there is no commercial fishing activity. There are bird watching towers at Ovaciftlik village and near Camizgolu pumping station.

The Ministry of Forestry has prepared a new master plan for Sultansazligi which includes the development of the ecotourism potential of the site. But this plan has not yet been put into practise because of some legal and administrative problems. Regarding with the management of the area, it can be mentioned another effort which is still going on. In the framework of GEF programme, a project, titled Protected Areas, Sustainable Management of Natural Resources and Conservation of Biological Diversity, is carried on for Sultansazligi as one of the case studies of five areas in Turkey in the co-operation with Ministry of Forestry and the World Bank.

As one of the most important wetlands in the Mediterranean basin, it is very pleasant that Sultansazligi has been attracting more and more attention. However, there are still many problems related with different subjects such as uncontrolled burning and cutting of reeds, grazing, the flows of uncontrolled wastewater into area, etc. In order to define the boundaries of different uses and to ensure the co-operation among the agencies concerned with the area, a holistic approach that takes into account the entire area with all its various components including the natural, cultural and socio-economic aspects, is necessary. .

TURKEY

Site: Sultan Sazligi (Sultan Marshes)

Designation date: 13/07/1994

Coordinates: 38°20'N 035°15'E

Elevation: 1,071 m

Area: 17,200 ha

Location: The marshes are situated on the Develi plain of the Province of Kayseri, in Central Anatolia, Turkey.

Criteria: 1d, 2a, 2b, 2c, 3a, 3b

The area is an important breeding site for *Phalacrocorax pygmeus*, and *Oxyura leucocephala*, all of which have been classified as endangered by the Council of Europe, and two which are globally threatened (*Oxyura leucocephala* and *Otis tarda*). Also *Phoenicopertus ruber*, *Platalea leucorodia*, *Grus grus*, *Larus genei* and *Glareola pratincola* nest in this area. During winter, large numbers of *Phoenicopertus ruber*, *Aythya ferina*, *Aythya fuligula*, *Aythya nyroca* and *Netta rufina* occur. In winter, up to 129,801 waterfowl have been recorded. A total of 251 bird species have been recorded.

Wetland Types: R, Ts, P, Sp (dominant types listed first) The site covers the major part of an extensive wetland complex covering the lowest part of the Develi plain. It consists of the saline Lake Yay, nearby salt steppe, eutrophic freshwater marshes with small islands and small lakes, and wet meadows around the marshes.

Biological/Ecological notes: There are reeds and rushes in the freshwater ecosystem, and in and around the saltwater ecosystem halophytic plants grow. Three species of (non-commercial) fish live in the Sultan Marshes (*Aphanius sp.*, *Spiralinus sp.* and *Cyprinus sp.*). The amphibians *Rana ridibunda*, *Bufo viridis* and *Hyla arborea* live in and around the lake and reeds.

Hydrological/Physical notes: The Sultan Marshes are situated in the Develini closed basin and is surrounded by hills and mountains. The climate in the region is typically continental, with hot dry summers and cold winters. Soils in the region have alluvial characteristics with a widely varying water permeability. The main lake is the saline Lake Yay (3,650 ha, 1.5 m deep with two islands). To the north and south of the lake there are two fresh water marsh complexes: Sultan Marshes and Kepir Marshes. Lake Çöl, just above the northwestern boundary of the site, is saline as well. It is only 0.3 - 0.4 m. deep, and largely dries up during summer. The total wetlands area varies greatly according to water levels, but is 20,000 ha at its maximum extend. Originally the wetland was fed by groundwater, by several streams, and by water from springs in the east of the site (also see Adverse Factors). The wetland has no natural outlet.

Human Uses: The area is owned by the government, and the Ministry of Forests is responsible for its management. Reed cutting is an important source of income for the local people. The site is further used for scientific purposes. Also tourism (bird watching) takes place, and is increasingly important for the local economy. There is an information centre and an observation tower, and boats take tourists and bird watchers into the southern marshes. The arable lands in the surrounding area are privately owned, and used for growing cereals, sugar beet, and sunflowers. The surrounding steppes are grazed by sheep, and cattle graze in the marshes.

