

**PRELIMINARY REPORT  
ON NATURAL HERITAGE SITES IN EASTERN SYRIA**

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July 2008

**MUNICIPALITY ADMINISTRATION MODERNIZATION PROJECT  
MED/2004/6264: EUROPE AID/119822/SV/SY**

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## Background

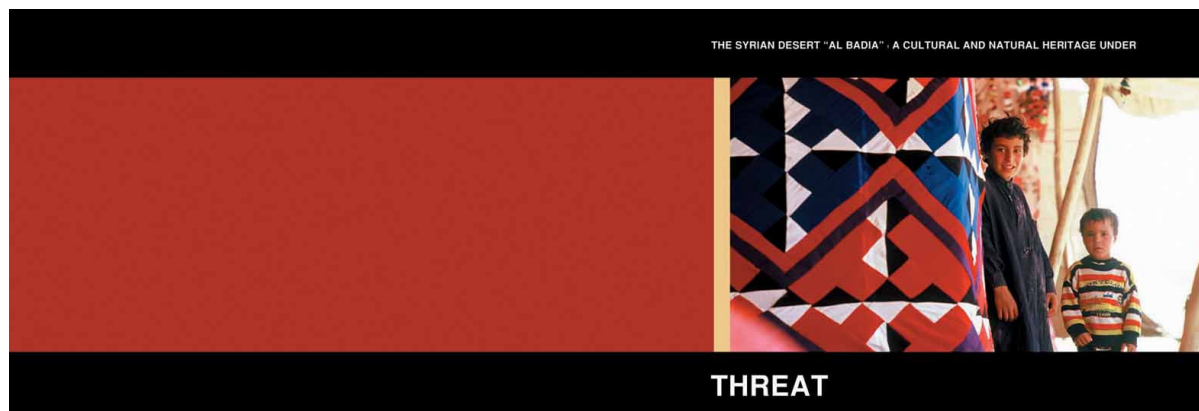
Scientific knowledge about the natural heritage of the Syrian desert - especially on the fauna side – has been quite scant until early 2000, when some pioneering organized reconnaissance efforts were prompted by a major UN/DGCS international conservation project based in Palmyra (1996-2004).

The intensive surveying program carried out in the framework of the UN Palmyra project led, among other outstanding results, to the discovery in 2002 of a relict colony of one of the rarest bird on Earth, the Northern Bald Ibis, which made the headlines on international media during the following years - including a video on BBC's Earth Report and on the National Geographic.

The international interest on Syria's natural heritage was since then turned on, suddenly. Since 2002 the interest on Syria fauna has been increasing steadily. In 2004, a major UNDP/GEF project was launched aimed at developing 3 protected areas within the country, one of these being the Jebel Abdul Aziz protected area, near the city of Hassake. The natural heritage of the eastern provinces of Syria was - and is - surely the least known of the country, mainly due to its distance from the main urban centres of western Syria.

Starting from 2004 2 international bird expeditions were organized and carried out, while a number of independent birdwatchers and nature-lovers flocked to the country in search of rarities and made available their very valuable field observations and trip reports. In early 2007 an international expedition found a remarkable concentration of Sociable Plovers in the steppes of north-eastern Syria – another critically endangered bird on a global scale.

In parallel, during these same years the interest and awareness for the surviving natural heritage of Syria desert has also been growing nationally, catalysed by the direct interest of the Palace: in fact, H.E. Mrs Assad, the Syrian First Lady, inaugurated a Desert Cultural and Natural Education Center in 2003 in the surroundings of Palmyra and a photo-exhibition titled “The Syrian Desert Al Badia: a Cultural and Natural Heritage Under Threat” in 2006.



Invitation to the photo-exhibition held in October 2006 at Danish Institute in Damascus titled “The Syrian Desert Al Badia: a Cultural and Natural Heritage Under Threat” (front cover).

The preliminary observations, carried out during the recent years, were already sufficient to realize that the natural heritage of eastern Syria is heavily degraded and highly threatened due to human activity, but also that, nonetheless, there is still some limited time in order to save some unique and precious sites, especially along the Euphrates river and along the southern border with Iraq.

## Natural landscapes and ecosystems

The so-called “Syrian desert”, known as Al Badia, is in fact a desertic or arid steppe, experiencing a quite severe desertification process since at least 10-20 years ago. It comprises more than half of the country's total surface and it used to make the majority of the natural environment of the

eastern provinces, until this was mostly converted into cultivated land. This landscape is characterized by a rocky barren emptiness, a lunar landscape with a wide horizon bordering it and the sheep and camel herds and flat tents of Bedouin nomadic pastoralists all scattered around. During the past decades, most of the eastern steppe has been turned into cultivated fields through the development of major irrigation schemes: only some sections of the natural steppe still survive to the north and to the south.

Five are the natural ecosystems recognizable within the eastern desert.

- Flat and undulating scrubland. Floodplains and rocky pavements, drainages (wadis), sand hummocks and dunes and undulating terrain and low hills. The vegetation cover is made up of dwarf perennial shrubs seasonally intermixed with annual plants; *Tamarix* spp. dominates along wadis and water bodies.
- Slow-rolling mountains, plateau and cliffs. There are two main ranges of mountains in the eastern desert, Jebel Abdul Aziz and Jebel Bishri. They are made up of sedimentary rocks (limestone, marl, calcareous sandstones) forming outcrops and plateau, with plenty of gravels and loam along valleys. These mountain ranges, reaching up to 1000-1100 m asl, are characterized by slow rolling peaks alternated to sheer limestone cliffs, and by complex systems of wadis. The vegetation is represented by sparse dwarf perennial shrubs, intermixed with annual plants depending on altitudes, and at times with some surviving patch of *Pistacia atlantica* woodlands.
- Rivers and reservoirs. Main rivers in eastern Syria are the Euphrates and the Khabur. Dams have been built in the past decades to produce electric energy, creating large artificial reservoirs. There are 3 large dams in the upper section of the Syrian Euphrates: Lake Tishreen, Lake Assad, Lake Ba'ath. Due to construction of the dams, the rivers do not flood anymore, like the clearly used to do in the past, during spring time. The Euphrates still have some relevant stretches with native riverine vegetation supporting a wealth of avifauna, while the Khabur river seems very degraded along the whole of its course.
- Seasonal salt lakes (sabkhat). These are alluvial depressions of variable shape and size, filled with water according to rainfall - usually during winter and spring time only. This eco-system supports many waterbirds during winter and migration time.
- Freshwater lakes. Only one kind of this ecosystem was detected, still holding native vegetation, during the past years: it is Lake Al Khatunūiyah, east of the town of Hassake. This water body seems permanent due to springs supporting it.

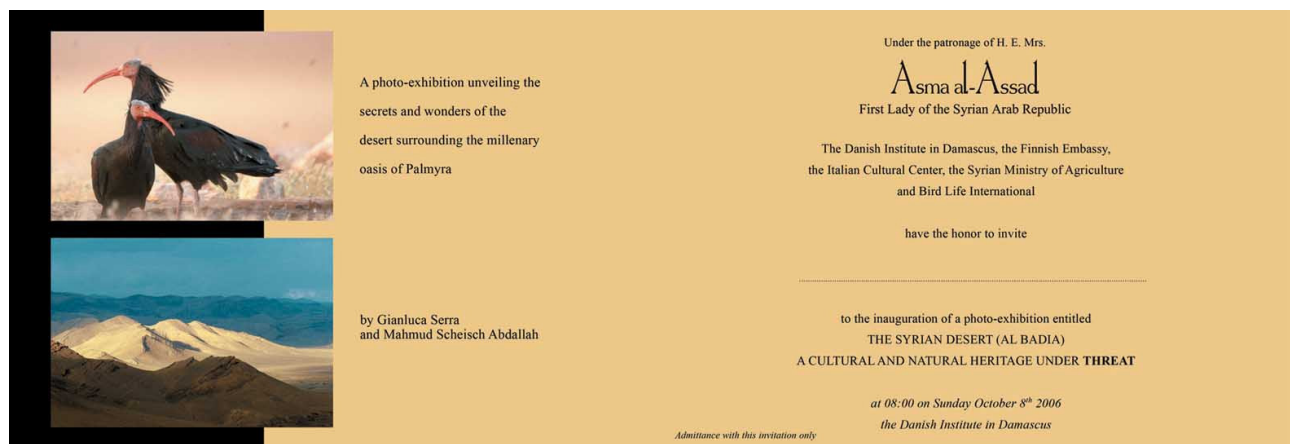
### **Threats and conservation status**

The steppe ecosystems and the associated culture are at the brink of extinction in Syria. In eastern Syrian, the vast majority of this ecosystem has been turned into cultivated lands during the past decades. The typical topography of Al Badia - mainly flat or undulating plains intersected by slow rolling highlands - allows easy access of people almost everywhere. For this reason Al Badia looks exploited almost entirely on its total surface area for 12 month a year. The biodiversity of Al Badia has experienced an unprecedented process of destruction during the past 20 years.

