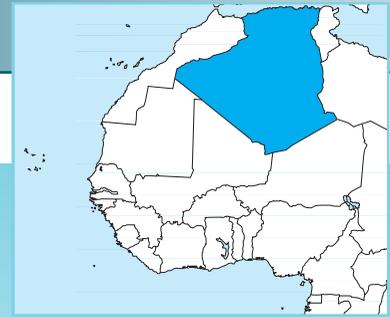


ALGERIA

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Thick-billed Lark *Ramphocoris clotbey*. (ILLUSTRATION: SHERIF BAHA EL DIN)

GENERAL INTRODUCTION

The People's Democratic Republic of Algeria is the second-largest country in Africa, after Sudan, with a total land area of 2,381,741 km². It is bordered to the west by Morocco and Mauritania, to the south-west by Mali, to the south-east by Niger and to the east by Libya and Tunisia. The entire northern boundary is formed by the Mediterranean Sea, with a coastline stretching along a length of 1,355 km. The length of the country from north to south is c.1,985 km (between 18°57'N and 37°08'N) and from west to east c.2,080 km (from 08°39'W to 12°00'E). The human population in 1997 was 29.8 million people, with a growth-rate of 2.18%. The largest city, Algiers, had a population estimated at 3.7 million in 1995 and other large concentrations of population include the towns of Oran and Constantine. The principal administrative areas are 'wilayas'. Wilayas are subdivided into 'daïras', which are in turn subdivided into 'communes'.

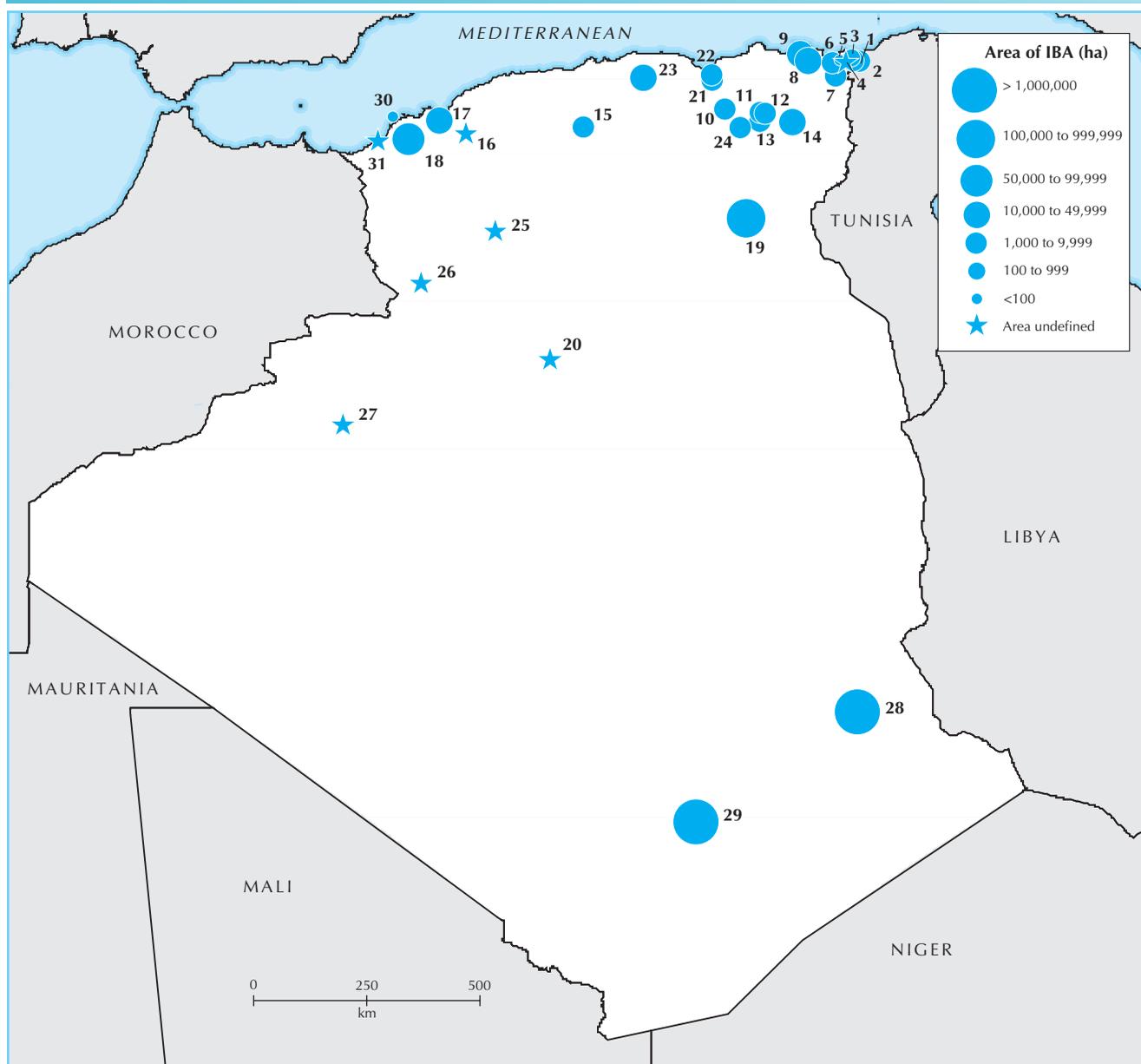
Geographically, the country can be divided into four distinct regions of topography and climate, in parallel bands running roughly south-west to north-east across the country. From the Mediterranean Sea southwards these are the Tell region, including the coastal strip and the Tell Atlas mountains; the 'Hauts Plateaux' or High Plateaux, the Saharan Atlas mountains and the Sahara desert, the latter covering more than 85% of the total area of the country.