Conservation Measures: Sultan Sazligi is one of the best protected sites in Turkey. In 1971 the site plus surrounding area (totalling 45,000 ha), was declared a Permanent Wildlife Reserve. Plans to drain the Sultan Marshes and Yay Lake for an irrigation project in the early 70s, were abandoned after intervention of the Directorate of National Parks and Wildlife. In 1988 the site was granted Nature Reserve status, and in 1993 it was declared a SIT, granting protection under the Law on Protection of Cultural and Natural Assets. The area is controlled by guards, and conservation work is carried out by a local organisation attached to the Ministry of Forestry.

Adverse Factors: The ecosystem's water regime has been adversely affected by the dams in the streams which feed the lakes. Currently the lake is only fed by three drains, the springs in the east of the site, and by precipitation. Moreover, the water carried into the wetland by the drains is polluted by chemicals used in agriculture, and untreated domestic and industrial waste. Additionally, one drain carries fresh water into the saline lake, whilst another one carries saline water from leached lands into the fresh water marshes, badly affecting the local plant communities. Uncontrolled cutting and burning of rushes adversely affect the micro and macro fauna. Illegal hunting poses a threat to the bird population, and

From: *A Directory of Wetlands of International Importance*.
Ramsar Convention Bureau and Wetlands International, 1999



Mount Erciyes and Sultansazligi (by DHKD)



Oyaçiftlik village (by N. Karadeniz)



Southern Marshes (by DHKD)

BIBLIOGRAFÍA

KARADENİZ, N., 1995. *Sultansazligi Orneginde Islak Alanlarin Cevre Koruma Acisindan Onemi Uzerinde Bir Arastirma. (A Research on the Value of Wetlands in Environmental Consideration, Case Study: Sultan Marshes, Ph.D. Thesis)*, Doktora Tezi, Ankara Universitesi Fen Bilimleri Enstitusu, Ankara.

MAGNIN, G. and YARAR, M. 1997. *Important Bird Areas in Turkey*. Dogal Hayati Koruma Dernegi, Istanbul.

SOMUNCU, M., 1988. *Develi Ovasi'nin Kuzey ve Bati Bölümünde Rüzgar Erozyonu Sorunu ve Alinmasi Gereken Onlemler Uzerine Bir Arastirma*. A.U. Sosyal Bilimler Enstitusu, Jeomorfoloji Dergisi, Mart, Sayi: 16, Ankara.

OZESMI, U., 1989. Protection of the Sultan Marshes, Turkey. Sandgrouse, 11: 73-5, OSME

OZTAN, Y., SEZER, A., PERCIN, H., KARADENİZ, N. and KARAOGLU, N., 1996. *Sultansazligi. Along Ancient Trade Routes, Seljuk Caravanserai and Landscapes in Central Anatolia, Maasland vzw., Kanaalstraat 10, 3621 Rekem-Lanaken, Belgium.*

EDITA: Sede para el Estudio de los Humedales Mediterráneos (SEHUMED) / DOMICILIO: Despacho 0.74 / Laboratorio de Ecotoxicología / Departamento de Biología Animal / Edificio Departamental "Jeroni Muñoz" / Universitat de Valencia / c/ Doctor Moliner 50 /

E-46100 BURJASSOT (Valencia) España /

Tel y Fax: (34) 96. 398. 30 53 / E-mail: SEHUMED@uv.es / Página WEB: <http://SEHUMED.uv.es>

DISEÑO y MAQUETACION: Carmen Gil Llorens / FOTOMECANICA: Mediterráneo Color, S.L. / IMPRIME: Imprenta Máñez / DEPOSITO LEGAL: V - 1.205 - 1997 ISSN: 1137 - 7755