While at least 7 large-sized game species have already vanished during this recent period (among these different species of gazelles, Leopard, Cheetah, Ostrich etc.), at least other 13 species, once common within Al Badia, are presently on the verge of local, regional and global extinction. An emblematic and symbolic case is that of the iconic N. Bald Ibis, not so long time ago still a common awe-inspiring sight of Al Badia landscape.

The proxy and direct causes of this degradation process are the most simple to be identified: reclamation to agriculture, uncontrolled sheep grazing, firewood collection and hunting. Water

bodies in eastern Syria suffer from heavy pollution coming from cultivated fields (pesticides and fertilizers) and from town and villages. In fact sewage treatment plants are mostly scant or non-existent. Most of the natural wetlands, such as the “oxbow-shaped” residual satellite lakes surrounding the Euphrates, have been filled in or drained – or heavily polluted.



Invitation to the photo-exhibition held in October 2006 at Danish Institute in Damascus titled “The Syrian Desert Al Badia: a Cultural and Natural Heritage Under Threat” (inside).

One of the root or underlying most severe cause for the general ecological degradation is certainly the exponential population growth. The pressure on Al Badia resources has enormously increased during the past 40-50 years due to a high rate of population growth. The Syrian population was 3.4 million in 1950, while it reached 17.8 million by the year 2000 - the population has increased more than 5 times within 50 years.

The natural ecosystems of the Syrian desert are threatened of collapsing, even in the short term, from an ecological point of view, and of becoming unproductive. During the past decade, the pastoralists have been increasingly forced to buy the feed for their sheep from outside Al Badia, as the pastures have turned unproductive for several months a year. The mountains and the scrubby plains are over-grazed and dramatically impoverished in shrubs and trees coverage, while the very existence of the oases and the natural wetlands is threatened due to over-exploitation of water.

Hunting practice within the steppe and along water bodies seems either unselective (i.e., all kind of species are shot down regardless of their edible / commercial value) and unsustainable (i.e., the quantity of individuals shot down per species is unlimited). Hunting is operated either by national and foreign hunters accompanied by locals. Because hunting is banned in Syria since at least 15 years ago, through a moratorium, the hunting in question should be actually called poaching. But this ban is certainly not sufficiently enforced.

### Potential for ecotourism and nature tourism

Tourism is currently regarded as the world’s largest industry and it has been clearly identified by Syrian authorities as a development strategy key for several regions - especially for the Palmyra one. During a high-level workshop organized by the British Syrian Society about the tourism development in Palmyra, in mid April 2008, the Prime Minister and several other ministers showed to be highly aware about the importance of the protected areas, recently established in the Palmyra desert, for diversifying the tourism product and therefore for helping turning the town to become a premiere quality tourist destination.

Ecotourism is a relatively new and different form of nature and adventure travel, pursuing the preservation of local natural and cultural heritage through improving the welfare of the local community. In the context of global tourism market, ecotourism accounts for 2-4 % of the entire tourism sector - but it is one of the fastest-growing segment of the industry according to the World Tourism Organization. The market for ecotourism seems to be rapidly growing in western Europe.

The new travel ethic on which ecotourism is rooted derives from an increasing global appreciation of the intrinsic value of un-spoilt nature and realization that the planet's biodiversity is being lost at unprecedented rates.

It is clear that a terminology confusion exists between "ecotourism" and "nature tourism". Since the 1992 Earth Summit in Rio ecotourism has become a quite fashionable term and concept increasingly proposed by bilateral donors and cooperation agencies as a mean for promoting nature conservation in developing countries while improving the welfare of local people. It is an approach also favoured by international lending agencies such as the World Bank and the International Monetary Fund (IMF).

On one hand, nature tourism is a type of tourism focusing on showing natural assets with no major concern about conservation of biodiversity and associated local communities. The same as mainstream tourism, nature tourism is mainly controlled by market forces. In fact, at present most of the so labeled "ecotourism" operations around the world better qualify as nature tourism.

On the other hand, ecotourism is defined by the IUCN (The World Conservation Union) and the Nature Conservancy: "environmentally responsible travel to natural areas, in order to enjoy and appreciate nature (and accompanying cultural features, both past and present) that promote conservation, have a low visitor impact and provide for beneficially active socio-economic involvement of local peoples".

Ecotourism is small scale but ensure that most revenues go to the local community, while revenues from nature tourism usually and easily remains outside the local level. Ecotourism should provide local economic benefits, conserve the environment, allow local participation in planning and management and be developed in a socially and culturally sensitive manner.

## Objective

**To describe the known sites key from a biodiversity and natural point of view, lying within the study area, and to make specific and clear recommendations on how to best value and protect them for the enjoyment of Syrian present and future generations and for the sake of ecotourism and nature tourism development.**

## Methodology

Information on which present report is based were collected during period 2001-08 through several reconnaissance surveys and expeditions. In January-March 2004 a Syria Wetland Expedition (SWE) took place, involving 12 people of different nationalities, including Syrians (Murdoch *et al.* 2004; 2005), supported by the Ornithological Society for the Middle East (OSME) and BirdLife International.

In February 2007 a Sociable Lapwing expedition was carried out, supported by the same institutions (Hofland & Keijl 2008). In the same period a survey was organized by Mr Anssi Kullberg, on his personal initiative, to the south-eastern water bodies (Kullberg 2007).

A number of other trips were carried out on a personal initiative by the author of present report and by several other foreign birdwatchers and nature lovers. Several of these "trip reports" are available on-line at the web site of OSME ([www.osme.org](http://www.osme.org)). A special tribute should go to Dave Murdoch, Remco Hofland and Anssi Kullberg, who made several expeditions and surveys in the country and were kindly ready to make their very valuable recorded observations available.

An important preliminary survey was conducted by BirdLife International in Syria in the early 1990s (Evans 1994) whose outcome was a list of so-called “Important Bird Areas” (IBA), relatively to Syria, which were then included in the global inventory of IBAs run by BirdLife International (<http://www.fao.org/GTOS/doc/BRIM-BirdLife.pdf>). IBAs are defined as “sites of international importance for the conservation of birds, and associated fauna and flora communities, identified against a set of globally standardized scientific criteria”.

The main target of above mentioned expeditions and surveys was avifauna, although typically any kind of fauna was recorded. Birds are actually the most obvious kind of wildlife seenable during a quick survey, due to their mostly diurnal habits and to their use of our same perceptive and communication channels (visual and acoustic). For instance, detection of mammals is comparatively much more complicated and time consuming as they are mostly nocturnal and heavily rely on olfactory clues as a main communication channel.

There is consensus that birds are suitable and sensitive ecological indicators for rapid assessments of the naturalistic value of a given area. In a heavily degraded situation such as that of eastern Syria's arid landscapes, any potentially resident fauna survived to their natural habitats' destruction and to human persecution (e.g. uncontrolled hunting) could be found only where some natural vegetation still occurs. Sites still holding some natural vegetation are basically survived only along the Euphrates. Nonetheless, eastern Syria is blessed with migratory birds, which can use for stop-overing also sites almost devoid of any vegetation, such as the overgrazed steppe, artificial reservoirs and seasonal salt lakes (sabkhat).