The Tell region extends all along the coast and up to 190 km inland (narrowing in some places to 80 km). In parts, this includes a narrow coastal plain, at or below sea-level; in other areas the Tell Atlas Mountains extend to the coast in the form of sea cliffs. The Tell Atlas includes the Massif de l'Ouarsenis and the Grande and Petite Kabylie ranges, with many peaks over 1,800 m and deep valleys and gorges. The Massif de l'Aurès also lies within the Tell region and contains its highest peak (Djebel Mahmel at 2,321 m), but a plateau of lower ground south of Constantine separates this from the Tell Atlas. There are numerous wetlands including the Grande Sebkhah d'Oran in the west, the 'Constantine chotts' on the plateau just south of this city and the famous El Kala series of coastal

wetlands east of Annaba. Many rivers in this region drain north towards the Mediterranean, including the principal river in Algeria, the Chélif, which flows out of the Tell Atlas for 725 km to reach the sea at Mostaganem. To the south, rivers discharge on to the Hauts Plateaux where their flood waters contribute to the formation of the saline lakes and saltflats known as 'chotts'.

The Tell region is the most humid part of Algeria and has a largely Mediterranean climate, with cool, wet winters and warm or hot, dry summers. During the northern summer, very hot, dry winds (the 'sirocco', also known locally as the 'chéli') blow north from the Sahara. In the northern winter, high pressure over the Sahara still causes hot, dry winds to blow south-west and north-east, but in the north of Algeria their effect is counteracted by a westerly stream of moist air from the Atlantic bringing rain to the Tell region, especially along the coast. Rainfall varies from 400 to 1,000 mm along the coast, with three to four months during the northern summer (July/August to October) usually completely dry. A few areas along the coast lie within mountain rain shadows and are extremely arid, with annual totals of less than 150 mm. Some precipitation in the Tell Atlas falls as snow. Depths of snow up to 2–3 m, and annual totals of 2,500 mm precipitation are recorded from Djebel Babor in the Petite Kabylie. There are ski-resorts on a number of mountains in the Massif de l'Ouarsenis and Kabylie ranges, where snow can lie all year-round in places. Mean 'summer' and 'winter' temperatures for the whole Tell region are 25°C and 11°C respectively, but winter minima can be much lower than this, around and below freezing, with frequent frosts, in the mountain ranges and on the plateaus (e.g. south of Constantine between 700 and 950 m).

Many of the mountain slopes in the Tell region are covered in dense forest or scrub (known locally as 'maquis'); around 80% of the country's forest occurs in the north. There are extensive areas of deciduous forest, particularly of various *Quercus* spp. and also evergreen oaks, *Q. ilex*. Conifers include *Pinus* sp., *Cedrus* sp. and *Abies* sp. *Juniperus* sp. is also widespread in montane areas and in some areas at the coast. The valleys and low-lying plains of the region include the most fertile and productive arable agricultural land in

Map 1. Location and size of Important Bird Areas in Algeria.


Algeria and most of the large centres of human population are concentrated here. On the plateau south of Constantine, there are large areas of wheat cultivation and heavy grazing by cattle, sheep and goats on non-arable areas.

The Hauts Plateaux consists of a huge basin, lying at fairly high altitude between the parallel mountain ranges of the Tell Atlas to the north and the Saharan Atlas to the south. The basin is 940 km long, starting in Morocco and extending a further 700 km into Algeria, from the Moroccan border to just west of Biskra. It reaches 190 km in width and lies at c. 1,000 m, but this rises to 1,200–1,400 m towards the mountain ranges on either side, and dips lower in a series of depressions running along the central south-west to north-east axis.

Huge, shallow wetlands and saltflats, the 'chotts', form on the basin floor and in the depressions, which are deeper towards the eastern end. The Chott Ech Chergui at the western end lies at 984 m and can extend to 160 km in length and 150,000 ha in a wet year; the Chott El Hodna (usually in excess of 85,000 ha) at the eastern end reaches only 391 m above sea-level. The chotts are formed by seasonal flood waters and become more saline as they gradually dry out again; depths vary from a few centimetres to a few metres and there are some areas of permanent swamp, wet sand and muddy saltflats. In the centre of the basin, around the chotts of Zahrez Rharbi and Zahrez Chergui, parallel scarps run down from the plateau to the floor of the depression in which the chotts are formed and many of the chotts have areas of higher, dry ground in the centre of the zones of inundation.

On the Hauts Plateaux, annual precipitation is much lower than in the Tell region, varying between c. 150–400 mm and the mean annual temperature at Djelfa is only 13.4°C. 'Winter' temperatures in these regions are often only just above freezing at night. The edges of the chotts have a variety of halophytic vegetation including *Juncus acutus* and *Sarcocornia fruticosa*. Other reeds, rushes, sedges and some palms grow around springs and watercourses. Much of the surrounding area is poor, arid steppe with 'alfa' grass (*Stipa tenacissima*), used extensively for cattle-grazing and there is some cultivation of dates and salt-tolerant cereals and some salt extraction from the chotts.

The Saharan Atlas range fringes the Hauts Plateaux to the south and contains many peaks between 1,800 and 2,000 m, with the highest, Djebel Mzi at 2,187 m. Rivers drain these mountains both to the north, flowing into the chotts on the Hauts Plateaux and to the south-east into the Sahara desert. Many of the latter streams are intermittent, often lying in deep gullies and canyons, and flow out into the sand deserts, the Erg Iguidi and the Erg Occidental where they disappear under the sand. At the very eastern end of the Saharan Atlas, just west of Biskra, intermittent streams drain eastwards into the Chott Melrhir complex, part of which lies below sea-level. Annual precipitation in the Saharan Atlas varies from c. 150 to 400 mm (167 mm at Laghouat on the edge of the desert). The mean annual temperature at Laghouat is 17.3°C and absolute minima of -10°C have been recorded in the Atlas. Steppe-grassland (*Stipa tenacissima*) occurs in the Saharan Atlas with scattered sub-desert vegetation

including *Arthrophytum schmittianum* on the sandy southern slopes fringing the Sahara.

