

## Information Sheet on Ramsar Wetlands

1. Date this sheet was completed/updated: 28 January 2001

2. Country: Algeria

3. Name of wetland: Chott el Hodna

4. Geographical coordinates:

35° 18' - 35° 32' North latitude  
4° 15' - 5° 06' East longitude

5 Altitude: 390–400 metres

6 Area: 362,000 hectares

7. Overview:

Chott el Hodna is part of a series of *chotts* that developed where water gathers from the Saharan Atlas in the south and the Tellien Atlas in the north. It has high steppe vegetation because it is part of the Maghrebian steppe. Its basin is located in the extreme eastern part of the high plateau, oriented west-northwest/east-southeast, 220 kilometres long and 90 kilometres wide, between two mountain formations at 1800 to 1900 metres in altitude in the north and 600 to 900 metres in altitude in the south. It is a closed water basin of 26,000 square kilometres. The bottom of the Hodna basin, an area of 8500 square kilometres and the base level of the *oueds* in the basin, covers an area of 1100 square kilometres. This is the Chott el Hodna, at 400 metres in altitude. This area absorbs flooding, has an elliptical form that is 77 kilometres long and 19 kilometres wide. The water is strongly brackish. The flooded area varies, but never exceeds 80,000 hectares. The *chott* is supplied by at least 22 main streams and freshwater springs and is covered with water only in winter. It is dry and salty in summer when a salt crust covers its whole area.

8. Wetland type:

Marine/coastal: A, B, C, D, E, F, G, H, I, J, Zk(a)

Continental: L, M, N, O, P, Q, R, Sp, Ss, Tp, Ts, U, Va, Vt, W, Xf, Xp, Y, Zg, Z(b)

Man-made: 1, 2, 3, 4, 5, 6, 7, 8, 9, Zk(c)

Types of wetlands by decreasing order (beginning with the most important): 1. Seasonal salt lakes; 2. Seasonal saline ponds; 3. Freshwater springs.

9. Ramsar criteria: 1, 2, 3, 4, 5, 6, 7, 8

Criteria that best characterize the site: 3

10. Map of site included? Please tick yes -or- no

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

Ladgham Chicouche Abdellatif  
Chef de service protection de la faune et de flore

Zerguine Delloula  
Inspecteur divisionnaire des forêts  
Conservation des forêts de la wilaya de M'sila  
Tel.: (213 5) 55 14 23/08 68  
Fax: (213 5) 55 13 09

12. Justification of the criteria selected under point 9, on previous page:

Criterion 1: Chott el Hodna is a representative wetland at the level of the Mediterranean because of the importance of its area and water basin. Its location in an arid region is another aspect that justifies the degree of rareness of the natural environments in a single area with little or no transformation by man. In addition, the *chott* is a representative model because of the presence of several types of soils, bioclimates and biological species.

Criterion 3: Chott el Hodna and the neighbouring area are the habitat for endangered species such as Cuvier's gazelle (*Gazella cuvieri*), a species endemic to North Africa considered endangered by IUCN, Houbara bustard (*Chlamydotis undulata*), which is subject to hunting pressure because of practises linked to falconry and the expansion of agriculture. The *sarcelle marbrée* (*Marmonette angustirostris*) is also an endangered species on the IUCN Red List. The fauna of Chott el Hodna is numerous and varied, however, contrary to the flora, it is still little known because of a lack of specific studies. Taking into account this lacuna, it can be speculated that the *chott* with its varied habitats is a natural wild area of great importance for wildlife species, such as Cuvier's gazelle, Houbara bustard and *sarcelle marbrée*, protected as endangered species in Algeria and included on the IUCN Red List.