Scanning the Euphrates during the Syrian Wetland Expedition, taken place in January-March 2004.

The study area considered by the present report is that including the provinces of Deir-ez-Zor, Raqqa and Hassake. A list of the sites recently surveyed and found of some interest from a natural point of view is presented in the next section (Findings). These sites are ranked according to criteria of natural heritage potential and value (Natural interest, with marks ranging 1-5; where 1 is the lowest and 5 the highest) and of degree of current threats of destruction (Threats, with marks 1-5). For each site, assessed in the two next sections (Findings and Recommendations), following standardized information is given:

- Geographic coordinates
- Location and description
- Natural interest
- Threats
- Conservation status
- Source
- Recommendations.

Each site is identified with a number - in parenthesis in the title of each paragraph - that can be easily found in the general reference map (page 8).

An additional site, Sabkhat al Jabbul, was added to the list - despite it clearly does not belong to the study area from an administrative point of view -, following naturalistic and conservation criteria. In fact, this wetland certainly belongs - and in fact is - hydrologically linked to the Euphrates valley. It is a site of exceptional conservation importance and is still highly threatened.



## Findings

### The Euphrates river (0)

This historically iconic river, coming down from the uplands of eastern Turkey and continuing into the plains of northern Iraq, surprisingly still holds quite pristine riverine habitats along its banks with associated interesting fauna - of which birds are only the most obvious. The river still flows in its original bed and it is still rich in islets, meanders, pools, "oxbow" lakes and alluvial cliffs. The natural vegetation includes reedbeds and sedges, riverine thickets of poplars, *Tamarix* spp., willows, and *Typha* spp.

This river during bird migration times – from March to May and from September to November – is an outstanding migratory flyway, especially relatively to waterbirds and raptors. For this reason, the whole Euphrates valley, about 440 Km from the Turkish to the Iraqi border, had been already declared an Important Bird Area by BirdLife International (Evans 1994).

Until several decades ago, before the construction of the large dams in the northern section of Syrian Euphrates, the river used to flood during spring time following the snow melting on Turkey's uplands. Once retreating, in late spring and summer, the river used to leave behind small lakes and ponds – some of them with the typical "oxbow" shape.

General reference map showing the study area and the sites mentioned in the text.



Some of these specific habitats of still-water, most likely very common in the past, have miraculously survived the massive agriculture reclamation process taken place in the past century. They are still scattered in some places around the large river. These are the most interesting spots from a natural point of view as they usually hold a rich surviving avifauna, especially made of ducks, terns, waders, herons and raptors – just to mention the most obvious ones. There are still many quiet and well vegetated areas along the Euphrates, miraculously survived and difficult to access by people, which are the ideal places to look for wildlife.

Most importantly, the Euphrates offers the remarkable potential of combining cultural and natural heritage interests, as evidenced by internationally renown sites such as Mari, Dura Europos,



Halabye and Zelabiye or even Deir-ez-Zor itself (see below). And on top of these, there are surely other less famous locations along the Euphrates, less known and off-the-beaten-track, where cultural and natural interests could be suitably combined.

### Mheimideh (1)

*Geographic coordinates:* 35°25'51.64"N 40°5'58.67"E

*Location and description.* This is a very small wetland, with an extension of less than 2 Km<sup>2</sup>, located on the eastern bank of the Euphrates river, about 15 Km north of Deir-ez-Zor. It is an example of a river residual "oxbow" pond from the times when the Euphrates used to flood during spring time.



White-headed Duck, globally threatened with extinction, is a common sight at Mheimideh (photo by Arthur de Wolf).

*Natural interest (5).* Mheimideh as early as 2003 attracted the attention of birdwatchers as a very rich and rewardable spot for high-quality birdwatching. In fact despite the wetland is surrounded on all sides by buildings and the density of people is extremely high, for a combination of odd reasons the area still holds an amazing number of high-quality birds - actually, most likely, this site holds the widest range of breeding waterfowl than anywhere elsewhere in Syria, except Sabkhat Jabbul (see below).

In fact, three duck species breeding at Mheimideh are extremely rare and are listed as threatened on a global scale: White-headed Duck (see photo), Ferruginous Duck and Marbled Teal.

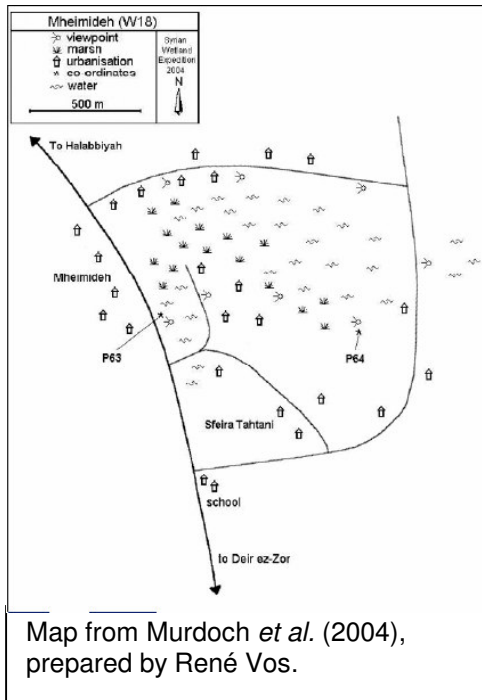
For instance during a visit in 2004, several thousands ducks belonging to 12 species were recorded at Mheimideh, together with 9 species of herons. Iconic, conspicuous and colourful birds like Pied Kingfisher, Blue-cheeked Bee-eater, Purple Gallinule (see photo) and White-headed Duck appeal to any nature-loving tourist - not only birdwatchers.

It is a quite compact wetland with a very rich mosaic of habitats in the middle of an extended village. According to Murdoch (2007) "Mheimideh could have been designed by a wildlife consultant".

*Threats (5).* This tiny wetland is in an exceptional immediate threat of vanishing due to pollution, drainage and in-filling. The survival of Mheimideh so far is almost miraculous and should not be taken for granted. Increasing instances of in-filling have been documented during the past 3 years. The site was last visited on 28 February 2008 and found to still be in an excellent state.



The Purple Gallinule is another iconic bird easily seenable at Mheimideh (photo by Andrew Williams).



The fauna richness of Mheimideh is remarkable considering the human disturbance in place and considering that anywhere else along the Euphrates waterfowl are heavily hunted. Hunting pressure is probably reduced at Mheimideh - or even non existent - simply as this activity would pose a heavy hazard to houses and people.

*Conservation status:* unprotected.

*Source:* Murdoch *et al.* (2004; 2005), Murdoch (2007) and several other subsequent birdwatchers' trip reports.

### Woods (huweijat) between Halebiye and Raqqa (2)

*Geographic coordinates:* 35°44'16.44"N 39°45'4.58"E (Huweijat Halebiye 1); 35°44'54.64"N 39°42'38.20"E (Huweijat Halebiye 2); 35°50'16.64"N 39°14'0.85"E (Shnan's oxbow); 35°51'31.73"N 39°15'4.40"E (Huweijat Shnan)

*Location and description.* The Euphrates section upstream the gorge of Halebiye is an interesting one due to the occurrence of surviving patches of riverine woods (locally known as huweijat) - either on the river's banks or on islets. These are riverine woodland up to 10 m tall, in good conditions with several grassy clearings. Shortly upstream the gorge of Halebiye there are some islets holding interesting huweijat, while about 50 Km further upstream there is another huweijat and an oxbow near the village of Shnan, both on the southern bank of the Euphrates (about 23 Km downstream from Raqqa).



The stretch furthest from the river of the Shnan's oxbow is open water with a tick fringe of reeds, but there are also extensive reedbeds along both arms of the oxbow that extend towards the river. Round the oxbow is open farmland with scattered trees. Along the river, there are areas of low thorn scrub, a wood and several marshy areas with small patches of reeds, creating an interesting mosaic of habitats. The access to Shnan' oxbow and huweijat Shnan is not easy during winter time due to muddy tracks.

