Case Study 4: Tunisia

Sebkhet el Kelbia

By Fethi Ayache, Ministry of Environment and Land Use Planning, Tunisia

The Sebkha of North Africa

Sebkha is a North African vernacular name for a shallow, salty depression. It is a common wetland type especially in semi-arid and arid climates but less so in sub-humid climates. In Tunisia, about 80 wetlands of this type stretch from north to south, most of them located within a short distance of the coast although not usually connected to the sea. They play a major hydrological role in stocking flood waters, recharging and/or discharging groundwater and are prime habitats for a diverse and typical fauna and flora thus generating many benefits to local communities and society as a whole.

Sebkhet el Kelbia

Sebkhet el Kelbia is 20km inland at the limit of two geographical regions: the Sahel (coastal area) of Sousse and the lower steppe of central Tunisia. The marshes and the lake occupy a maximum area of 14,000ha and drain a catchment area of 15,000km2. The Sebkha is state-owned and 8,000ha of it were declared a Nature Reserve in 1993. The climate is semi-arid with an average annual rainfall of 200mm, a mean temperature of 20ûC and a high evaporation rate. The water is slightly saline and it is one of the rare wetlands of this type which does not develop a salt crust when it is dry. During exceptionally heavy rains, the Sebkha discharges into the sea via the Oued Sed which develops some densely vegetated pools along its course. These are rich in birds such as Purple Gallinule *Porphyrio porphyrio*, several species of warbler, including Great Reed Warbler *Acrocephalus arundinaceus*, Sedge Warbler *A. scirpaceus*, and Moustached Warbler *A. melanopogon*, and the threatened Marbled Teal *Marmaronetta angustirostris* (IUCN Red List, 1994). It regularly dries out for several years at a time. Six overflows were recorded this century, the latest was in 1989/1990.

The Values of the Wetland

Floral values. Vegetation grows around much of the water body in concentric rings which may possibly be related to salinity, wetness, or both. At the delta of Oued el Ataf the pattern is more of a mosaic. A representative profile would show the following succession: typical aquatic genera *Althenia* and *Zanichellia*, succeeded by annuals such as *Salicornia* and *Salsola* near the immediate water fringes through perennials such as *Arthrocnemum*, *Halimione* and *Suaeda* to *Typha, Tamarix and Juncus*, on the drier parts between the muddy areas and the surrounding cultivated land.

Faunal values. The high production of the biomass, due in part to the alternating wet and dry periods of the Sebkha, attracts large populations of wintering, migrating and nesting birds. The maximum number counted is 271,000 including several species of duck, many waders and a variety of other waterbirds. It is a major roosting site for the Crane *Grus grus* with up to 5,000 having been counted. Breeding birds include Little Grebe *Tachybaptus ruficollis*, Great Crested Grebe *Podiceps cristatus*, Shelduck *Tadorna tadorna*, Black-winged Stilt *Himantopus himantopus*, Avocet *Recurvirostra avosetta*, Pratincole *Glareola pratincola*, Whiskered Tern *Chlidonias hybrida*, and Marbled Teal with occasional breeding of Gull-billed Tern *Sterna nilotica* and the threatened White-headed Duck *Oxyura leucocephala* (IUCN Red List, 1994). During the latest floods which lasted more than two years, more than 100,000 birds including about 10,000 Greater Flamingo *Phoenicopterus ruber* were wintering and a few thousand were found nesting.

Receding floodwaters in the Kelbia marshes with flocks of birds overhead ***(Photo: Imed Essetti)***

Hydrological values. The Sebkha plays a significant role as a natural buffer zone preventing the disruptive impact of floodwaters on human activities. In addition, evidence of a drop in the level of wells since the last flood of 1990 indicate some role of the wetland in recharging the groundwater table.

Socio-economic values. Grazing is very common on the fringes and marshes of the Sebkha. It forms an integral part of the grazing cycle in the region especially in summer time when other pastures are exhausted. In addition, since the Sebkha holds floodwaters for a year or more, extensive grazing areas appear as the flood retreats and the area can become of great significance during drought years. As the flood recedes, local farmers benefit by cropping the outer parts of the wetlands as the silt deposition makes the area very productive. Fishing used to be quite a thriving activity with an average landing of 80 tonnes per year. Lastly, there is evidence of wood collection from the stands of Tamarix fringing the lake .

Threats to the Integrity of the Sebkhet el Kelbia

Damming of the three main rivers upstream (at Nebhana in 1965, Sidi Saad in 1981, El Haoureb in 1988) was carried out to control floodwaters and this has cut off all river inputs except for overflows from these dams and the lower part of the catchment. Despite

some overflow from the Sidi Saad dam and the exceptional flooding of 1989/1990, the net result has been that the desiccation of the Sebkha has become 2.5 times more frequent than in the past and, before the last flood of the Sebkha in 1989/1990, the wetland had been dry for more than 10 years.

As a result of the continuation of engineering work within the plain of Kairouan, a proposal has been made to reclaim the upper part of the wetland for agricultural and/or pastoral use and to cut a channel through the lower part of the wetland towards Oued Sed which would be dredged.

Siltation is also a problem since much of the vegetation of the hillsides in central Tunisia is heavily degraded. However, subsidence is partly offsetting the rising level of the lake bottom.

A large concentration of birds attracts hunters and despite the designation of part of the area as a nature reserve, hunting still carries on unabated. Equally, the collection of eggs is so acute that some species have been significantly affected: for example hundreds of pairs of Marbled Teal were nesting in 1990 but very few were successful in raising their chicks.

Another current problem is rubbish tipping from the nearby small town of Kondar, and the discharge of olive oil residue from factories. This is actually quite limited in extent at the present time but could become significant in the future since waste disposal is continuing.

At the fringes of the Sebkha extensive grazing takes place and this causes some disturbance of the surrounding vegetation which is a prime habitat for nesting waterfowl.

Future Prospects

Kelbia is a potential tourist attraction in terms of the wintering and nesting populations of birds, panoramic views, and recreational opportunities. The large tourist industry at the Gulf of Hammamet (Nabeul, Hammamet, Sousse and Monastir) is within 30 to 80km of the site. Adequate management of the wetland, an appropriate administrative structure as well as an educational programme could be of great value in the development of Kelbia, boosting tourism during the low season in autumn and winter and providing an outdoor leisure and educational site for the population of the region.

However for this kind of development a larger area of the Sebkha needs to be given the status of nature reserve or national park. In addition, since Kelbia largely fulfils the criteria for a Wetland of International Importance in terms of the size of wintering population or number of species, its status could be reinforced by listing Sebkhet el Kelbia as a Ramsar site. The current and potential threats to the site should be addressed urgently especially the drainage project, the control of water flow from the catchment into Kelbia and appropriate on-site protection**.**