Chott el Hodna is the habitat for a group of endemic plant species, representative of the Mediterranean (*Erodium glaucophyllum*) and the Sahara-Arabic region, (*Astragalus gomba*, *Euphorbia guyoniana*, *Genista saharae*, *Limoniastrum guyonianum*, *Scrofularia saharae*). In addition, there are several species endemic to Algeria (*Arnebia decumbens*, *Astragalus sinaicus*, *Orobanche ducellieri* and *Saccocalyx saturoides*). The *chott* has a toposequence of plant associations clearly reflecting changes in vegetation linked to the ecological changes caused by the change from a floodable helophyte environment to a shifting psammophyle environment following a steep gradient. The dominant biogeographical characteristics of the communities change quickly, passing from Mediterranean at the base of the

range to strongly Saharan at the top of the zonation. Chott el Hodna is the habitat of an outstanding population of wildlife and plant species for the maintenance of biological diversity in the region of Hodna, which is a rather special biogeographical representative of the steppe environment. There is a qualitative and quantitative diversity of fauna and flora. The flora is represented by 550 recorded species (Kâabache 1990) in the steppe, wooded and scrub communities. The abundant and diversified fauna (see annexes) is composed of 119 species of birds, 20 species of mammals and 10 species of reptiles.

Criterion 7: The water basin that supplies water to the *chott* (Oued el-Hem, Oued k'sob and Oued M'cif) is the habitat for a large population of indigenous fish species, including *barbeau* (*Barbus barbus*) at the level of the *gueltas*. However, insufficient data is available.

### 13. General location:

Chott el Hodna is partly in two wilaya: M'Sila, more than 1000 square kilometres, and Batna, over 100 square kilometres, located in south-eastern Algeria and separated from the Mediterranean by 100 to 150 kilometres of mountain ranges. This ecosystem occupies the centre of the Hodna basin and is located 40 kilometres from the city of M'sila, 20 kilometres southwest of the city of Bou Sâada and 80 kilometres southeast of the city of Biskra.

### 14. Physical features:

Geology: During the recent Quaternary, there were two wet periods, the Soltanien followed by the Rharbien, followed by the current period of drought. The end of the Soltanien was marked by the appearance of large lakes, when the *sebkha* of Hodna was created only several thousand years ago following the emergence of the M'doukal threshold of lacustrine formations of the Soltanien and dunes. The *chott* is located in the southern part of an anticlinal structure, which is probably the prolongation of the anticline of Chott el Hammam. Chott el Hodna is a transition accretion landscape of recent clay deposits, which border the *sebkha*. It includes alluvial deposits from the Quaternary, where the formation Q 1 is found, represented by conglomerate strata consolidated by yellow clays, with fine sands and small gypsum crystals. The formation Q 0 is dominated by fine elements with three clay strata and an intercalation of sandy lenses. The formation Q A is formed by silt and clay throughout the plain and fine sands at the *oueds*. The deltaic deposits of the *oueds* cover the downstream part, where the hydrographical network spreads out more and more toward the *sebkha*. Two types of sediments are clearly different from the formations of average coarseness (Q 0), gravel and sand on the one hand, and fine formations on the other.

Geomorphology: Given the flat relief and a wavy micro-relief, the *chott*, a large depression whose bottom is at 391 metres, separates the region of Hodna from the Sahara, a depression formed by two concentric areas, an outside area, the *chott*, and a central area, the *sebkha*. The northern part of the *chott* occupies part of the plain, while the system of *oueds* spread their sediments

during flooding, which encroach on the *sebkha*. They flood frequently and render the soil saline after evaporation. This part is characterized by clay-silt soils. The southern part of the *chott* occupies part of the southern plain, called the R'mel, which can be identified by its sandy nature. A sparse hydrographical network crosses it. The aeolian accumulations cover part of the *chott*, which creates a subdued, flat and sandy landscape. The central part, represented by the *sebkha*, a flat and barren area of open salt water, is characterized by a complete absence of vegetation and by the presence of minerals in the form of a layer of white salt. The Hodna water basin is located between the Tellien Atlas in the north and the Sahara Atlas in the south, which forms a large tectonic system. Five tectonic phases have affected the Hodna basin: the Lamarienne, Atlassic, Miocene, Pliocene and Quaternary.

**Hydrology:** The hydrological regime of the Hodna is linked to rainfall characterized by marked irregularities. Most of the streams do not have constant flow, except for the Berhoum, El-Ham, K'sob, Lougmane, Selmane and Soubella *oueds*, supplied by springs and retained by traditional dams (*ceds*). In addition, there are a large number of small streams (*châaba*), which are dry almost year round and which flow during rainstorms. Only four *oueds* are perennial, although their flow is very slight: El-Ham Oued to the west, K'sob Oued to the north, Barika Oued to the east and M'cif Oued to the south. All the *oueds*, perennial or not, have secondary and strong flood stages. The water flowing into the *chott* is estimated to be 150 cubic hectometres per year for a year of average rainfall.

