

1.5 TUNISIA

Introduction

Tunisia is the smallest of the North African countries. It covers 164 150 km², has a population of 6 945 000 (1983), and therefore a mean population density of 42.3 persons/km². It is bounded by Algeria in the west, Libya in the southeast, and the Mediterranean Sea to the east and north. It has a highly indented coastline, 1470 km long including the islands of Jerba, Gharbi and Chergui. The country stretches 755 km from N-S between latitudes 30°16' and 37°20'N, and 380 km from west to east between longitudes 7°32' and 11°32'E. Cape Blanc, 37°20'N, is the most northerly point of the African continent.

Except in the extreme northwest, at the border with Algeria, there is a broad coastal plain. This reaches a maximum width of 60 km near the Libyan border in the southeast. The Tell Atlas extends into the north of Tunisia, dominating the northern third of the country which is mountainous. Here, on the southern flank of the mountains, Jebel Chambi (35°13'N/8°38'E) rises to 1544 m, the highest point in Tunisia. From these mountains, undulating steppes, broken by occasional hilly ridges, slope gently southeastward to the sea. The central third of the country is occupied by a great triangular depression with its apex on the coast at Gabes (33°52'N/10°06'E) and its base along the Algerian border, where it descends to 23 m below sea level in the Chott el Gharsa. Other large salt pans occur in this depression, notably the Chotts el Djerid and el Fezzaz. The southern third of the country is largely occupied by a plateau, 200-400 m asl, onto which the sand desert of the Grand Erg Oriental extends from Algeria. This plateau reaches up into Tunisia from the far south, narrowing to a mountainous ridge reaching 715 m asl where it terminates just south of Gabes, with the broad coastal plain along its eastern flank.

The principal river of the north is the Oued Mejerda, which is perennial, and together with its tributaries, drains much of the northern plateau. It traverses a series of fossil lake basins, covered by deep alluvium, and reaches the sea at the Gulf of Tunis. Other small streams reach the northern coast, and numerous intermittent streams flow towards the chotts of the central basin. Rainfall in the south is scant and erratic and there are no important drainage systems, but a series of dry wadis reaches north towards the chotts from the chain of southern hills.

Climate

Winter rains fall over the northern highlands, with the highest readings along the coast. On parts of the Monts de la Mejerda and Mogod Mountains, annual falls of 1500 mm have been received in what is the wettest part of North Africa. However, at sea level, at Bizerte (37°18'N/9°52'E), mean annual precipitation is 625 mm, declining inland to 490 mm at Zaghouan (36°24'N/10°08'E) some 600 m asl, although again, higher falls are recorded on the nearby massif of Jebel Zaghouan (1294 m). Rainfall is 500 mm/yr at Makthar

(35°50'N/9°12'E), 934 m asl, farther south and east, while at an altitude of 68 m asl on the central lowlands, Kairouan (35°42'N/10°01'E) receives an average of 286 mm/rain/yr. Off the east coast, Jerba Island has an average annual receipt of 207 mm/yr. Rainfall varies considerably from year to year, e.g. Makthar received over 900 mm in 1963-64, but only 400 mm in 1966-67. Coastal temperatures are moderated by cool sea breezes, but may occasionally be raised to extremes by a hot dust laden wind from the Sahara. August is the warmest month and mean daily maxima at the coast are then in the region of 31-33°C, while in the northern interior they are 36-38°C. January is the coldest month, when mean daily minima range from 7-8°C at the coast and 3-4°C in the northern interior. Summer temperatures in the far south may exceed 48°C.

Wetlands

There are some important coastal wetlands including the marshes of the delta of the Mejerda River in the Gulf of Tunis, and several lakes, lagoons and pans. Tidal rise and fall, unusual along the Mediterranean coast, is most marked on the Gulf of Gabes and here there are some tidal habitats. The vast pans of the central basin provide large wetland areas in winter and there are oases in the far south. Some intermittent watercourses in the northern mountains have been impounded to form small reservoirs and there is a small peat bog in the extreme northwest of Tunisia.