*Natural interest (5).* These huweijat are interesting habitats as they seemed relatively undisturbed in 2004 and therefore a good refuge for wildlife. They are exceptional area for watching large raptors - especially the wintering and migratory passer-by Greater Spotted Eagle (seen in 2004 and 2008) as also the Pallid Harrier. Iconic colourful birds such as the Black francolins, Iraq Babblers, Bearded Tits and Penduline Tits are also occurring in habitats as such.

The huweijat adjacent to Halebiye have a good potential for combining cultural and natural heritage interests. In fact, Halebiye and Zalebiye are two Byzantine fortresses of international importance, about 60 Km upstream from Deir-ez-Zor. The Shnan area, along the Euphrates, has good riverine habitats and small ponds that are probably excellent in any season for wildlife observations.



Shot tern found at Sabkhat al Jabbul in spring 2005 (photo by Dave Murdoch).

In addition to birds, interesting butterflies, dragonflies and soft-shell tortoises might be still occurring at these well vegetated sites. In fact, this pristine and relatively undisturbed riverine habitat could still host the elusive Caracal – the iconic medium-sized jumping cat with tufts on top of ears.

*Threats (5).* In January 2004, during SWE, hunting was witnessed. There are few houses close to the Shnan' oxbow. In February 2004 the south-western part of the oxbow was being drained but the south-eastern part still contained some water. Without proper and immediate action this site could be drained totally, as already witnessed for other Euphrates' oxbows during recent surveys. Water pollution.

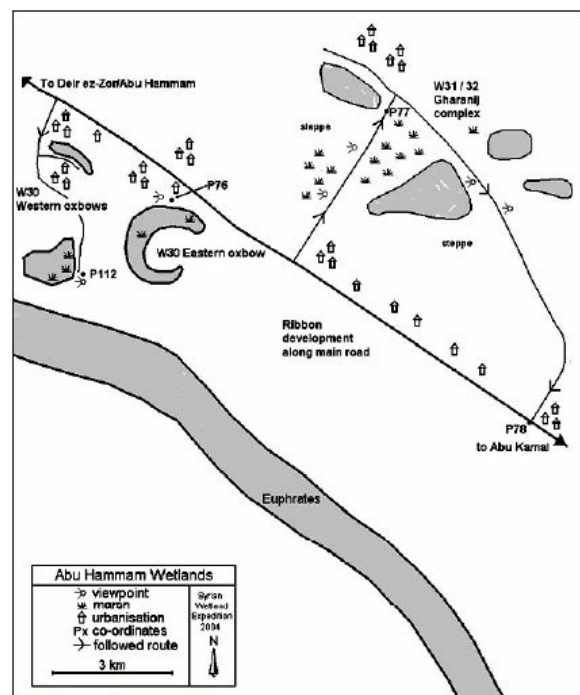
*Conservation status:* unprotected.

*Source:* Murdoch *et al.* (2004; 2005) and several other subsequent birdwatchers' trip reports.

### **Dura Europos and Abu Hammam (Gharani) wetlands (3)**

*Geographic coordinates:* 34°45'1.65"N  
40°43'40.89"E (Dura Europos); 34°49'49.07"N  
40°38'53.53"E (Abu Hammam)

*Location and description.* Dura Europos, easily visible from the main road Deir-ez-Zor - Abu Kamal, is located about 100 Km south of the former urban centre. It is certainly an archaeological site of international importance that due to its remoteness is not often touched by mainstream tourism. The site is on the western bank of the Euphrates, just overlooking the river from an alluvial cliff. Abu Hammam area, about 12 Km upstream from Dura Europos, was likely a regularly flooded area in the past. Dams upstream now regulate the Euphrates' water levels and the floodplains have been mostly



Map from Murdoch *et al.* (2004), prepared by René Vos.



drained.

An oxbow lake is located close to Abu Hammam. 'Gharanij', as the area is also known locally, is apparently a local name for flamingo. The Gharanij area is a large, very flat floodplain with salt-pans, low-density agriculture, patches of reeds and other wetland vegetation; there are scattered houses. Several roads cross the area; there appears to be open access with no physical barriers to entrance.

*Natural interest (4).* Perhaps few tour operators and tourists know that the ancient Roman fortress of Dura Europos is perched on an elevated eroded bank side overlooking a wonderful and scenic stretch of the Euphrates river, rich in islets with small trees and reedbeds. In 2003 the author observed a quite large colony of a rare little falcon, the Lesser Kestrel, a species threatened on a global scale (listed as "Vulnerable" in the IUCN's Red List 2007), nesting on the impressive riverine cliff below Dura Europos.

In fact, from the edge of the archaeological site the visitor can have a wonderful view over the Euphrates valley: this is certainly an excellent bird migration watchpoint at the right time of the year. Moreover, after descended to the river's shore, the author had a very enjoyable bath. The slow flowing water - despite most probably polluted - has a very attractive and transparent appearance. Abu Hammam's oxbow is still a good area of habitat with significant numbers of ducks and migrating waders.

*Threats (5).* Members of SWE saw hunters in action at Abu Hammam on January 2004; the Arabic name of Abu Hammam, 'Gharanij', reveals its past glories but any flamingos that visited the area now would probably be shot. Water pollution. Destruction of native vegetation such as riverine trees and reeds and sedges. The population density along the nearby main road was very high and many people were using the area.

*Conservation status:* unprotected.

*Source:* personal observation (2003); Murdoch *et al.* (2004; 2005).

## **Deir-ez-Zor suspension bridge and surroundings (4)**

*Geographic coordinates:* 35°20'28.51"N 40° 9'21.19"E

*Location and description.* The so called "suspension bridge" of central Deir-ez-Zor, a pleasantly designed pedestrian bridge over the Euphrates, is certainly a key landmark for the urban skyline of this town. It is also a quite popular "promenade" for the citizens of Deir-ez-Zor, especially in the evening. The bridge is overlooking a scenic stretch of the Euphrates river, still holding pristine riverine vegetation, especially on the islets immediately upstream of the bridge. The bridge is sided by parks and gardens on the two banks.



*Natural interest (4).* While the bridge is known as a key architectural landmark for the town and also as a popular promenade venue, few

know that this infrastructure is also a very interesting vantage point from which to conveniently spot the avifauna of the river at close range.

In fact the bridge enables the birdwatcher to inspect from close distance the islets just below the bridge, usually rich in large waterbirds, especially herons. Especially at dusk, it is very enjoyable to observe the “traffic” of large herons flying back to their nocturnal roost (usually large trees on islets where they congregate to spend the night together, as a defensive strategy). Interestingly, at the same time, it is possible to watch the nocturnal Night Herons taking off from their diurnal roosts. Most of these large birds fly along the river passing below the bridge, and their sight is therefore very enjoyable and sometimes impressive.

The parks beside the bridge offer the encounter with four birds not occurring in Europe, such as the White-cheeked Bulbul, the famous Iraq Babbler - discovered by birdwatchers in 2003 –, the Bluethroat and the Dead Sea Sparrow. The outdoor coffee places and restaurants located on the western bank, beside the bridge, are spectacular sites from where comfortably birdwatch while sipping a coffee or tea (or dining). The suspension bridge, as well as the coffee places beside it, are marvellous bird migration watch-points.

*Threats (5).* The importance of pristine riverine vegetation as a key habitat for last surviving wildlife and as a tourist and recreation opportunity is most likely overlooked by the citizens and the authorities. The chance of being able to spot impressive wildlife right from the centre of the town - while comfortably seated at an outdoor coffee place - is not, by any means, a possibility offered by all towns, especially in Syria. The fact is that riverine vegetation is presently not seen as a value and is therefore in danger of being destroyed and burned to make place for orchards and vegetable gardens – or simply for “clearing off” and “cleaning”.

*Conservation status:* unprotected?

*Source:* personal observation (2002-04), Murdoch *et al.* (2004; 2005) and several other subsequent birdwatchers’ trip reports.

## Lake Tishreen (5)

*Geographic coordinates:* 36°43'7.70"N 38° 3'1.21"E



Lake Tishreen, February 2004 (photo by G. Serra).