**Springs:** The springs of Chellal to the west of the *chott* are located on the southern edge of the M'sila syncline; their flow is less than 10 l/s. Most of them come from the Albo-Aptien aquifer, with seldom more than 2 g/l in salinity. The other springs, probably from the *Cénomaniënnne*, have a salinity of more than 3 g/l; their chemical composition is sodium chloride. These springs, probably release groundwater, causing the ground water to expand. Around them, the land is usually salty and the irrigatable area is very limited.

**Hydrological balance:** The annual volume of ground water is 63 cubic hectometres, a flow estimated to be approximately 11.5 cubic metres/second.

**Soil:** The soils of the *chott* and the *sebkha* accumulate gypsum salts from the groundwater, which through evaporation become saline in the *sebkha*. The distribution of soils is related to major soil phenomena, such as verticalization, halomorphology, gypsomorphology, calcimorphology and desertification. The water table is at the surface near the *sebkha*, where the mineralization of the water increases and the chlorinated sulphate salinization becomes sulphate chloride and chlorinated.

At the *chott*, there are the following zonal soils:

- Poorly evolved alluvial soils affected to varying degrees by salts on recent slopes. These soils are also found on the plain;

- Halomorphic soils moderately to heavily saline in the *chott* with a scattered vegetative cover, with local hydromorphic soils and redistribution of gypsum;
- Halomorphic soils, excessively saline and abiotic in the *sebkha*;
- Halomorphic and hydromorphic soils with redistribution of gypsum and sand in a complex of rough, xeric soils with minerals and inorganic elements from the region of the R'mel.

*Chott* and *sebkha* refer to subdesertic and clay areas whose soils are heavily-to-excessively saline, with a conductivity of 180 mmhos/cm<sup>2</sup> and a heavy texture. The surface, when it is dry, is covered with clay polygons raised above the surface with a uniform structure and many separate crystals of NaCl. Below the surface, the structure is massive with spots of rust and grey spots. At the *chott*, these less-saline soils, approximately 30 mmhos/cm<sup>2</sup>, can be used for grazing camels.

Water quality: The water in the *oueds*, which converges towards the *sebkha* is slightly to moderately saline with a neutral to basic pH.

Surface water: The surface water is moderately to highly saline and heavy in chlorate sulphate in the eastern part. The dry residue of the groundwater varies from 0.5 to 280 g/l, and the type of salinization changes in the lower part of the basin, while the water on the plain is chloride sulphate with a few sulphated lenses.

Ground water: The temperature of the ground water ranges between 15° and 22° C and varies several degrees during the winter and the summer. The temperature of the groundwater in this area varies between 22° and 24° C. No seasonal variation has been recorded, and the pH ranges between 7 and 8. In most cases, the water is neutral to basic.

Depth, fluctuations and permanence of water: Chott el Hodna is covered with water at the time of flooding. Its northern edge during winter is completely or partially flooded, usually for a long time depending whether the year is rainy or dry. In the summer, it is dry because the supply-evaporation balance is clearly negative. While there have been very few measurements, it is estimated that its surface varies between 1100 square kilometres and 100 square kilometres during the dry period with a difference in level of about 1 to 3 metres.

Variations caused by flooding: Chott el Hodna increases each year at the expense of the surrounding land considered to be apt for farming because of two phenomena. The filling-in by flooding that carries fine sediments, which upon arrival at the *chott* are only slightly or not at all saline, but quickly become saline through the concentration of salt from evaporation. The contribution of solids, by filling in little by little the *chott*, increases its area. The average slope of the land around the *chott* is 0.5 per cent, and the sediment load varies between 5 and 20 litres/cubic metres of flood water, making it possible to uniformly spread out sediments over all the surface, increasing the *chott* by 3 to 12 hectares/year. The amount of salt produced by

evaporation, on the basis of surface water with an average salinity of 1 g/l, leaves through evaporation 150,000 tons of salt each year on the surface of the *chott*. If evaporation leaves a dry residue of 3 g/l for all the surface water, evaporation produces 1,100,000 tons of salt annually.