The Sahara Desert covers the whole of interior Algeria, but it takes many forms and elevations. In the far north-west a shelf of high land extends into the country from Morocco to form the dry stone and gravel desert known as the Hamada du Draâ. Here, there is very little rainfall and only ephemeral streams. Further east, the southern slopes of the Saharan Atlas descend over a distance of some 250 km to a central depression lying at 200–500 m above sea-level. This runs south-west to north-east and is filled by the great ‘ergs’— vast sand deserts with mobile dunes. From west to east these are the Erg Iguidi (contiguous with the desert in Mauritania), the Grand Erg Occidental and the Grand Erg Oriental. The Oued Guir flows out of the Moroccan Atlas south-east into Algeria across the Erg Occidental and is perennial in its upper reaches. The Oued Guir becomes the Oued Saoura which flows some 500–700 km into the desert in most years, terminating in a series of pans further south, near Adrar and Reggane. In the past, floods, resulting from rains in the Moroccan Atlas, could reach as far as the Oued Saoura, but a dam upstream of Abadla (90 km south-west of Béchar) on the Oued Guir has reduced the effects of flooding downstream.

In various places there are outcrops and plateaus of higher ground: the Mcherrah Aftout (peak 1,200 m) lies south of the Erg Iguidi and separates it from the Erg Chech (contiguous with the desert in Mali), and to the south of the great sand deserts in the centre of the country the land rises up to the stony Plateau of Tademaït. Further south again, the land drops away into the Tidikelt Depression which lies at less than 200 m. To the south and east of this Depression, the land rises through a series of minor ranges to mountain ranges with ancient volcanoes, deep canyons and the highest peaks in Algeria, stretching towards the border with Niger. These are the Tassili N’Ajjjer, Ahaggar and Adrar Massifs, including the peaks of Mount Afao (2,158 m), Mount Tahat (2,981 m) and Mount Assekrem (2,728 m).

South of the Saharan Atlas, rainfall is very low and intermittent. Areas in the centre and south of the Sahara desert receive an annual mean of less than 20 mm and may have no rain at all for several years in succession. The desert also experiences strong, dry winds and extremes of temperature, with yearly means between 20 and 30°C, but absolute maxima of 50°C and minima of -4°C recorded (e.g. at Adrar). In the mountain ranges in the south and east diurnal temperature ranges are even greater (as much as 35–40°C); minima of -20°C have been recorded in the Ahaggar massif and light snowfalls can occur.

Desert vegetation includes scattered *Arthrophytum schmittianum* and trees such as *Acacia raddiana* and palms (*Phoenix dactylifera*) grouped in dry riverbeds and around oases, where there are also areas of irrigated agriculture and palm plantations. Arid steppe grass and scrub includes ‘alfa’ steppes (*Stipa tenacissima*) on non-saline soils and *Artemisia herba-alba* on clay soils and areas of abandoned cultivation. There is an outlier of Mediterranean vegetation (more typical of the Tell region) in the Ahaggar mountains.

The vegetation of Algeria largely mirrors the climatic patterns across the country, with desert forms in the south, grading into arid and semi-arid forms further north and humid, deciduous forests in the northern, especially coastal regions. Forests cover some 2% of the land area (4.7 million ha), with the majority of this lying in the north of the country. Agricultural land was estimated to cover 7.5 million ha in 1978 (6.8 million ha arable; 31.7 million ha of pasture and scrub; 0.2 million ha of vineyards).

There are known to be 250 endemic plants out of a total country list of 3,140 species, over one third of which have been identified as ‘nationally threatened’. There are also 11 mammals, 11 birds and one reptile threatened with global extinction (IUCN 1991). The only endemic bird is *Sitta ledanti* (EN), which is known to inhabit four peaks in the Petite Kabylie Mountains in the Tell region. These mountain ranges also show high levels of endemism in flora and some other groups and this is thought to be because they acted as

Table 1. Summary of Important Bird Areas in Algeria.			31 IBAs covering c.130,000 km ²						
IBA code	Site name	Administrative region	Criteria (see p. 11; for A3 codes, see Table 2)						
			A1	A2 s039	A3		A4i	A4iii	
			A01	A02					
DZ001	Lac Oubeïra	El Tarf	✓					✓	✓
DZ002	Lac Tonga	El Tarf	✓					✓	✓
DZ003	Lac Melah	El Tarf							✓
DZ004	Bou Redim	El Kala						✓	
DZ005	Lac des Oiseaux–Garaet et Touyour	El Kala	✓					✓	
DZ006	Marais de Mekhada	El Kala	✓					✓	✓
DZ007	Barrage de la Cheffia	El Tarf						✓	✓
DZ008	Lac Fetzara	El Tarf						✓	✓
DZ009	Complexe de zones humides de la plaine de Guerbes-Sanhadja	Skikda, El Tarf	✓						
DZ010	Sebkhet Baker	—						✓	
DZ011	Chott de Tinsilt	—						✓	
DZ012	Sebkhet Ez-Zemoul	—						✓	
DZ013	Sebkhet Djendli	—						✓	✓
DZ014	Garaet et-Tarf	—						✓	
DZ015	Barrage de Boughzoul	—	✓						✓
DZ016	Dayette Morsli–Plaine de Remila	—						✓	
DZ017	Marais de la Macta	Mascara, Mostaganem, Oran	✓					✓	✓
DZ018	Sebkha d’Oran	Oran	✓					✓	✓
DZ019	Chott Merouane et Oued Khrouf	El Oued						✓	✓
DZ020	Garet el-Haaies el Beni Mohammed	—						✓	
DZ021	Djebel Babor	—	✓	✓	✓				
DZ022	Parc National de Taza	—	✓	✓					
DZ023	Parc National du Djurdjura	—	✓						
DZ024	Parc National du Belezma	—	✓		✓	✓			
DZ025	El Bayadh	—			✓				
DZ026	Aïn Sefra	—				✓			
DZ027	Béni Abbès	—				✓			
DZ028	Parc National du Tassili N’Ajjjer	Illizi				✓			
DZ029	Parc National de l’Ahaggar	Tamanrasset	✓			✓			
DZ030	Îles Habibas	Oran	✓		✓				
DZ031	Île Rachgoune	Oran	✓						
Total number of IBAs qualifying:			15	2	4	5	17	10	

refuges for species and races which became isolated on ‘habitat islands’ as a result of past climatic changes (Vielliard 1978).