*Location and description.* Very little is known about this reservoir, not even the exact date when its dam was completed; according to local people, the reservoir was filled in about 1999. The wetlands that surround it seem therefore relatively new and rapidly developing. SWE expedition members were the first outside ornithologists to visit the site, which is not included in the IBA Inventory – not because it does not deserve it, but because it is a relatively new environment. The dam was constructed close to the upper end of Lake Assad, flooding the Euphrates valley to within a few kilometres

of the Turkish border.

The Aleppo – Hassake road crosses the reservoir over Karakozak bridge about halfway along the reservoir. Below Karakozak bridge, the reservoir appears to be relatively narrow with steep sides, few villages and few people. Above the bridge, the western side is steep with few villages but the eastern side is much lower with dense human habitation.

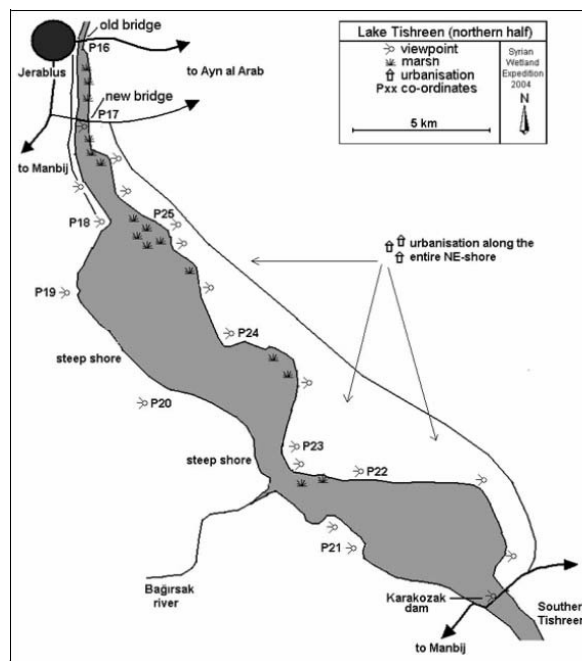


In the north and north-east, near the village of Shyukh Tahtani, the land shelves very gently, forming a wetland several square kilometres in extent, with large tracts of reeds, drowned trees and ruined buildings.

**Natural interest (5).** Lake Tishreen is an outstanding new wetland. SWE's data show that it holds significant numbers of wintering Black-necked Grebes, Pygmy Cormorants, Pochards, Ferruginous Ducks, Marsh Harriers and Coots. Its geographical position indicates that it is likely to be of major importance for migrating waterfowl and raptors. The large areas of reedbed may hold significant numbers of breeding birds such as Pygmy Cormorant, Bittern, Ferruginous Duck and Iraq Babbler.

**Threats (4):** Most of the shoreline appears steep and barren with few people and poor access, but there are several large villages on the eastern shore north of Karakozak bridge. Human pressure appears at present to be less than at other important sites for waterfowl, although there is hunting and disturbance by fishermen. Overall, SWE members witnessed remarkable hunting.

Hunting pressure at Karakozak bridge was heavy. In May 2005, there was much shooting at Turtle Doves. Further, the removal of the gravel track at the northern end was an active measure that prevented hunters penetrating deep into the reeds. There seems to be some evidence of active measures to conserve wildlife. There was no evidence of any factories or other industrial activity.



Map from Murdoch *et al.* (2004), prepared by René Vos.

**Conservation status:** unprotected.

**Source:** Murdoch *et al.* (2004; 2005) and Murdoch (*pers. comm.* 2005).

## Buhayrat Al Basil and Tel Al Hamdaniyyah (6)



Reservoir Buhayrat al-Basil in February 2007. (photo by Perttu Kantonen).

**Geographic coordinates:**  
 36°19'44.99"N 40°46'46.67"E  
 (Buhayrat Al Basil);  
 36°12'22.08"N 40°43'17.16"E  
 (Tel Al Hamdaniyyah)

**Location and description.** Buhayrat Al Basil is a new artificial reservoir, with shallow water, established by the construction of a dam on the Khabur river, about 20 Km south/southeast (downstream)

of Hassake, near the municipalities of Ajaja and Shaddadi. Ten Km downstream from the dam there is a hill

known as Tel Al Hamdaniyyah, standing out from the rest of the Khabur valley from a scenery point of view - just off the main road from Deir-ez-Zor to Hassake.

*Natural interest (4).* The reservoir seems to seasonally support large numbers of wintering ducks, geese and other waterfowl. The lack of surrounding vegetation such as reedbeds, makes this water body interesting only during migration, as there is clearly no natural habitats for breeding birds. Thousands of migrating waterbirds and also large amounts of shorebirds were seen in February 2007, including 30-40 individuals of the very rare Lesser White-fronted Goose – a species listed as globally threatened with extinction by the IUCN - and a multitude of colourful Ruddy Shelducks.

Compared to nearby Al Khatunüiyah lake (see below), Al Basil reservoir seemed holding different composition of birds, as it was obviously a favourite destination for many arctic species and half-divers that prefer more shallow water. The whole Khabur river valley has been labelled as an “eco-desert” by most of the recent nature-lover visitors, due to the endless fields of intensive agriculture almost completely devoid of any type of natural vegetation: Tel Al Hamdaniyyah is one of the few spots - if not the only one - detected so far with a lovely almost natural surrounding scenery still surviving.

*Threats (5).* Regular destruction of surrounding vegetation (reedbeds) at the reservoir due to violent and irregular water levels fluctuation. The reservoir is apparently emptied every year in late summer. Water pollution. Hunting was obvious in February 2007.

*Conservation status:* unprotected.

*Source:* Kullberg A. (2007), Murdoch D. (*pers. comm.*).

### **Lake Al Khatunüiyah (Al Hawl) (7)**

*Geographic coordinates:* 36°24'40.04"N  
41°13'39.00"E

*Location and description.* Quite pristine spring-supported freshwater lake, about 45 Km to the east of Hassake and 8 Km from the Iraqi border, with reedbeds and surrounding fields and bushland. Reportedly the size of this lake is variable between 50 and 800 ha. The lake is surrounded by villages on two of its sides.

*Natural interest (5).* Beautiful natural freshwater lake, most probably the largest one in Syria, already listed as an IBA (Evans 1994). It is surrounded by reedbeds supporting many species of birds. There are quite interesting fields and bushland to the south-west, which proved to be a good habitat for several birds including the Red-wattled Plover.



Lake Khatunüiyah in February 2007 (photo by Perttu Kantonen).

In February 2007 it appeared clear that the lake was especially favoured by diving waterbirds, the most interesting being the Red-crested Pochard and the Common Pochard. In addition there were smaller numbers of various half-diving ducks and shorebirds.

*Threats (3).* The mayor of the nearest village to the lake gave Mr Anssi Kullberg some information in February 2007 concerning the site: namely, he reported that hunting is quite common around the

lake. Pollution and habitat destruction are other key threats together with over-fishing and over-pumping of water for irrigation purposes.

*Conservation status:* according to the mentioned mayor, the Palace has recently shown interest in the lake and has reportedly started an initiative to protect it. In fact, apparently, pumping water for irrigation purposes is now prohibited and hunting restricted.

Source: Kullberg A. (2007).

### **Sabkhat Eiwa, Al Aumair and Al Ruweira Rangeland Reserve (8)**

*Geographic coordinates:* 36°27'14.5"N, 039°29'14.9"E (Sabkhat Eiwa); 36°26'31.1" N 039°39'01.2" E (Al Aumair); 36°26'43.02"N 39°53'29.30"E (Al Ruweira)

*Location and description.* Sabkhat Eiwa is located ca. 110 km west of Al Hassake and ca. 35 km east of the intersection of the M4 highway (Aleppo – Al Hassake highway) with the road going south towards Raqqa. Eiwa is a small signposted village just north of the M4, about 15 km west of the Raqqa - Hassake province border. An area of natural steppe area is found north of the village, measuring 3.75 (west-east) x 4 km (south-north), for a total of 1,600 ha. A few houses are also found on the northern edge of the steppe habitat.