**Watershed:** With an area of 26,000 square kilometres and no outlet, the Hodna water basin corresponds to a depression similar to those on the high plateaux of North Africa. However, it is not a closed basin in the hydrogeological sense and communicates to the west with the Chott de Zahrez Chergui basin at Djelfa and to the south with the large continental basin of the intercalcarian Sahara. The Hodna Basin is divided into four geomorphologic units: the mountainous area, the Hodna plain, the Hodna *chott* and *sebkha* and the region of R'Mel.

**Water balance of the water basin:** The surface water resources available annually for the whole basin of the Hodna are estimated to be 323 cubic hectometres, of which 173 cubic hectometres are used for agriculture. About 29 cubic hectometres are retained by the K'sob dam and several natural dirt dams, and the rest is retained by small-scale dams (*ceds*) during the rainy season on the plain, allowing the *chott* to store 150 cubic hectometres. The real potential hydrological resources of the Hodna water basin vary from one year to another, because they depend on the amount of annual rainfall. The total flow of the *oueds* of the Hodna, of which three-quarters depend on rainfall, is estimated to be between 60 and 70 per cent of the total runoff of the Hodna. The rest is carried off by small seasonal streams and groundwater, which is important at times of heavy storms.

**Climate:** The Mediterranean climate of the *chott* is subject to the influence of the Sahara in its southern part. There is a cool and humid season of storms in the winter and a hot and dry calm season in summer. The *chott* is located in the subarid bioclimatic stage ( $Ig=110$  to  $130$  and  $Qpt=20$  to  $30$ ), which includes the land north of the *sebkha* where the average temperature ranges between  $16^{\circ}$  and  $19^{\circ}$  C. The number of dry months, quite variable, is between 5 to 9 months. It is also an area of steppe characterized by very irregular rainfall. The arid, sub-desert part ( $Ig=300$  and  $Qpt=20$ ), which includes the *sebkha* and the R'Mel, is characterized by precipitation less than or equal to 150 millimetres, with an almost continental dryness. About 11 to 12 months are dry with annual temperature of  $22^{\circ}$  to  $22^{\circ}$  C and rainfall seldom more than 50 per cent. The temperature ranges between  $33^{\circ}$  and  $36^{\circ}$  C for all the *chott* and reflects strong continentality.

**Precipitation:** 400 millimetres/year north of the *chott*; 137 to 200 millimetres/year in the south and around the *sebkha*.

**Temperature:** minima of  $0.6^{\circ}$  to  $6.2^{\circ}$  C (cold winter); maxima of  $33^{\circ}$  to  $37.9^{\circ}$  C (July–August).

Evaporation is strongest from May with a maximum in July and does not begin to decrease until October. The annual average evaporation is 2961 millimetres, and the monthly average is 247 millimetres.

Northern winds are frequent during the winter, while those from the north-east, although distributed over the whole year, blow in the Hodna through the Barika Oued Valley. The southern winds affect the Hodna only in the summer, a period during which there are strong, hot winds.

#### 15. Hydrological values:

Chott el Hodna, because of its large surface and its biogeographical conditions in the region of the Hodna, is the main exit for the surface and ground water of 22 streams, contributing to the maintenance of the water balance. It stores most of the water in two types of water tables: the groundwater under pressure and the static groundwater both used for irrigation, for farming centres and urban and industrial uses.

#### 16. Ecological features:

Main types of habitats: The region of Chott el Hodna is characterized by specific habitats of the steppes and a sedentary and migratory fauna specially adapted to the desert and semi-desert. The habitats are represented by several bodies of open water, temporary ponds, saline outcroppings, streams formed by drainage networks, *gueltas*, *oueds*, springs and saline halophyte grasslands with *Salicornia* and *Salsola*. Furthermore, it is formed by agriculture land, tall trees, formations of steppe vegetation and a dune barrier. On the edge of Chott el Hodna, south of the village of Baniou in an area of less than one kilometre, five stages clearly represent the change of vegetation linked to ecological changes caused by transformation from a halophile floodable environment to a shifting psammophile environment.

The five stages are marked by typical communities of Chott el Hodna. There is a range from depressions that collect brackish water to dunes and strongly gypso-haline terraces then deposition of sand-loam, which are fewer. There are six identifiable types of steppe.