In 1991 the major threats to habitats in the country were considered to be cutting and burning of forest and maquis (scrub), agricultural encroachment into forests, conversion of steppes (formerly used for extensive grazing) to arable land, soil erosion and drainage or other damage to wetlands. The underlying cause of most of these impacts is the rapid increases in population since independence and the equally rapid economic development, exacerbated by inappropriate development projects, some of which threaten even sites of major international significance such as the El Kala wetlands complex. Lack of integration between different authorities compounds the situation and it is likely that these effects have worsened since the early 1990s due to civil unrest in the country.

ORNITHOLOGICAL IMPORTANCE

The most recent bird list for Algeria is Isenmann and Moali (2000), which updates earlier lists (notably Ledant *et al.* 1981, and Heim de Balsac and Mayaud 1962). The total list for the country now stands at 406 species (242 non-passerines and 164 passerines), of which 214 are confirmed breeders. Key groups for which the country is important are raptors, waterbirds (including migrant wintering species) and large steppe birds, all of which are considered to be under some degree of threat due to changes in land-use and habitat degradation—notably wetland drainage and conversion of steppe to arable land.

There are nine globally threatened species in the country and a further two near-threatened. Of these, there are very few recent records for *Geronticus eremita* (CR), *Crex crex* (VU) or *Tetrax tetrax* (NT). *G. eremita* bred in the Djebel Amour near El Bayad until the early 1980s and was last observed in 1988, when there was no evidence of breeding. *C. crex* was reported regularly on migration in the Sahara (Parc National du Tassili N’Ajjjer) in the 1960s, but recent records are rare. *T. tetrax* is said to occur all year-round in Marais de la Macta, but the most recent published record is from 1975 (more than 75 birds). In both of these cases, this may reflect lack of survey work rather than any actual declines in populations. The status of *Numenius tenuirostris* (CR) in Algeria is uncertain. It is clear that birds must, in the past, have wintered on other sites in North Africa in addition to the best-known wintering ground of Merja Zerga in Morocco—and Algeria seems a prime candidate. However, specific surveys of likely sites in the early 1990s found only one individual and although there are records of larger numbers in the late 1980s and 1990s, these are unconfirmed. The last confirmed record of numbers of birds date from the ‘Chotts Constantinois’ in 1982, when 37 birds were recorded at Sebket Guellal and 31 birds near Chott El Frain (Gretton 1991).

The only bird endemic to Algeria is *Sitta ledanti* (EN). This is also a restricted-range species, the distribution of which defines the North Algerian mountains Secondary Area (s039). The species was thought to be endemic to a single mountain (Djebel Babor) until it was discovered on other mountain ranges in 1989 and 1990 (e.g. Parc National de Taza). All four known sites for the bird are on forested slopes (*Quercus* spp., *Abies numidica* and *Cedrus atlantica*) above 1,000 m in the Petite Kabylie mountain range in the Tell region. The sites all lie within 30 km of each other, but it is not yet known whether there is any interchange of birds between the sites.

Algeria’s wetlands, particularly those along the coast and on the plateau south of Constantine are of huge importance for migratory and resident waterbirds, including three of the globally threatened species in the country, all of which breed on one or more sites: *Oxyura leucocephala* (VU), *Marmaronetta angustirostris* (VU) and *Aythya nyroca* (VU). The complex of El Kala wetlands in the east of the country, beside the town of the same name, were estimated to support an average of 93,000 wintering ducks in the 1970s and, despite some concerns about wetland degradation, the majority of these sites continue to support very large numbers of wintering birds (e.g. 91,000 on Lac Oubeira alone in 1992). Many of the wetland sites also support very diverse populations of raptors; resident, wintering and on passage.

Algeria’s coastline and offshore islands are of considerable significance for breeding seabirds, notably colonies of breeding *Larus audouinii* (CD). The population of this species is thought to have

Table 2. The occurrence of biome-restricted species at Important Bird Areas in Algeria. Sites that meet the A3 criterion are highlighted in **bold**. Species of global conservation concern are highlighted in **bold blue**.

A01 – Mediterranean North Africa biome (17 species in Algeria; four sites meet the A3 criterion)					
IBA code:	021	024	025	030	
<i>Falco eleonorae</i>					✓
<i>Alectoris barbara</i>		✓			
<i>Caprimulgus ruficollis</i>		✓			
<i>Picus vaillantii</i>	✓	✓			
<i>Ramphocoris clotbey</i>				✓	
<i>Chersophilus duponti</i>				✓	
<i>Eremophila bilopha</i>				✓	
<i>Phoenicurus moussieri</i>	✓	✓	✓		
<i>Oenanthe leucura</i>		✓			
<i>Oenanthe moesta</i>		✓	✓		
<i>Oenanthe hispanica</i>		✓			
<i>Sylvia melanocephala</i>		✓			
<i>Sylvia cantillans</i>	✓	✓			
<i>Sylvia conspicillata</i>		✓			
<i>Sylvia deserticola</i>		✓			
<i>Sitta ledanti</i>	✓				
<i>Sturnus unicolor</i>					
Number of species recorded:	4	11	5	1	
A02 – Sahara–Sindian biome (15 species in Algeria; five sites meet the A3 criterion)					
IBA code:	024	026	027	028	029
<i>Pterocles senegallus</i>	✓	✓	✓	✓	✓
<i>Pterocles coronatus</i>			✓	✓	✓
<i>Pterocles lichtensteinii</i>				✓	✓
<i>Bubo ascalaphus</i>			✓	✓	✓
<i>Caprimulgus aegyptius</i>	✓	✓	✓		
<i>Ammomanes cincturus</i>		✓		✓	✓
<i>Ammomanes deserti</i>	✓			✓	✓
<i>Alaemon alaudipes</i>				✓	✓
<i>Hirundo obsoleta</i>		✓	✓	✓	✓
<i>Oenanthe leucopyga</i>	✓	✓		✓	✓
<i>Oenanthe lugens</i>	✓		✓	✓	✓
<i>Turdoides fulvus</i>		✓	✓	✓	✓
<i>Scotocerca inquieta</i>		✓	✓		
<i>Rhodopechys githaginea</i>	✓		✓	✓	✓
<i>Passer simplex</i>			✓	✓	✓
Number of species recorded:	6	7	10	13	13

declined by more than 50% since the 1980s, but the tendency of colonies to move and the difficulty of access to many sites means that the situation for this species and for breeding seabirds in general is poorly understood (Boukhalfa 1995).