Sociable Lapwings photographed in early 2007 in north-eastern Syria (photo by Mahmud Abdallah).

High-power electricity wires and posts run west-east parallel to the M4 highway, dividing the area into two unequal parts. The north-western two-fifth of the Eiwa steppe area is taken up by a sabkhat (seasonal salt lake) and areas that were recently inundated, as well as fallow fields that had apparently been used as barley fields in previous years.

The entire sabkhat area is situated north of the electricity wires, where the land was evidently lower than south of the lines. Although there were herds of sheep and there was apparent overgrazing in early 2007, the steppe was covered in short green grass with a yellowish sheen caused by 'flowering' mosses. Nearby, Al Aumair is another natural steppe area located 3 Km south of the M4 highway, right at the border of Raqqa and Hassakeh provinces. The natural steppe area here is roughly 4 x 4 km in size, for a total 1,600 ha. A village is located on a hill at the northern edge of the steppe area.

Al Ruweira Rangeland Reserve is a relatively large natural steppe area located 4 km south of the M4 highway, about 15 km east of the Raqqa - Hassakeh province border. The area is roughly 14 x 18 km in size, for a total of about 25,000 ha. The southern half of the rangeland reserve consists of semi-desert. The western border of the reserve is bordered by a sandy wall and ditch, probably to limit the entry by herds of sheep. In the south-western (semi-desertic) part of the reserve a deep wadi, running south-north, is found. The habitat of Al Ruweira is similar to that of Eiwa and Al Aumair, consisting in February 2007 of short green grass with a yellowish sheen of 'flowering' mosses.

*Natural interest (4).* In the mentioned three areas of (over-)grazed natural steppe thousands of Sociable Lapwings were detected in February 2007. Similarly to the Northern Bald Ibis, this is one of the rarest bird of the planet (listed as Critically Endangered by the IUCN's Red List 2007). During recent years the distribution range of this bird has been gradually discovered: it breeds in the steppe of Kazakhstan and winters in Sudan. It seems now clear that this bird stop-overs in

north-eastern Syrian steppe and in south-eastern Anatolia during its migration northward - it is still unclear for how long.

The three main areas where Sociable Lapwings were detected in 2007 and 2008 seemed all good for other steppe waders and larks and - if hunting could be banned completely in the near future - for sandgrouses and for bustards as well: these latter birds are iconic ones, very important for the Arabic culture – and unfortunately a favourite target of hunters. The mentioned areas do not have



Overgrazed natural steppe landscape in Syria (photo by Perttu Kantonen).

many species but do hold Pallid Harrier, Sociable Lapwing and Greater Sand Plover in early spring, with Cream-coloured Coursers in summer. Red Fox and Jackals are other possibilities.

The landscape might not be spectacular but is, in fact, becoming rarer rapidly, as these steppe areas were once common in southern Turkey and northern Syria but have now been mostly replaced by barley fields. Al Ruweira held the highest number of Sociable Lapwings in 2007 (between 1000 and 2000) but Eiwa is located closer to the

highway and is therefore more easily visited.

**Threats (4).** Livestock overgrazing and uncontrolled firewood collection and hunting.

**Conservation status:** unprotected.

**Source:** Hofland & Keijl (2008).

### **Sabkhat Al Rawda, Sabkhat Al Burghuth and the “Border’s” Sabkhat (9)**

**Geographic coordinates:** 35°15'43.28"N 41° 4'37.72"E (Sabkhat Al Rawda); 34°52'19.18"N 41°10'15.04"E (Sabkhat Al Burghuth); 35° 9'22.53"N 41°12'9.41"E (“Border’s” Sabkhat)



Typical scenery of a seasonal salt lake (sabkhat) eco-system of the Syrian desert: Sabkhat al Moh, south of Palmyra oasis (photo by G. Serra).

**Location and description.** A group of large sabkhat (seasonal salt lakes) located east of the Euphrates Valley very close to the Iraqi border, about 90 Km south east from Deir-ez-Zor. Due to the vicinity to the border, these areas have been most likely visited by birdwatchers and documented only recently. In February 2007 Sabkhat Al Rawda and Sabkhat al Burghuth were found dry. A third water body, partly located inside Iraq, called the “Border’s” Sabkhat (as no local

name was found yet), was still full of water as it is apparently supported by springs.



It is not easy to reach the shore of the “Border’s” Sabkhat due to apparent lack of tracks, but Syrian authorities allowed to approach the western side of this lake in February 2007. Due to the vicinity of the border zone there are no real villages in the area, but only scattered presence of military and sheep-herders. West from here, there is quite a lot of oil-drilling activity which provided good asphalt-covered roads to reach close enough to the sabkhat. Access is not restricted to the sabkhat except for the areas in the vicinity of the border.

*Natural interest (5).* Seasonal salt lakes (sabkhat) are natural ecosystems typical of the desert which hold their own appeal at the very least from a scenery point of view (see photo) - but also due to the associated traditional human activities (such as the salt extraction) and an interesting seasonally occurring avifauna.

In fact, migrating and wintering waterbirds occur by the thousands in this kind of ecosystem when water is available and human disturbance is controlled. For instance, the presence of flamingos in high numbers during winter time makes a hue of pink, which, combined to the azure of the water and of the sky, gives the flat and wide open horizon of the desert a magic charm – especially at dawn or sunset.

The areas surrounding the sabkhat mentioned above consist of extremely wide open grassy steppes which are used by thousands of geese and other waterbirds, when and if human disturbance and hunting is not in place. In February 2007, the water was retreating, and many places were still wet and muddy with many waterbirds still sticking to the last tiny remnants of water.

*Threats (3).* The area of the mentioned sabkhat seems quite protected by the presence of the army due to the vicinity of the border, but nonetheless evidences of recent hunting were found in February 2007. The surrounding steppe was clearly overgrazed, evidencing the occurring of intensive livestock operations.

*Conservation status:* unprotected.

*Source:* Kullberg A. (2007).

## **Jebel Bishri and Al Fedha (10)**

*Geographic coordinates:* 35°23'46.49"N 39°21'56.16"E; 35°2'18.15"N, 039°4'32.62"E (Al Fedha)

*Location and description.* Jebel Bishri is an isolated steppe mountain plateau 70 Km north-west of Deir-ez-Zor, rising up to 1100 m asl, with a size of approximately 300 Km². It is inhabited by Bedouin nomadic pastoralists. Al Fedha is a natural lowland steppe area, south of Jebel Bishri, located around 30 km west of Deir-ez-Zor, just north of and visible from the Deir ez-Zor – Palmyra highway.

*Natural interest (4).* This isolated steppe upland is known as a summering grazing grounds for camels. The landscape is highland eroded steppe, at times cut by dramatic cliffs, holding an overgrazed vegetation coverage: in the past the vegetation cover consisted of scrubland and most probably *Pistacha atlantica* woods. It was declared IBA by Evans (1994).

In April 2003 flocks of breeding sandgrouses were spotted by the author while locals reported the occurrence of very rare ecological indicators such as the Houbara Bustard (see photo) and the Great Bustard. In the area of Al Fedha the Sociable Lapwing was spotted in February 2007, a critically endangered bird globally.

These steppe birds, such as the bustards, the sandgrouses and the lapwings are very sensitive





The Houbara Bustard is nowadays an extremely rare sight in Syria as it is one of the most favourite target of hunters. The Houbara in the picture was shot in 2003 not far from Jebel Bishri. (photo by Peter Schmidt).

ecological indicators for the steppe ecosystem. The landscape of the natural steppe might not be spectacular but is becoming increasingly rare.

**Threats (4).** Livestock overgrazing, uncontrolled fire-wood collection and hunting.

**Conservation status:** unprotected.

**Source:** author's survey in April 2003 and Hofland and Keijl (2008).

### **Jebel Abdul Aziz (11)**

**Geographic coordinates:** 36°24'48.82"N  
40°10'46.77"E

**Location and description.** Jebel Abdul Aziz is a protected area established in 1993, about 35 km west of Hassake. It is an isolated mountain range with an elevation range of about 400-920 m, whose length on a west-east axis is about 40-50 Km - while the width is about 5-7 Km, for a

total area of about 250 Km<sup>2</sup>. The southern slopes are more gentle than the northern ones, and are cut by several drainages flowing towards the surrounding cultivated plains.