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1. Coastal Wetlands

(a) Lake Ichkeul

Country: Morocco

Coordinates: 37°10'-37°12'N/9°34'-9°45'E

Area: c. 10 000 ha (maximum in winter)

Altitude: c. 2 m asl

Nearest Towns: Bizerte (15 km NE); Tunis (52 km SE)

General: Lake Ichkeul (Achkel) is brackish in winter but tends to become highly saline in summer due to the infiltration of sea water. The permanent lake is eutrophic and 5-6 km long, but the swampy extensions which develop in winter increase the length to 15 km and the mean width to 5 km. The peripheral inundation zones are covered by marsh vegetation. The lake has a mean depth of 90 cm and is fed by the Oueds Malah and Sedjenane which drain highlands to the west. It lies close to the foot of the isolated peak of Djebel Ichkeul (509 m) and loses water by seepage to the sea via Bizerte Lagoon immediately to the west.

Flora & Fauna: The lake contains beds of *Potamogeton pectinatus* and *Ruppia spiralis*. The peripheral marshes support dense beds of *Phragmites australis*, *Scirpus littoralis* and *Typha capensis*. The fishes include *Anguilla anguilla*, *Dicentrarchus labrax*, *Mugil cephalus*, *M. ramada*, *Solea vulgaris* and *Syngnathus abaster*. The system provides important habitats for a range of amphibians (*Bufo viridis*, *Rana ridibunda*), reptiles (*Clemmys leprosa*, *Natrix natrix*) and mammals (*Bubalus bubalis*, *Lutra lutra*) as discussed in the regional introduction. It is an important habitat for wintering and migrating waterfowl including *Anas penelope*, *Anser anser*, *Aythya ferina* and *Fulica atra*, and reed species such as *Acrocephalus arundinaceus*, and it is (or was) a nesting site for many species including *Anas angustirostris* and *Oxyura leucocephala*.

Human Impact & Utilisation: The lake is visited by many people and the level of disturbance is quite high. The local fishery produces about 125 tonnes per year.

Conservation Status: The lake and adjacent mountain are state owned and the lake was classified as a National Park in 1980, and is both a World Heritage Site and a Biosphere Reserve. However, the peripheral marshland is mostly in private ownership. Plans to dam the oueds feeding the lake to provide water for irrigation threaten the entire habitat, since lowering the water level would almost certainly increase salinity and destroy the peripheral marshland.

(b) Bizerte Lagoon

Country: Morocco

Coordinates: 37°08'-37°17'N/9°46'-9°55'E

Area: 11 000 ha

Altitude: sea level

Nearest Towns: Bizerte (on lagoon); Tunis (45 km SE)

General: Often called Lac de Bizerte, this is a salt water system open to the sea. It is 13 km long, up to 9 km wide, and communicates with the sea through a channel 8 km long at the northeastern end. It supports salt-marsh vegetation along its shores and some marshland at its eastern extremity.

Flora & Fauna: As described in the regional introduction for coastal wetlands. It is a habitat for wintering and migrating waterfowl.

Conservation Status: Unprotected.

(c) The Mejerda Delta

Country: Morocco

Coordinates: 36°59' -37°10' N/9°57' -10°11'E

Area: c. 6000 ha wetland + 4500 ha lagoon

Altitude: sea level

Nearest Towns: Tunis (40 km S); Bizerte (40 km N)

General: The Mejerda River has sources in the high mountains of Algeria and drains a long alluvial valley in Tunisia before reaching the sea on the Gulf of Tunis. Its volumetric discharge is very seasonal, and in spite, in the northern winter, it carries a deal of suspended matter. The delta proper occupies at least 60 000 ha, but much has been reclaimed for agriculture leaving (1983) some 6000 ha of permanent marshland. The river enters the sea in a very shallow lagoon. This is 7 km long and almost as many wide, with a mouth at the eastern extremity between low dune covered spits. Depths in the lagoon reach about 2 m and the floor comprises alluvium from the Merjerda. Salinity reaches 46‰ in summer when river flow is minimal, but falls in winter to about 28‰.

Flora & Fauna: Mudbanks in the lagoon support *Zostera marina* together with species of *Cladophora*, *Enteromorpha* and *Ulva*. Swampy land at the head of the lagoon and in the delta is dominated by *Phragmites australis*, and there are salt-marsh areas both in the delta and along the lagoon. Floras and faunas are essentially as described in the regional introduction. The delta is an important wetland habitat for rodents, snakes, and wintering and migrating waterfowl, periodically supporting large numbers of ducks and sandpipers.

Human Impact & Utilisation: The remaining delta wetlands are not managed and the threat that more wetland will be reclaimed remains. The lagoon is fished, producing chiefly *Mugil cephalus*, but also some *Anguila* and *Dicentrarchus*.

Conservation Status: Unprotected.