Elements of two biome-restricted species-assemblages occur in Algeria: all 17 species of the Mediterranean North Africa biome (A01) occur in the country, as well as 15 of the 22 species that are restricted to the Sahara–Sindian biome (A02). The species in these assemblages are probably some of the least well-recorded in Algeria, particularly those which are characteristic of steppe and desert habitats. This is because these habitats are very extensive, but also little explored ornithologically and most records tend to derive from areas near to centres of human population (including the vicinity of oases) or major roads and other routes.

CONSERVATION INFRASTRUCTURE AND PROTECTED-AREA SYSTEM

There are no significant areas in Algeria entirely under traditional protection and management, although it is acknowledged that traditional land-use practices have contributed to conservation of managed habitats, especially in montane areas, through erosion control and irrigation, for example.

The first protected areas in Algeria were established under the French colonial administration between 1923 and 1939. However, following independence in 1962, both forestry and conservation

legislation lapsed and in 1982 and 1983 a new framework for all aspects of conservation and protected areas was established, in the form of a National Strategy for the Conservation of Fauna and associated legislation. This includes statutes for the creation of protected areas, pollution control and protection of non-domestic species. A new Council of Hunting was also established with responsibility for designating hunting reserves and creating a list of wild species.

During the 1960s through the 1980s, responsibility for environmental and conservation matters changed hands several times, as Ministries and Departments were rearranged. Since 1991, general environmental concerns have been the responsibility of the National Agency for the Protection of the Environment, while protected areas are under the jurisdiction of the National Agency for Nature Protection, within the Ministry of Agriculture.

There are three categories of protected area: *réserve naturelle* (Natural Reserve), *parc national* (National Park) and *parc régional* (Regional Nature Park) and also hunting reserves (see below). The first National Park created under the new legislation in 1983 was the Parc National du Tassili N'Ajjer. This park, together with the Parc National de l'Ahaggar, is under the jurisdiction of the Ministry of Communication and Culture as a result of a history of designation as historic monuments.

In Algeria every individual has a duty to contribute to safeguarding the country's forests. Forest areas are classified according to their primary function as: production forests (for supply of timber and forest products), protection forests (land conservation) and 'forests and other wooded stands where the special purpose is to protect rare items and scenic beauties, to provide recreation in a natural environment or for scientific research, education or national defence'. Specified parts of forests may be designated as National Parks and Natural Reserves and responsibility for enforcement of forest law lies with the Judicial Police and the Corps of Forest Wardens. Under fisheries legislation there is provision for the establishment of maritime-zones closed to fishing.

National Parks are administered by a resident Park Director (appointed directly by the Minister) and a management committee involving representatives of relevant ministries and local authorities. In 1990 there was a total of 56 field staff for all National Parks. Management plans were in place for the majority of National Parks, most of these prepared by the National Bureau of Forest Resources, and a GEF-funded project was developed to support further management plan development. Natural Reserves are administered either by a National Park Authority, where they lie adjacent to a National Park, or by the Forestry Department in the Forestry District in which they are located.

Hunting reserves are designated by the Council of Hunting and each is managed by a forestry graduate with forest guards carrying out most of the policing. There are some 30,000 licensed members of hunting associations in Algeria, coordinated by a national federation, and considerable tourist hunting takes place under the auspices of the National Tourism Office and National Tourist Club. Direct revenue from hunting in 1990 was estimated at nearly 11 million dinars annually. Research is undertaken in many of the protected areas by, among others, the National Institute of Agronomy (INA—Institut National Agronomique), which supervises student theses and has coordinated waterbird counts in the El Kala complex and other important wetlands since the 1970s.

Algeria was regarded as the most advanced Maghrebian country in terms of nature conservation with (in 1991) comprehensive environmental legislation, a protected-area system covering 24% of the country's land surface (11.9 million ha) and universities and other higher education institutions providing specialized conservation training. In 1991 there were nine National Parks covering 11.8 million ha, five Nature Reserves covering 26,200 ha and five major hunting reserves covering 31,800 ha. In the National Systems Plan for the period 1990–2000 ('Perspectives de Développement au Horizon 2000') there were plans for the designation of five more reserves and two more National Parks and actions for the protection of existing priority designated sites. Constraints identified under the auspices of a World Bank project ('World Development Indicators on the Environment') included the lack of a national survey to underpin the proposed network of protected areas and the need for more funding for management planning, equipment and training. Inappropriate development projects, particularly in relation to

wetland sites of international importance such as the El Kala complex, were also identified as a potential threat to the national conservation strategy.

Since the early 1990s there has been severe economic crisis and civil unrest in Algeria, following the cancellation of elections and the adoption of power by an unelected 'National Transition Council'. There has been widespread conflict in the country and in this climate it seems unlikely that much progress has been made on implementation of the National Systems Plan in relation to conservation and protected areas. One consequence of the unrest has been a total ban on hunting since 1994 (Heredia *et al.* 1996), but any effects of this on bird populations are as yet unknown.

INTERNATIONAL MEASURES RELEVANT TO THE CONSERVATION OF SITES

Algeria has ratified the Convention on Biological Diversity, CITES, the Convention on Climate Change and the Convention to Combat Desertification. The country has also ratified the World Heritage Convention, the Ramsar Convention and is a participant in the UNESCO Man and the Biosphere Programme. There is one site designated under the World Heritage Convention (Parc National du Tassili N'Ajjer), 13 under the Ramsar Convention and three Biosphere Reserves (Parc National du Tassili N'Ajjer, Djurdjura and El Kala).

Regionally, Algeria has ratified the African Convention on the Conservation of Nature and Natural Resources and the Barcelona Convention (the Convention for the Protection of the Mediterranean Sea against Pollution) under which four sites representative of the Mediterranean network have been identified. Algeria is also party to the Tunis Declaration of 1991 and is thus committed to devote at least 5% of the national territory to safeguarding the natural heritage.