#### 17. Noteworthy flora:

The study of the bird life in the region carried out for more than a century ago (Rebond, 1867) records 349 species related to the steppe communities of Chott el Hodna. Until now, 550 species have been identified (Kâabeche 1990). Many endemic species have been identified in the region of Hodna, such as *Arnebia decumbens*, *Linaria laxiflora* and *Saccocalyx saturoides*, which are not found in this region. There are also endemic North African species, such as *Loncophora capiomontiana*, *Muricaria prostrata* and *Rhanterium suaveolens*.

#### 18. Noteworthy fauna:

The fauna of Chott el Hodna is abundant and diversified, however, but contrary to the flora, it is still little known because of a lack of detailed studies. Taking into account this deficiency, it can be speculated that the *chott*, with

several different habitats is a natural and wild area of great importance for animal species such as Cuvier's gazelle, Houbara bustard and *sarcelle marbrée*, protected species threaten with extinction in Algeria and listed on the IUCN Red List. Also taking into account the interest of the area for the *Tadorne casarca* (more than a hundred specimens), *grue cendrée* (more than a hundred specimens well surveyed and known to the local inhabitants and which spend the winter here). There are recorded sightings of nesting *glaréole à collier*, *oedicnème criard* (*Burhinus* spp.) and *Gangas cata* and *Gangas unibande*. Until now, a total of 119 species of birds have been surveyed. The known mammals, insects and fish are listed in the annexes.

#### 19. Social and cultural values:

The most important resource of the *chott* is the outstanding pasture in a region that is almost completely pastoral. Nonetheless, the communities surrounding the *chott* have many natural, historical and cultural resources:

Rock paintings (communes of Tarmount, Hammam dalla, Oued Chair), Roman ruins (communes of M'cif, Hammam dalâa, Oued Chair, Bou Sâada, Belaiba, M'tarfa, Tarmount, Khoubana) and historical vestiges (commune of Maadid and Bou Sâada). This region also has several other cultural characteristics, including Climatic advantages (the Hodna mountains), hot springs (Hammam dalâa and Hammam belaribi), religious (Zaouia d'El-Hamel, marabouts, important fisheries (*gueltas*) and potential for aquaculture.

20. Land tenure/ownership of: This site is part of the public domain. The surrounding area belongs to the local communities (communes) and to private owners who do not have title.

#### 21. Current land use:

At the site: extraction of salt deposits, market-garden farming (cereals and vegetables) and extensive livestock raising (sheep and cattle).

In the surrounding area: semi-intensive sheep-raising and farming (cereals and shrub crops).

Local population: the *chott* is in parts of 11 communes with a population of 87,900 inhabitants.

22. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land use and development projects:

At the site: pollution from urban and industrial waste water (all of the *oueds* empty into the site) and unregulated extraction of raw materials (salt, sand and soil).

In the surrounding area: There is considerable urban human pressure on the edges of the site (urbanization, unregulated dumping, settlement basins and



septic tanks). There is over-grazing that has gradually reduced the vegetative cover, exposing the area to wind erosion. Two additional factors are the cutting of firewood that leads to surface denudation, sterilization and wind erosion and the irrational extension of irrigated crops using inappropriate techniques that lead to salinization and alcalinization of the soil.

23. Conservation measures taken:

No conservation measures have been taken.

24. Conservation measures proposed but not yet implemented:

Creation of a status of protected area (nature reserve)

25. Current scientific research and facilities:

No specific research has been carried out, only the forestry service monitors fauna and flora populations at the site (population surveys, nesting and specimen collecting).

26. Current conservation education:

- Information brochure on Chott el Hodna;
- Organized visits for school children;
- Conferences on the preservation of the site;
- Celebration on 2 February, world wetland day;
- Exposition of photos during cultural and scientific events.

27. Current recreation and tourism:

The area surrounding the site has great potential for tourism because of its great and varied archaeological heritage (Roman sites, rock paintings, historical vestiges, thermal springs, outstanding landscapes and sport fishing). An internationally known site is the La Kalâa de Béni Hammad, which is a UNESCO World Heritage site. Nonetheless, this potential remains unexploited at the present time. Handicrafts involving several kinds of weaving near the site: weaving using goat, sheep and camel wool for carpets, curtains, bedcovers, tent cushions), weaving using alfa for carpets, baskets and mats and clay pottery for vases.