(d) Sebkhet Ariana

Country: Morocco

Coordinates: 36°52'-36°58'N/10°10'-10°17'E

Area: c. 4000 ha (2500 ha regularly inundated)

Altitude: 1 m asl

Nearest Towns: Tunis (10 km SW); Bizerte (45 km NW)

General: This marshy saline pan, close to the site of the ancient city of Carthage, is almost contiguous with the southernmost wetlands of the Mejerda Delta and lies on deltaic alluvium. It is 14 km long and up to 4 km wide and is separated from the sea by a line of dunes. It is seldom deeply flooded and tends to dry out completely in most years.

Flora & Fauna: As described in the regional introduction for coastal wetlands. It is an important habitat for migrating and wintering waterfowl and, among other species, is frequented by *Calidris alba*, *C. alpina*, *Grus grus*, *Phoenicopterus ruber*, *Recurvirostra avosetta*, *Tadorna tadorna* and *Tringa totanus*.

Human Impact & Utilisation: Some hunting occurs and tourist developments are taking

place along the dunes between the wetland and the sea.

Conservation Status: Unprotected.

(e) The Lakes of Tunes

Country: Morocco

Coordinates: 36°42 ' -36°53 'N/10°07 ' -10°18 'E

Area: 7100 ha

Altitude: sea level

Nearest Town: Tunis (on lakes)

General: The 'lake' of Tunis, with an area of 4500 ha, is situated east of the city of Tunis and is bisected by a new motorway. The southern half of the lake is now called Lac de Radês after the town at its southeastern extremity. It is a highly eutrophic, saline lake, with water depths which seldom exceed 2 m. It has been freely open to the sea in the past, but its mouth is now silted and blocked by various biota. Salinities reach 45‰ in the southern section in summer, falling to 42‰ in winter, while in the northern section they range between 33-38‰. There is a small island, Chikli Island, in the NW corner. The Sebkheth es Sedjoumi is located immediately SW of Tunis, less than 2 km from Lac de Radês and is separated from it by an urban area which includes two major roads and a railway. It is a shallow saline pan of 2600 ha. It dries out almost completely every year and is seldom flooded to depths greater than 1 m.

Flora & Fauna: The lakes are much disturbed because of their urban environment, but nevertheless they support peripheral marshland vegetation and a rich avifauna. Important species using the system include *Anas acuta*, *A. clypeata*, *A. angustirostris*, *A. platyrhynchos*, *Aythya ferina*, *Egretta garzetta*, *Fulica atra*, *Larus argentatus*, *Phalacrocorax carbo*, *Phoenicopterus ruber* and *Oxyura leucocephala*.

Human Impact & Utilisation: The lake of Tunis is fished commercially, and hunting pressure is high on both lake and sebkhet, despite the fact that the lake is a reserve. Sewage is discharged into both the lake and the sebkhet. Fish production is in the region of 500 tonnes/yr.

Conservation Status: The lake has been declared a National Reserve, but the sebkhet is unprotected.

(f) Wetlands of the Gulf of Hammamet

General: A number of important wetlands are situated on the shores of the gulf or on the coastal plain immediately inland between Cape Bon (37°05'N/11°03'E) and Sfax (34°44'N/10°46'E). The Sebkheth Arouaria (36°57'-37°02 'N/10°59"-11°02'E) is a pan 11 km long and 4 km wide, subject to temporary inundation which is situated immediately south of Cape Bon (393 m) at the tip of the El Aouaria Peninsula. It is just above sea level, occupies 4250 ha, contains a small, brackish, semi-permanent lake with peripheral marshland, and supports a typical coastal flora and fauna as described in the regional introduction. It is unprotected.

Some 90 km SSW of this, stretching along the coast behind the dunes for 26 km, and very close to the sea, is the narrow (1 km) Sebkheth Kralifa (36°02'-36°15'N/10°28'E).