**Natural interest (3).** This mountain range, declared as an IBA by Evans (1994), is a kind of "natural island" in the middle of an "ecological desert" represented by the intensively-cultivated plains of Al Jazira surrounding it in all directions. The vegetation of Jebel Abdul Aziz is of a steppe type with scattered woody elements.

Among several species the dominant and most important plant is the oak *Pistacia atlantica* which until not long time ago was still covering with woodlands large parts of the Syrian steppe's mountain ranges. Reportedly, there are still some viable survived patches of this tree in the Jebel Abdul Aziz protected area. The other important oak species present in the protected area is the *Pistacia khinjuk*, which is a tree occurring naturally only in this site in Syria and perhaps in isolated populations scattered in northern Iraq and in south-eastern Turkey.

Nearly 200 species of plants were detected in the protected area according to UNDP, seven of which seems endemic to Syria and several are known for being used as medicinal plants by the local community. An afforestation project has been carried out during the past years – and it might be still on-going – aimed at planting *Pistacha* trees and (non native) conifers.

Being a "natural island", this mountain range is likely the last refuge for several small and medium sized wild mammals and it might be very important also as a stop-overing site and refuge for migratory birds. Presence of large wild mammals, such as wolves and hyenas is unlikely due to the isolation and the relatively small size of the protected area. Apparently, gazelles have been recently reintroduced in a fenced enclosure within the protected area.

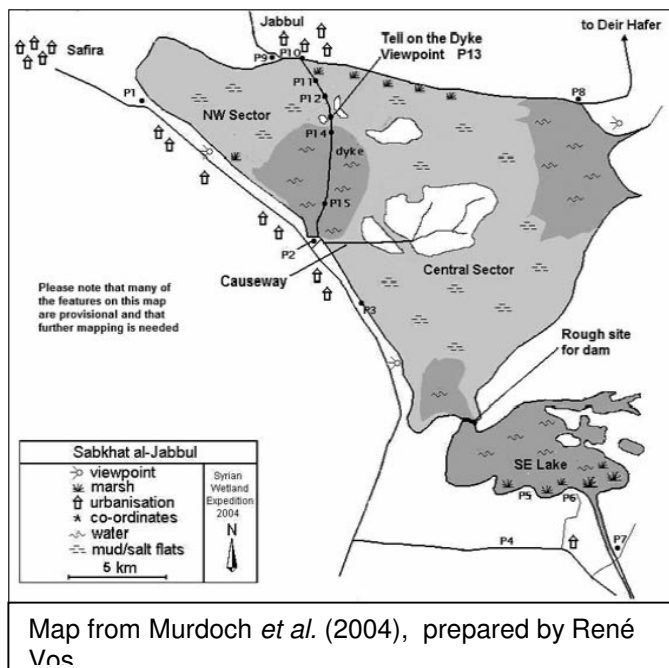
**Threats (3).** Extreme poverty of the local community living in the surrounding of Jebel Abdul Aziz which has been, and still is, apparently suffering from the establishment of the protected area - instead of having received or receiving benefits from it. Uncontrolled fires, firewood collection and hunting. Livestock overgrazing.

**Conservation status:** protected.

Source: UNDP/GEF project SYR/05/010, Biodiversity Conservation and Protected Area Management.

## Sabkhat al Jabbul (12)

Geographic coordinates: 36° 2'23.34"N 37°36'0.79"E



**Location and description.** Sabkhat al Jabbul is a large wetland, listed as IBA, lying between the fertile cultivated areas around Aleppo, the Euphrates basin and the Syrian steppe. In the last 20 years, it has been modified from a typical seasonal saline lake (sabkhat) to a complex wetland eco-system with three separate water bodies that vary from saline to brackish.

The maximum water surface is now 270 km<sup>2</sup>. The major causes of these changes are the construction of dykes and the expansion of irrigation schemes that use the sabkhat as an outlet for irrigation drainage water. Some shores of each of the lakes have recently developed large reedbeds.

**Natural interest (5).** Ornithological records are limited, but there is already good

evidence that this is the most important wetland in Syria and one of the most important of the whole Middle East, with large numbers of wintering and migrant waterbirds and substantial breeding populations. Sabkhat al Jabbul nowadays seems to support more than 1% of the world population of a range of waterbirds, including Greater Flamingo, the globally threatened White-headed Duck, possibly also Greater White-fronted Goose, globally threatened Marbled Duck and the near-threatened Ferruginous Duck.

About 15 thousand flamingos have been counted in Sabkhat al Jabbul repeatedly during period 2004-06. Its geographical position makes it of great importance for a wide range of migrant species. It was designated as a Ramsar site in 1998 (i.e. enlisted in a global inventory of wetlands of international importance).



Sabkhat Jabbul, northern shore, February 2004 (photo by G. Serra).

**Threats.** It seems still seriously threatened by uncontrolled water pollution, fluctuating water and salinity levels, degradation of shore vegetation and by hunting. One of the key identified underlying causes has been the limited coordination of planning and management between the relevant governmental institutions. Recently, the uncontrolled development of fisheries inside the sabkhat, promoted by urban investors, has risen as a major key threat for this wetland.

**Conservation status (5):** partially protected.

*Source: Serra et al. (2006).*

## Recommendations

A general recommendation applicable for the whole Syrian eastern territory (for the whole Syria actually) is that of promoting a change of mentality and attitude relatively to what is left from the national natural heritage. Ensuring the survival of (some) natural and healthy ecosystems is not an optional – this is a bitter lesson learnt – or in the process of being learnt - all over the world. They are key for the quality of life of local communities, they often have a key economic value (for instance the natural pastures of the steppe or the fishes occurring in water bodies or the salt extracted from sabkhat etc.) and they deliver vital ecological services. Protecting the last surviving patches of natural environment in Syria is in the national interest and is not against the socio-economic development. To the contrary: for instance, the Millennium Development Goal n. 7 proclaims “Ensuring the environmental sustainability”.

In general terms, in eastern Syria, as in the whole country, it is recommended to invest more in the following environmental measures:

- reducing the use of pesticides and fertilizers employed in agriculture – start promoting more organic and healthy farming
- providing sewage plant systems for all urban centres of a certain size
- controlling hunting and firewood collection
- turning sustainable the use of natural pastures of the steppe
- controlling destruction of last surviving riverine natural habitats
- introducing rural communities with the concepts and ideas of family planning.

### Euphrates National Park

The Euphrates system, from Turkey all the way to southern Iraq, is probably the most important wetland of the region - perhaps only surpassed by the Nile and the Indus to the east. An ambitious idea would be to combine cultural and natural assets associated to this unique ecosystem by creating something like an "Euphrates National Park" including all the most important archaeological sites such as Halabiye, Zelabiye, Dura Europos and Mari and other sites of key cultural importance.

A visitor centre could be conceived, somewhere along the river, about the importance of the Euphrates as the cradle of so many important civilizations, simultaneously educating people about its key ecological importance and about the significance of water management in general. Making this national park “trans-national”, by including the headwaters in Turkey and at least a stretch flowing in Iraq would make this plan a project with high potential for being funded by international donors.

Alternatively, if such idea is regarded as far too visionary for the time being, a step-by-step process could be conceived. It would be therefore advisable to grant at least protection to a network comprising the most valuable sites along the Syrian Euphrates, in terms of natural heritage and in some cases also in terms of cultural heritage, such as Lake Tishreen, the river stretch of “huweijat” (riverine woods and islets) between Raqqa and Halabiye, the stretch between Mheimideh and Deir-ez-Zor and the stretch between Abu Hammam wetlands and Dura Europos (possibly extended up to Mari).

This initiative would give a chance to many still-surviving threatened wildlife species to spread to these areas, from wherever they still survive along the river system, and eventually find there a safe refuge.