28. Jurisdiction

Territorial jurisdiction: held by the central Government.

Functional jurisdiction: held by representatives of the Ministère des Ressources.

29. Management authority:

The water authority in the wilaya de M'sila and de Batna.

## 30. References

## Annex 1: Birds

No.	Common name	Scientific name	Status	Ab/Rare	Population
01	Aigle botté*	<i>Hieractus pennatus</i>	M-S	R	
02	Aigle royale*	<i>Aquila chrysaetus</i>	S	AR	02
03	Aigrette garzette*	<i>Egretta garzetta</i>	M	AA	321
04	Alouette bilophe	<i>Eremophila bilopha</i>	S	C	
05	Alouette calandre	<i>Melanocarypha calandra</i>	S	C	
06	Alouette calandrelle	<i>Calandrella brachydactyla</i>	M	C	
07	Alouette des champs	<i>Alouda arvensis</i>	S	C	
08	Avocette élégante*	<i>Recurvirostra avosetta</i>	M	A	557
09	Ammomane du desert	<i>Ammomanes deserti</i>	S	C	
10	Ammomane élégante	<i>Ammomanes cincturnus</i>	S	A	
11	Bergeronnette de ruisseaux	<i>Motacilla cinerea</i>	M	AR	
12	Bergeronnette grise	<i>Motacilla alba</i>	M	AR	
13	Bergeronnette printanière	<i>Motacilla flava</i>	M	AR	
14	Bouvreuil à ailes roses*	<i>Rhodopechys sanguinea</i>	M	AR	
15	Bouvreuil githagine	<i>Bucanetes githagineus</i>	S	C	
16	Bruant proyer	<i>Miliaria calandra</i>	S	C	
17	Busard des roseaux*	<i>Circus aeroginosus</i>	M-S	AR	08
18	Buse féroce*	<i>Buteo rufinus</i>	S	AR	03
19	Barges à queue noire	<i>Limosa limosa</i>	M	AA	51
20	Becasseau minuté	<i>Calidris minuta</i>	M	A	273
21	Caille des blés	<i>Coturnix coturnix</i>	M-S	C	
22	Canard chipeau	<i>Anas strepera</i>	M	AR	10
23	Canard colvert	<i>Anas platyrhynchos</i>	M	AR	68
24	Canard pilet	<i>Anas acuta</i>	M	AR	23
25	Canard siffleur	<i>Anas penelope</i>	M	AA	171
26	Canard souchet	<i>Anas clypeata</i>	M	A	774
27	Chardonneret élégante*	<i>Carduelis carduelis</i>	S	C	
28	Chevalier sylvain	<i>Tringa glareola</i>	M	A	322
29	Chouette chevêche	<i>Athene noctua</i>	S	C	
30	Chouette effraie	<i>Tyto alba</i>	S	C	
31	Cigogne blanche*	<i>Ciconia ciconia</i>	M	AA	90
32	Circaete jean le blanc*	<i>Circaetus gallicus</i>	M	AR	
33	Cochevis de thékla	<i>Galerida theklae</i>	S	C	
34	Corbeau brun	<i>Corvus ruficollis</i>	S	AC	
35	Coucou gris*	<i>Cuculus canorus</i>	M	C	
36	Courvite isabelle	<i>Currorius cursor</i>	M	C	
37	Cisticole des joncs	<i>Cisticola Juncidis</i>	S	C	
38	Dromoique du desert	<i>Scotocerca inquieta</i>	S	C	
39	Etourneau sansonnet	<i>Sturnus vulgaris</i>	M	C	
40	Etourneau unicolore	<i>Sturnus unicolor</i>	S	C	
41	Echasse blanche*	<i>Himantopus himantopus</i>	M	A	383
42	Epervier d'Europe	<i>Accipiter nisus</i>	S	AR	
43	Faucon crecerelle*	<i>Falco tinnunculus</i>	S	A	
44	Faucon lanier*	<i>Falco biarmicus</i>	S	AR	
45	Faucon pelerin*	<i>Falco peregrinus</i>	M	AR	
46	Fauvette à lunettes	<i>Sylvia conspicillata</i>	M		