Southwest of this and 20 km inland is Sebkheth Kelbia (35°47'-35°55'N/10°12'-10°21'E). This

pan, which is close to 18 m asl, is 17 km long and up to 9 km wide. It contains a shallow eutrophic freshwater lake (c. 1200 ha) that seldom dries up. This contains beds of *Althenis filiformis* and dense stands of *Phragmites australis* and *Scirpus* sp., and the full pan, which occupies about 11 600 ha, is fringed by *Sarcocornia perennis* and *Tanzarix gallica*. It is fed by the Oueds Merguellil, Nebhana and Zeroud, but the Oued Nebhana is now impounded and its flow much restricted, while the other two streams are extremely seasonal in their flows. They can be very destructive when in spate. The silt load in these two oueds is increasing and thus the basin is slowly silting up. Schemes have been proposed for the utilisation of the waters of these two streams which are likely to lead to the eventual desiccation of the wetland. This is presently an important habitat for wintering and migrating waterfowl including *Anas acuta*, *A. clypeata*, *A. penelope*, *Grus gnus* and *Phoenicopterus ruber*. Species which breed here include *Anas angustirostris*, *Hintantopus hiinantopus* and *Tadorna tadorna*, but hunting and egg collecting occur. There is a fishery which yields about 80 tonnes of fish/yr. The site is unprotected.

The largest pan in the area is situated some 20 km south of Sebkhet Kelbia, 25 km inland and 75 km NNW of Sfax at an altitude of 28 m asl. This is the Sebkhet Sidi el Hani (35°24'-35°38'N/10°18'-10°36'E) which is 30 km long, 19 km wide and covers 36 000 ha. It is a shallow saline pan containing a permanent lake with several small islets in the centre. The area inundated varies quite dramatically from year to year, depending upon rainfall, and extensive mudflats may be exposed at the southern end during summer. Water depths seldom exceed 1 m. There are beds of rushes and peripheral salt-marsh vegetation. This is another important habitat for wintering and migrating waterfowl, and *Phoenicopterus ruber* sometimes breeds on the islands. Hunting and egg collecting occur and the system is unprotected.

Some 15 km west, farther inland, is Sebkhet Cherita (35°18'-35°24'N/10°14'-10°23'E), 75 km NW of Sfax. This pan is 18 km long and 8 km wide and contains patches of semi-permanent saline water and much salt-marsh vegetation. Farther south are the Sebkhets Mta el Rhera (35°08'N/10°30'E), Mta el Djem (35°09'N/10°47'E), Bou Djemel (34°58'N/10°25'E) and Mecheguigue (34°56'N/10°02'E). Also in this region are two more coastal sebkhets, both at sea level. These are the Monastir Sebkhet and Lagoon (35°45'N/10°47'E) 110 km north of Sfax, and the Sebkhet Moknine (35°32'-35°38'N/ 10°54'-11°01'E) 89 km north of Sfax. Both are saline. Monastir lagoon is small, covering only 175 ha, while the sebkhet occupies nearly 3000 ha. Moknine Sebkhet covers 5500 ha.

(g) Wetlands of the Gulf of Gabes

General: This section extends alongshore from Sfax (34°44'N/10°46'E) to Zarzis (33°28'N/11°07'E) and includes the offshore islands. This part of the coast is tidal and mudflats are exposed around the KneIss Islands (34°22'N/10°19'E) at low tide. Here there are small lagoons on the coast and the total wetland area, lagoons and mudflats, may exceed 12 000 ha. The vegetation of the area is typical of the North African coast, with *Zostera noltii* on the mudflats, *Ruppia nzaritinza* in the lagoons, and species of *Liinoniastruin*, *Halecneinon*, *Salicornia* and *Sarcocornia* at the upper tidal limit. The area is important to wintering water-fowl. *Egretta garzetta*, *Larus genei* and *Tringa totanus* breed here, while *Ardea cinerea*, *Calidris* spp., *Egretta alba*, *Limosa limosa*, *Numenius arquata*, *Phoenicopterus*

ruber, *Platalea leucorodia* and *Plegadis falcinellus* are common winter species. The area is unprotected. Other tidal and non-tidal coastal salt-marshes occur between Gabes (33°53'N/10°07'E) and the island of Jerba, and around the northern coast of Jerba. Tidal salt-marshes are continuous for 60 km from Teboulbou, 5 km south of Gabes, to the southern extremity of the gulf. Over this stretch the coast is indented to produce narrow bays, e.g. on either side of Gourine (33°39'N/10°34'E). Another salt-marsh occurs at the head of the Gulf of Bou Grara (33°28'N/10°47'E), known as the Sebkheth Aine Mader, covering 5000 ha.