### Sites with the highest natural potential currently under exceptional threat

It is highly recommended that the small wetland of Mheimideh (1) is granted protection as a matter of urgency as the assessed threats for this site are regarded as of exceptional level. At any visit, in any season, Mheimideh holds plenty of interesting birds that are usually approachable and

photographable. Due to its closeness to Deir-ez-Zor, Mheimideh offers an excellent chance for developing programs of both nature conservation education and ecological awareness raising and nature tourism. The accessibility and the fact that wildlife is so conspicuous and easy to be watched and enjoyed make this as an ideal place for establishing a protected area.

Any protection that can be provided to this oxbow-shaped wetland would be enormously important at the very least to conserve for the future generations a representative example of this type of ecosystem belonging to the Syria national heritage. Currently - ironically - the village surrounding and encroaching the wetland from all sides seems to be something that protects it - simply because shooting at waterfowl would be risky for the inhabitants. But at the same, due to the high anthropogenic pressure on all sides, there are remarkably high risks that the wetland is filled in or drained at any time soon, as also that its vegetation is burned. This is clearly a site where the conservation activities should be discussed and developed in close cooperation with the local community.

The riverine woods (huweijat) between Raqqa and Halebiye (2) were among the most interesting and valuable stretches of the Euphrates valley detected during the SWE expedition in 2004. In particular, the Shnan oxbow and the adjacent huweijat appeared as excellent areas where trails, leading past a variety of habitats, could be developed for nature tourists. A Cultural and Natural Fluvial Reserve could be established between Raqqa and Halebiye-Zelabiye, explaining and interpreting the specific natural habitats associated to the river and the importance of their ecological services to humans.

The Desert Culture and Nature Education Center inaugurated in 2003 at the entrance of Al Talila protected area, in the surrounding of Palmyra, could be used as a model. This recently established education facility near Palmyra is actually the best place to start for getting acquainted with the natural and cultural heritage of the Syrian desert in general. It is certainly unique in its kind regionally as it presents the local cultural and natural assets through a wealth of locally-taken high-quality photos and scientifically-based texts.

The archaeological site of Dura Europos and Abu Hammam (Gharanij) wetlands (3) could be granted protection in the form of a cultural and natural heritage park. Abu Hammam, when and once properly protected, despite the high human density, could become a premiere place where to spot wintering and migrating iconic waterbirds such as flamingos and other. On the other hand, the stretch of the Euphrates flowing in front of Dura Europos seems to hold considerable potential as a fluvial scenery as also as a recreational and bathing site.

### **Sites with excellent natural potential under threat**

Deir-ez-Zor suspension bridge and surrounding environments (4), given their easy accessibility and natural potentials, could be granted protection in the form of a fluvial urban park with the purpose of conservation education and outdoor recreation. This urban protected area, a sort of recreational park, should have at its core the suspension pedestrian bridge and should include the parks already present on the eastern river's side, the islets close to the bridge and the outdoor coffee places beside the bridge.

Lake Tishreen (5), despite being a recently established reservoir, already seemed having an outstanding natural value when it was surveyed in February 2004. Actually, this lake needs to be accurately mapped and further comprehensive surveys during key seasons should be carried out. It undoubtedly deserves formal recognition as an IBA and also as a Ramsar site as this could become a nature reserve of international importance. An advantage in favour of establishing a protected area here seems the very fact that the human pressure does not seem to be so high as at most surveyed sites along the rest of the Syrian Euphrates.

Buhayrat Al Basil and Tel Al Hamdaniyyah (6) are recommended to be included within a specific protected area, perhaps equipped with a conservation education and ecological awareness facility,



due to the closeness to the city of Hassake. A conservation and ecological education facility here could be very valuable as it could be used by the schools of nearby Hassake. The main reason for establishing this protected area is the fact that these seem the only known survived sites of the Khabur river valley which still retain some natural heritage value attached.

Because almost all the natural heritage of the Khabur river has been already destroyed or degraded, it is recommended to plan to protect and rehabilitate at least the river stretch connecting the dam of Buhayrat Al Basil to Tel Al Hamdaniyyah and even a bit further downstream, if feasible. A natural rehabilitation plan could be recommended here in combination with a proposal for increasing the quality of the associated agriculture, for instance through promoting the organic farming in the area. It is deemed that a partial rehabilitation of the riverine vegetation would not harm the associated agriculture - but just enrich the landscape and the quality of life of local communities.

It is highly recommended that Lake Al Khatunūiyah (Al Hawl) (7) is granted the status of protected area including the lake and the surrounding natural and semi-natural habitats. The very fact that it was regarded as possibly one of the last - if not really the last - example of this ecosystem type for Syria (a freshwater lake) is a sufficient reason for granting protection to this site. The fact that it had already attracted the attentions of the country's highest political levels can only help this process. Another advantage of granting this site a protection status is that it can be easily reached from Hassake and from the highway 7 coming from Deir-ez-Zor. Despite its closeness to the Iraqi border, Mr Kullberg did not encounter any difficulty in visiting the lake in February 2007.

The natural steppe area comprised between the sites of Sabkhat Eiwa, Al Aumair and Al Ruweira Rangeland Reserve (8) was recently discovered to be a stop-overing site for almost the entire global population of a critically endangered migratory bird, the Sociable Lapwing. This extremely rare steppe bird is surely an exceptional ecological indicator for this patch of surviving natural steppe of north-eastern Syria. It seems therefore a good opportunity to select this site for rehabilitating at least a piece of the Syrian natural steppe ecosystem and conserve it as a natural heritage site for the future generations. In fact, the natural steppe environment is becoming increasingly rare as it is overgrazed by livestock at unsustainable levels, almost everywhere in the Syrian desert.

Sabkhat Al Rawda, Sabkhat Al Burghuth and the "Border's" Sabkhat (9) are among the last surviving pristine examples in Syria of the desert natural ecosystem known as seasonal salt lake (sabkhat). Their location close to the border and their remoteness make them ideal for establishing a wintering and migratory bird "sanctuary" that could be visited by organized birdwatching tours lead by trained local eco-guides.

These sabkhat - as well as the multitude present inside Iraq - have already extensively shown to be of international importance for being key wintering areas for the globally threatened Lesser White-fronted Goose – and for many other iconic bird species. The scale of this environment, the quality of the scenery and the extraordinary numbers and variety of birds that, if protected, could be found at this site during migration and winter time could make this site as a premiere birdwatching destination for Syria. A trans-border cooperation with Iraqi authorities could be pursued in order to protect the "Border's" Sabkhat.

### **Jebel Bishri**

Jebel Bishri (10) should be granted protection due to its desert highland scenery, its mostly yet undiscovered archaeological potentials (especially from the Neolithic and Palaeolithic ages), the still-surviving desert culture and traditions of the Bedouins raising camels and, least but not last, its natural heritage. Natural heritage's highlights of Jebel Bishri are the flowers blossoming in abundance during wet years, and iconic steppe fauna such as wolves, hyenas, vultures, sandgrouses and bustards.

This site could be suitable for reintroducing gazelles, upon rehabilitation of pastures through the involvement of the nomads, the traditional users of this area. Some form of sustainable hunting of reintroduced gazelles could be discussed and developed in a properly organized manner. The inclusion of Al Fedha – the site where stop-overing sociable plovers were recently detected – would add an additional dimension of conservation importance to the proposed protected area.

### **Jebel Abdul Aziz**

Jebel Abdul Aziz (11) is already a protected area. It is therefore recommended to improve its management especially in terms of better negotiating an agreement with the poorest section of the local community aimed at lifting them from the current difficulties - possibly linked to the restrictions imposed by the establishment of the protected area, as suggested by the UNDP/GEF project SYR/05/010.

### **Sabkhat al Jabbul**

Despite not clearly belonging to the study area, at least not from an administrative point of view (it belongs to the province of Aleppo), nonetheless Sabkhat al Jabbul (12) certainly belongs to the water basin of the Euphrates. It is most likely one of the most important wetland survived in the Middle East and it is under current exceptional threats of being degraded. It is highly recommended to grant full protection to this internationally important wetland through a participatory process.

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