47	Fauvette de l'Atlas	<i>Sylvia undata</i>	M		
48	Fauvette melanocephalée	<i>Sylvia melanocephala</i>	M		
49	Fauvette naine	<i>Sylvia nana</i>	S	R	
50	Foulque macroule	<i>Fulica atra</i>	M	AR	
51	Ganga cata	<i>Pterocles alchata</i>	M	C	380
52	Ganga couronné	<i>Pterocles coronatus</i>	S	C	
53	Ganga tacheté	<i>Pterocles senegallus</i>	S	C	
54	Ganga unibande	<i>Pterocles orientalis</i>	S	C	130
55	Glaréole à collier*	<i>Glareola pratincola</i>	M	AA	40
56	Gobe mouche gris	<i>Muscicapa striata</i>	M	C	
57	Grand corbeau	<i>Corvus corax</i>	SA	C	
58	Gravelot petit	<i>Charadrius dubius</i>	M	A	2800
59	Gravelot à collier interrompu	<i>Charadrius alexandrinus</i>	M	C	2500
60	Grive draine	<i>Turdus visovirus</i>	M	C	
61	Grive musicienne*	<i>Turdus philomilos</i>	M	C	
62	Guépier d'europe	<i>Merops apiaster</i>	M	AR	
63	Grèbes castagnieux	<i>Tachybaptus ruficollis</i>	S	AR	
64	Grue cendrée*	<i>Grus grus</i>	M	A	130
65	Héron cendré	<i>Ardea cinerea</i>	M	R	06
66	Héron gard boeuf	<i>Bubulcus ibis</i>	S-A	C	344
67	Hibou des marais*	<i>Asio flammeus</i>	M	R	
68	Hibou grand duc	<i>Bubo bubo</i>	S	R	
69	Hirondelle de cheminé	<i>Hirundo rustica</i>	M	C	
70	Hirondelle de fenetre	<i>Delichon urbica</i>	M	C	
71	Hirondelle de rivage	<i>Riparia riparia</i>	M	C	
72	Hirondelle isabline	<i>Ptyonogrogne fuliguta</i>	S	C	
73	Huppé fasciée*	<i>Upupa epops</i>	M	C	
74	Hypolais polyglotte	<i>Hippolais polyglotta</i>	S	AR	
75	Linotte mélodieuse	<i>Carduelis cannabina</i>	S	C	
76	Martinet alpin	<i>Apus melba</i>	M	AR	
77	Martinet noir	<i>Apus apus</i>	M	AR	
78	Martinet pale	<i>Apus pallidus</i>	M	AR	
79	Merle noir	<i>Turdus merula</i>	M	S	
80	Moineau blanc	<i>Passer simplex</i>	S	C	
81	Moineau domestique	<i>Passer domesticus</i>	S	C	
82	Moineau espagnol	<i>Passer hispaniolensis</i>	S	C	
83	Moineau soulcie	<i>Petronia petronia</i>	S	C	
84	Odicnème criard	<i>Burhinus oedicephalus</i>	M	R	24
85	Outarde houbara**	<i>Chlamydotis undulata</i>	S	C	22
86	Percnoptère d'Egypte*	<i>Neophron percnopterus</i>	S	AR	03
87	Perdrix gabra	<i>Alectoris barbara</i>	S	C	
88	Pigeon biset	<i>Columba livia</i>	S	C	
89	Pigeon ramier (palombe)	<i>Columba palumbus</i>	M	C	
90	Pie grièche grise	<i>Lanius excubitor</i>	S	C	
91	Pinson des arbres	<i>Frangilla coelebs</i>	M	C	
92	Pipit des prés	<i>Anthus pratensis</i>	M	C	
93	Pipit rousseline	<i>Anthus campestris</i>	M	AR	
94	Pipit spioncelle	<i>Anthus spinoletta</i>	M	AR	
95	Pluvier guignard	<i>Eudromias morinellus</i>	M	AR	
96	Pouillot fitis	<i>Phylloscopus trachilus</i>	M	C	