OVERVIEW OF THE INVENTORY

A total of 31 Important Bird Areas (IBAs) have been identified in Algeria (Map 1, Table 1). These cover a combined total surface area in excess of 130,000 km² or 5.5% of the country's land surface. The exact area is, however, unknown because the boundaries of seven sites remain undefined. Fifteen IBAs are legally protected and 16 sites unprotected. Fifteen sites qualify for category A1, two for A2 and 19 for A4. Four sites qualify for the Mediterranean North Africa biome which, between them are known to hold all but one of the 17 species of the biome. Five sites qualify for the Sahara–Sindian biome which hold all 15 species of the biome recorded nationally.

The IBAs are clustered in the northern part of the country, with the majority (23) in the Tell region. Among these, two notable clusters are the wetlands of the El Kala complex near the coast, east of Annaba (sites DZ001–DZ006) and the wetlands known as the 'Chotts Constantinois' (sites DZ010–DZ014) to the south of the town of Constantine. In total, there are 17 wetlands among the IBAs of the Tell region (the other six sites in this region include montane forests and the two offshore island sites, close to the coast at Oran).

The remaining eight sites lying south of the Tell region comprise another three wetlands (one on the Hauts Plateaux mountain range and two in or on the edge of the Sahara), two dry steppe sites in the Saharan Atlas, one site (Béni Abbès, site DZ027) in the valley of the intermittent River Saoura in the Sahara and the two huge National Parks in the mountain ranges in the Sahara in the very deep south of the country, Parc National du Tassili N'Ajjer (site DZ028) and Parc National de l'Ahaggar (DZ029).

Over half of all the IBAs (20) are wetlands of a variety of types including open water lakes and reservoirs, fresh water with submerged and emergent vegetation and marsh, mud and saltflats and pans, often of greatly varying salinity, depending on levels of rainfall and evaporation. The wetlands are probably the best-known sites ornithologically and in other respects. Both the El Kala complex and the 'Chotts Constantinois' have been the subject of regular and recent bird monitoring by the national INA (Institut National Agronomique), with annual counts submitted to the African Waterbird Census. Both areas have also been the subject of specific studies including hydrological, botanical, invertebrate and single species (e.g. searches for *Numenius tenuirostris*) and El Kala National Park has undergone management planning and zonation exercises.

Of the 13 Ramsar Sites designated in Algeria, seven have been listed as IBAs, and two form part of larger areas listed as IBAs (the two National Parks in the southern mountain ranges, sites DZ028 and DZ029). A further two Ramsar Sites (Chott Ech Chergui and Chott El Hodna in the Hauts Plateaux) almost certainly will qualify as IBAs, but the necessary information on bird populations is not available at the time of writing (see Comments on the inventory, below). Wetlands in some regions of the country, particularly further south, within and on the edges of the Sahara, are much less well-known and new IBAs almost certainly remain to be discovered here for species such as wintering *Phoenicopiterus ruber* and *Marmaronetta angustirostris*. It is suspected that additional breeding sites for *M. angustirostris* will be found with more survey work in wetlands around Biskra, south of Constantine on the edge of the Sahara, e.g. Oued Khrouf and the Chott Melrhir complex (Green 1993). Additional wetland sites in the Constantine region (Lac Bou Lhilet), the Central region (Lac de Réghaïa) and in Oranais region (Lac de Gharabas and Salines d'Arzew) are also suggested by some authors as likely potential IBAs, requiring further survey work to confirm this. Sites in the west (Oranais) are thought likely to prove important for wintering *Grus grus* (Bellatreche *et al.* 1982).

Other regions and habitats identified by Ledant *et al.* (1981) as being significantly under-investigated include the mountain ranges of Medjerda and Tebessa (both on the border with Tunisia), the Monts des Nementchas (east of Biskra and the Massif de l'Aurès), the Petite Kabylie (apart from Djebel Babor, site DZ021), the Monts du Hodna, just west of the 'Chotts Constantinois', the coastal Monts du Dahras, in the Tell Atlas west of Algiers, the southern foothills of the Saharan Atlas and the whole of the Sahara desert, apart from those areas close to oases and routes which have already been reasonably well investigated. It is clear that steppe and desert habitats are under-represented in the IBA list and that more survey work is likely to reveal additional sites for biome-restricted species and for migrant waterbirds. The same is true for the forests and uplands of the north. It is clear from the discovery, as recently as 1990, of new sites for *Sitta ledanti* (EN) that these forests are very poorly known ornithologically and new IBAs are certain to be discovered with more survey work (particularly for biome-restricted species and raptors).

Coastal and marine habitats are also under-represented. The only two coastal sites listed are the islands Iles Habibas (site DZ030) and Ile Rachgoune (DZ031), for their breeding colonies of *Larus audouinii* (CD); there is currently no known wintering site for this species in Algeria (Boukhalifa 1995). One of the problems with designating sites for this species is that the colonies are known to move between sites, but the lack of regular survey work along the coast and on the offshore islands compounds this problem. It is likely that a greater intensity of survey (e.g. along the coasts of Kabylie and El Kala regions) will confirm the suspected presence of other sites for *L. audouinii* or reveal new sites for other breeding and/or wintering seabirds and probably raptors.

COMMENTS ON THE INVENTORY

- Names of sites are given in French or Arabic according to whichever appears to be the most common usage in the literature. Similarly, where several different spellings occur of words such as sebkhet (alternatives 'sebkha', 'sebkret' etc.) the spelling which appears most commonly in published literature has been followed. Ramsar Site names have been used for the seven IBAs

(sites DZ001, DZ002, DZ005, DZ009, DZ017, DZ018, DZ019), which are also Ramsar Sites.