Inland on the arid coastal plain there are two important pans, the Sebkheth en Noual (34°19'-34°27'N/9°41'-9°57'E) and the Sebkheth Sidi Mansour (34°13'-34°15'N/ 9°27'-9°33'E). The Sebkheth en Noual is situated 7-10 km from the slopes of the Djebel ben Kreir, Djebel bou Hedma and Djebel en Nedjilet, and is 23 km inland from the sea. Nevertheless, it is hidden from the sea by a range of low hills rising to 183 m, and is fed by 8 streams which drain these hills and the mountains close by, the latter rising to over 700 m. The pan is 25 km long, oriented SW-NE, and has a maximum width of 10 km. It contains a semi-permanent brackish lake and extensive peripheral marshes. The Sebkheth Sidi Mansour is smaller, c. 3000 ha, and is situated 6 km from the southeastern slopes of Djebel ben Kreir. It lies just below the 100 m contour and dries up completely in some years. At such times it may be ploughed and planted with cereals.

(h) Wetlands of the Southeast Coastal Zone

General: Just south of Zarzis the Sebkheth el Melah extends inland from the coast for 19 km, with a mean width of 8 km. This pan is separated from the sea by dunes and is saline. A further 10 km south is the Bay of Bibane (33°11'-33°19'N/11°05'-11°27'E) reaching almost to the Libyan border. This is a shallow lagoon, almost entirely cut off from the sea by a narrow spit, 30 km long, but with several small central openings between what are effectively dune islands. There are mudflats and peripheral salt-marshes and the lagoon is hypersaline with summer concentrations reaching 48.5‰ and winter ones falling to 42‰. It is fed by the Oued Fessi, the annual discharge of which is small and varies greatly from year to year, indeed in some years it does not flow at all. Tidal amplitude here is 50 cm (maximum), but the lagoon levels seldom fluctuate by more than 5 cm. Beds of *Cymodocea nodosa* and *Ruppia maritima* occur in the lagoon, together with algae which include species of *Caulerpa*, *Chaetophora*, *Cladophora* and *Limnothamnium*. The lagoon is an important nursery for *Sparus aurata* and a habitat for wintering and migrating waterfowl including *Phoenicopterus ruber*. It is fished, but not intensively, and is neither managed nor protected. *Diplodus annularis*, *Solea vulgaris* and *Sparus aurata* form the bulk of the catch.

2. Chotts of the Central Basin

(a) Chott el Rharsa

Country: Morocco

Coordinates: 34°00' -34°11' N/7°38' -8°07'E

Area: 42 000 ha

Altitude: below sea level (-23 m lowest point)

Nearest Towns: Tozeur (10 km SE); Gabes (185 km E)

General: This, the smallest and most westerly of the three great chotts of Tunisia, extends into Tunisia from Algeria. Its perimeter lies inside and below the 0 m contour, and its greatest depression is 23 m below sea level towards the eastern end. The surrounding country is arid and the margins of the chott are salt encrusted. The chott is fed by the Oued el Melah which enters at the eastern end, and by a system of oueds which reach the northeastern margins. However, the rest of the surrounding land, to the south, north and west, is not deeply gullied or marked by prominent watercourses and any run off which reaches the chott from this area is ephemeral. Occasionally water reaches the chott via the eastern watercourses, but there is never any extensive inundation. During rain the surface is moistened. Much of the chott is barren and salt encrusted with some halophytic vegetation on the periphery, as described in the regional introduction.

(b) The Chott Djerid & Chott el Fedjadj Complex

Country: Morocco

Coordinates: 33°18 ' -34°03 'N/7°45 ' -9°50'E

Area: 495 000 ha

Altitude: 15-38 m asl

Nearest Towns: Tozeur (5 km NW); Gabes (115 km E)

General: These two chotts are continuous, stretching 193 km from east to west, approaching to within 21 km of the sea. A few kilometres north of the complex the land surface rises steeply to a long ridge of hills comprising the Djebel Mona, Djebel el Asjker, Djebel Sif el Laham, Djebel Lefaa, and Djebel Hadifa ranges which reach an altitude of 285 m asl at the eastern end. Ten kilometres south of Chott el Fedjadj is the Djebel Tebaga range which rises to 469 m, but by contrast, to the south of Chott Djerid, the land grades gently upwards to the 100 m contour situated some 35 km distant on the edge of the desert.

Precipitation decreases inland, away from the coast, while temperatures increase. Mean annual precipitation is only 185 mm at Gabes and just 96 mm at Kebili (33°39'N/8°59'E), despite which rainfall over the chotts may be intense. The mean maximum and minimum temperatures of the warmest month (July) are 32°C and 22°C at Gabes and 42°C and 22°C at Tozeur (33°55'N/8°07'E), while the corresponding figures for the coldest month (January) are 16°C and 6°C at Gabes and 15°C and 4°C at Tozeur. The average potential evaporation over the chotts is 2500 mm or greater.