97	Pouillot véloce	<i>Phylloscopus collybita</i>	M	C	
98	Poule d'eau	<i>Gallinula chloropus</i>	S	A	200
99	Rolier d'Europe*	<i>Coracias garrulus</i>	M	C	
100	Rouge queue noir	<i>Phoenicurus ochruros</i>	M-S	C	
101	Rubiette de moussier	<i>Phoenicurus moussieri</i>	S	C	
102	Sarcelle d'hiver	<i>Anas crecca</i>	M	A	436
103	Sarcelle marbrée***	<i>Marmaronetta gustirostris</i>	M	T R	07
104	Serin ceni*	<i>Serinus serinus</i>	S	C	
105	Sirli du desert	<i>Alaemon alaudipes</i>	S	C	
106	Sirli de Dupont	<i>Chersophilus duponti</i>	S	AR	
107	Tadorne casarca*	<i>Tadorna furruginea</i>	M	AA	150
108	Tadorne de belon*	<i>Tadorna tadorna</i>	M	AA	80
109	Tourterelle des bois	<i>Streptopelia turtur</i>	M	C	
110	Traque à tête grise	<i>Oenanthe moesta</i>	S	C	
111	Traquet du desert	<i>Oenanthe deserti</i>	S	C	
112	Traquet deuil	<i>Oenanthe lugens</i>	S	C	
113	Traquet motteux	<i>Oenanthe oenanthe</i>	M	C	
114	Traquet oreillard	<i>Oenanthe hispanica</i>	S	C	
115	Traquet pâte	<i>Saxicola torquata</i>	M	C	
116	Traquet rieur	<i>Oenanthe leucura</i>	M	C	
117	Traquet tarrier	<i>Saxicola rubetra</i>	M	AR	03
118	Vanneaux huppé	<i>Vanelus vanelus</i>	M	AR	
119	Verdier d'Europe	<i>Carduelis chloris</i>	S	C	

N.B: The populations were counted in 1999–2000

## Annex 2. The mammals of the region of Chott el Hodna

No.	Common name	Scientific name	Status	Ab/Rare
01	Cuvier's gazelle**	<i>Gazella cuvieri</i>	S	AR
02	Wild cat*	<i>Felis silvestris</i>	S	AR
03	Red fox	<i>Vulpes vulpes</i>	S	R
04	Renard famélique*	<i>Vulpes ruppeli</i>	S	R
05	Golden jackel	<i>Canis aureus</i>	S	A
06	Wild boar	<i>Sus scrofa</i>	S	A
07	Brown hare	<i>Lepus capensis</i>	S	T-A
08	Hérison d'Afrique du Nord*	<i>Atelerix algerius</i>	S	A
09	Porc épic*	<i>Hystrix cristata</i>	S	R
10	Hyène rayé*	<i>Hyena hyena</i>	S	R
11	Rat noir	<i>Rattus rattus</i>	S	A
12	Rat des sables*	<i>Psammomys obesus</i>	S	R
13	Gerbillon champêtre	<i>Gerbillus campestris</i>	S	A
14	Gerbillon pygmé	<i>Gerbillus henleyi</i>	S	A
15	Grande gerboise	<i>Jaculus orientalis</i>	S	A
16	Petit gerbillon à queue	<i>Dipodillus simoni</i>	S	A
17	Mérionne de shaw	<i>Meriones schawi</i>	S	A
18	Oriillard gris	<i>Plecotus austriacus</i>	S	AR
19	Pipistrelle de Khull	<i>Pipistrellus kuhlii</i>	S	AR
20	Souris grise	<i>Mus musculus</i>	S	A

\*Protected species

\*\*Vulnerable species

Annex 3: Reptiles of the region of Chott el Hodna

No.	Commun name	Scientific name	Status	Rareness
01	Agame de bibéron*	<i>Agama bibroni</i>	S	C
02	Agame variable*	<i>Agama mustabilus</i>	S	C
03	Caméléon commun*	<i>Chamaelops cnamaeleo</i>	S	R
04	Couleuvre de Montpellier	<i>Malpalon manspesulanum</i>	S	A
05	Fouette queue*	<i>Uromastix acanthinurus</i>	S	AR
06	Tortue greeque*	<i>Testuco graeca</i>	S	C
07	Tortue clemmyde*	<i>Clemmys leprosa caspica</i>	S	R
08	Lezard	<i>Lacetus sp.</i>	S	R
09	Varan du desert*	<i>Varanus griscus</i>	S	C
10	Vipère à corne	<i>Vipera sp.</i>	S	C

\*Protected species