- A number of sites that will probably qualify as IBAs are not included in the inventory because of a lack of information. In addition to the two sites listed as IBAs for *Sitta ledanti* (sites DZ021 and DZ022), two other forests in the 'Kabylie des Babors' (the Forêt de Tamentout and the Forêt de Djimla) are known to harbour the species (Bellatreche 1991). These two are not included in the IBAs listed because there is no published information available on population sizes for *S. ledanti*, nor any other bird information, and the two sites are not protected areas.
- Two extensive wetland sites, Chott Ech Chergui (855,500 ha) and Chott El Hodna (362,000 ha), (which are both Ramsar Sites lying on the Hauts Plateaux), are also excluded from the inventory although they almost certainly should qualify as IBAs once better information is available on their bird populations. Chott Ech Chergui contains endangered and vulnerable plants and habitats and is said to have breeding and wintering populations of *Marmaronetta angustirostris* and *Aythya nyroca*, as well as *Chlamydotis undulata*, various breeding waders and *Gazella gazella*. There is a record of 120 *A. nyroca* on the site in January 2000 and breeding birds in June–July of the same year, but these reports await confirmation. Chott El Hodna has records of *Marmaronetta angustirostris* (up to seven individuals), as well as populations of wintering *Tadorna ferruginea*, *Charadrius dubius* and *C. alexandrinus*, close to or exceeding IBA (A4i) thresholds, which will qualify the site as an IBA once confirmed. Chott El Hodna will also probably qualify as an A3 site for the Mediterranean North Africa biome.

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GLOSSARY

chott shallow, temporary lake of variable salinity.

djebel (jebel) mountain.

erg area of mobile sand-dunes ('sand sea').

garaet (garet) freshwater marsh.

guelta (gueltate) pond formed in rocky basin in riverbed, due to underground springs and streams and occasional rain (specific to the mountains of Tassili and Ahaggar).

ham(m)ada stone or gravel-plain.

maquis dense scrub or low forest.

oued seasonally dry river or stream.

reg similar to hammada, but usually larger expanse.

sebkhet (sebkha) saline marsh or mudflat.

tassili rocky plateau.

wilaya administrative area.

SITE ACCOUNTS

Lac Oubeïra

Admin region El Tarf

Coordinates 36°50'N 08°23'E

Area c.2,200 ha

Altitude 25 m

DZ001

A1, A4i, A4iii

National Park, Ramsar Site,

Biosphere Reserve

Site description

Lac Oubeïra lies about 60 km east of the city of Annaba and 15 km west of the Tunisian border, in the north-east of the country. It forms

part of the complex of wetlands included within the Parc National d'El Kala and lies c.10 km west of Lac Tonga (site DZ002). The site lies at 25 m altitude and consists of a shallow (maximum depth 3 m), permanent, eutrophic, freshwater lake surrounded on the three sides by cork oak woodland and maquis. The lake lies c.5 km from the Mediterranean Sea and it is bounded to the north by a major sand-dune system. The lake is replenished in winter when flood water from the Oued El Kebir flows across intervening marshland and in to the lake via a channel in the south-east corner. Sluices have been constructed on the channel to retain water in the lake when the flood levels drop.

The lake can be slightly saline, especially in summer, as indicated by the presence of zooplankton typical of slightly saline conditions. There is a small area of *Phragmites australis* and *Scirpus lacustris* on the western shore and dense submerged aquatic vegetation dominated by *Myriophyllum* and *Ceratophyllum* spp. There are extensive beds of *Potamogeton pectinatus*, and *Trapa natans* (rare in Algeria) is present. The lake supports a commercial fishery based on the exploitation of indigenous species of *Mugil*, *Anguilla* and *Alosa*; these, together with *Atherina* sp. and *Gambusia affinis* gain entry to the lake during winter floods. The shallow edges and the shores of the lake are grazed, maintaining a grassland strip clear of trees around the water's edge. There is some hunting, but this is less intensive than on Lac Tonga (site DZ002).

■ Birds

See Box for key species. Several thousand *Aythya nyroca* wintered here and in Lac Melah (site DZ003) in the 1960s, but only around 15 were recorded in 1992. The species is also considered a 'potential breeder' at this site. Winter counts of *Oxyura leucocephala* have declined from 220 in January 1984 to fewer than 50 in 1995. In addition *Marmaronetta angustirostris* was reported probably breeding 'near El Kala' in the 1980s (up to 50 pairs in wet years). The site regularly holds up to 50,000 wintering waterbirds (90,982 in 1992), mainly *Anas penelope*, *A. clypeata*, *Aythya ferina* and up to 35,900 *Fulica atra*, as well as up to 9,000 *Aythya fuligula* in the 1970s. This site, together with Lac Melah (site DZ003) in previous years, is one of very few sites of international importance for *A. fuligula* in Africa. Other wintering species include *Podiceps nigricollis* (up to 850), *Anas acuta* and *A. strepera*. Many waterfowl rest here by day and move to feed on Lac Tonga (site DZ002) at night. Other breeding species include *Podiceps cristatus*, *Fulica atra*, *Porphyrio porphyrio* and up to 100 pairs of *Acrocephalus arundinaceus*. Raptors reported include *Milvus migrans*, *Buteo rufinus*, *Hieraetus pennatus*, *Pandion haliaetus*, *Neophron percnopterus* and *Circus aeruginosus*.

Key species

A1	<i>Aythya nyroca</i>	<i>Oxyura leucocephala</i>
A4i		Breeding (pairs) Non-breeding
	<i>Tachybaptus ruficollis</i>	— 2,300 (1979)
	<i>Anas penelope</i>	— 24,420 (1994)
	<i>Anas strepera</i>	— 23,920 (1994)
	<i>Anas clypeata</i>	— 10,000 (1982)
	<i>Aythya ferina</i>	— 27,000 (1979)
	<i>Oxyura leucocephala</i>	— 220 (1984)
A4iii	Up to 90,982 waterbirds have been recorded at this site.	

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

The whole site was designated as a Ramsar Site in 1983 and it lies within the Parc National d'El Kala, designated in the same year, and within the El Kala Biosphere Reserve. There is a history of proposals to introduce *Cyprinus carpio* and *Tilapia* sp. into the lake to support additional commercial fisheries and in 1985 and 1986 a total of 5–6 million *Cyprinus carpio* fry were introduced. There were fears that these might destroy the natural lake vegetation and upset the balance of invertebrate fauna, but in the summer of 1990 the lake became completely desiccated, killing all the introduced fry. However, in 1991 the lake was once again flooded and further introductions of carp have occurred, with unknown consequences.