The floor of the two chotts has a minimum altitude of 15 m asl and comprises barren clay and gypsum. Chott Djerid receives flows of artesian water on both its northern and southern borders, deriving from rain on the Atlas and Dahar Ranges. Some of the springs discharge at rates up to 5 m³/sec and many are thermal. Those on the northern border are more saline than those on the south. However, direct precipitation over the chotts is the principal source of surface water, and over large areas this may do little more than moisten the surface. Where water does collect it is usually turbid and of short duration. A number of oueds draining towards the chotts may flow periodically, but will not necessarily carry surface water as far as the chotts.

Flora & Fauna: The southwestern 'shore' carries a wide belt of halophytic vegetation, but elsewhere the strip of fringe vegetation is narrower. Brine pools occasionally develop a deep

purple colour due to blooms of purple bacteria, and cyano-bacteria occur under salt crusts and at the saline spring of El Mensof in the chott. *Artemia* is present in the chotts, but is uncommon. The chotts proper are devoid of amphibians, reptiles and mammals, but are of some importance to birds. *Chlamydotis undulata* has been recorded on the fringes and *Phoenicopterus ruber* nests at the edges in some years.

By contrast much more diverse floras and faunas are found in the beds of the oueds that feed the chotts and in the springs around the margins. The crustacean *Thermosbaena mirabilis* lives in the hot springs at El Hamma, some of which have water temperatures as high as 51°C. Cyano-bacteria and diatoms live in all hot springs, being replaced where the waters cool, by Characeae, and in more saline waters by *Enteromorpha* sp. and *Ruppia spiralis*. *Scirpus littoralis* and *Zannichellia palustris* are found on the fringes of streams and pools and stands of *Typha capensis* occur in swampy places. The invertebrate fauna is quite rich. *Bulinus* spp. are present (but molluscicides are widely used and have reduced the bilharzia problem greatly). Several species of fish live in the oases, including *Aphanius fasciatus*, *Barbus antinorii*, *Haplochromis desfontainesi* and *Hemichromis binzaculatus*. *Gambusia affinis* has been introduced to control mosquitoes at several sites. *Bufo viridis* and *Rana ridibunda* are abundant, and *Mauremys caspica* occurs in the Oued Gabes if not in Chott Fedjadj. Rodents, two species of *Felis*, and many birds are also found at the oases.

Human Impact & Utilisation: The chotts proper are unmanaged. The oases around them have long been exploited for date production and horticulture. Tourism is increasing rapidly, and large centres of population have developed at several oases, e.g. Nefta (33°53'N/7°53'E) and Tozeur. There are problems with sewage disposal, and much swampland around the oases, which previously supported stands of *Typha*, has been reclaimed.

Conservation Status: Unprotected, but it has been suggested that the northern portion of the chott be included in a proposed National Park.

3. Other Wetlands & Impoundments

(a) The Dar Fatma Bog

General: There are montane bogs in Algeria but this (36°48'N/8°45'E) is the only one in Tunisia. It is situated in the Kroumerie Region of the Mejerda Mountains, at an altitude of 770 m asl, in the wettest part of Tunisia. It is fed by a small stream and is about 25 km southwest of Tarbarka and 145 km west of Tunis. It covers about 3 ha and while the flora includes *Sphagnum subsecundum*, this is dominant over only small areas. Other species include *Anagallis crassipes*, *Asphodelus microcarpus*, *Eleocharis multicaulis*, *Erica scoparia*, *Isoetes hystrix*, *Montia fontana* and *Phragmites australis*. We have no information concerning the fauna of the bog and the site is not protected.

(b) The Lake of Sduk el Arba

General: There is a freshwater lake in the Mejerda Valley (36°29'N/8°51'E) near Sduk el

Arba, at an altitude close to 180 m asl on the south side of the river. The lake is fed by a small stream and drains to the Oued Mejerda. It is fringed by *Phragmites australis* and other emergent macrophytes. We have no information regarding its fauna.

(c) Artificial Impoundments

General: There are 14 large reservoirs in Tunisia with a total surface area of 17 600 ha, one of the largest being at Sidi Saad (35°22'N/9°50'E). There are small reservoirs at the 9 principal oases in the south.