The Ramsar Monitoring Procedure was implemented in relation to Lac Oubeira in 1990 (i.e. it was added to the 'Montreux Record'). The Monitoring Procedure report concluded that the most serious long-term threat to the site is the extraction of ground and surface water in the region for the purposes of agriculture and domestic consumption (exacerbating the effects of drought in the region). Other threats include the construction of a dam on the Oued El Kebir at Mexanna to supply water to the town of El Kala (although this was considered to be more of a threat to other wetlands in the El Kala region), degradation of fringing vegetation, expansion of agriculture, grazing and urban areas and erosion leading to siltation. The report recommended that Lac Oubeira should be made a zone of strict protection within the National Park, that extraction of ground and surface water should be strictly controlled, and that conservation management of the site should form

part of a Regional Plan for wise use of land and water resources. The site was removed from the Montreux Record in 1997.

■ Further reading

Chalabi *et al.* (1985), Chown and Linsley (1994), Jones (1993), Ledant *et al.* (1981), Morgan (1982), Ramsar (2000), Stevenson *et al.* (1988), van Dijk and Ledant (1983).

Lac Tonga

Admin region El Tarf

Coordinates 36°51'N 08°30'E

Area c.2,700 ha

Altitude 0–5 m

DZ002

A1, A4i, A4iii

National Park, Hunting Reserve, Ramsar Site, Biosphere Reserve

■ Site description

The site lies about 70 km to the east of the northern city of Annaba, c.5 km west of the Tunisian border and 10 km east of Lac Oubeira (site DZ001). It forms part of the complex of wetlands included within the Parc National d'El Kala. The site consists of a marshy basin and a shallow (maximum depth 6 m), seasonal freshwater to brackish, eutrophic lake, bounded on the north by an extensive sand-dune system, through which the lake connects to the Mediterranean Sea via an artificial channel, the Oued Messida. The basin is surrounded by wooded hills, maquis and grazing land, with woodland including *Taxodium distichum*, *Alnus glutinosa*, *Salix pedicilata*, *Populus alba* and *Fraxinus oxyphyla*. There is a species-rich alder carr along the northern shore of the lake, which is regarded as one of the most important in North Africa. Most of the lake is covered in dense emergent vegetation, with a band of open water and dense submerged vegetation around the edge. Part of the marsh area dries out for a period of up to three months between August and November. There are isolated clumps of *Tamaris* sp. and emergent vegetation includes extensive beds of *Scirpus lacustris*, *S. maritimus*, *Phragmites australis*, *Sparganium erectum*, *Iris pseudoacoras* and *Typha angustifolia*. Submerged or floating aquatic plants include beds of *Ceratophyllum* sp., *Ranunculus aquaticus* and an invasive exotic, *Eichhornia crassipes*. Open water and drainage channels also contain *Ceratophyllum*, *Myriophyllum*, *Sparganium*, *Potamogeton*, *Nymphaea* (including an Algerian rarity, *N. alba*, discovered in 1984) and *Trapa natans* (also nationally rare).

Attempts to drain the marsh, starting in the late nineteenth century, appear to have been largely unsuccessful, due in part to the fact that the bottom of the marsh is slightly below sea-level. The lake is one of the most important in the region due to its productivity. Cattle are grazed all around the edges of the lake and marsh, helping to maintain open water at the edges. Other human activities include eel (*Anguilla anguilla*) fishing and wildfowling, the latter very intensive at times.

■ Birds

See Box for key species. This is considered to be the most important site for breeding waterfowl in eastern Algeria and one of the most important in the Mediterranean. There is a breeding population of hundreds of pairs of *Aythya nyroca* (estimated at over 600 pairs in 1992). This species also winters on the site, apparently in increasing numbers (less than 20 during/before the early 1990s, 255 birds in 1994, 717 in 1997). *Oxyura leucocephala* also breeds (the maximum number of nests counted on the site was 28 in 1991, but more than 50 pairs were estimated breeding in the whole El Kala complex, mostly on Lac Tonga, in 1992). Only small numbers of this species were recorded wintering until 1999 when a total of 256 birds were counted. There may be a small breeding population of *Marmaronetta angustirostris*, but the species was not recorded during specific surveys in 1990. The site is ideal for breeding waterfowl because of the mosaic of dense vegetation and open water and the high productivity of the submerged aquatic macrophytes. Other species recorded breeding include *Tachybaptus ruficollis*, *Podiceps cristatus*, *Ardeola ralloides*, *Nycticorax nycticorax*, *Ardea purpurea*, *A. cinerea*, *Botaurus stellaris*, *Aythya ferina*, *Porphyrio porphyrio* (in hundreds), *Circus aeruginosus* and *Chlidonias hybridus*. A recently confirmed, new breeding record for the site is *Plegadis falcinellus* and other probable breeders include *Egretta garzetta*, *Bubulcus ibis*, *Ixobrychus minutus*, *Anas platyrhynchos* and *A. querquedula*.

The site is also very important for wintering waterfowl; more than 20,000 waterbirds have been recorded (a total of nearly 34,000 in 1995). In addition to those in the Box, other species wintering in large numbers

include *Anas penelope* (11,481 in 1995), and *Anser anser* (recorded in thousands in some years), *Anas acuta* and *A. crecca* (both recorded as 'common'), *Aythya ferina* (7,264 in 1994) and *Fulica atra* (14,834 in 1997). Wintering ducks are known to move between Lac Oubeïra (site DZ001) which is a more suitable diurnal roost (less vegetation and less hunting disturbance) and this site, where they feed by night.

Raptors reported from the site include: *Milvus migrans*, *Circaetus gallicus*, *Accipiter nisus*, *Buteo rufinus*, *Pernis apivorus*, *Hieraetus pennatus*, *Aquila pomarina*, *Neophron percnopterus*, *Circus aeruginosus*, *C. pygargus*, *Falco peregrinus*, *F. tinnunculus* and *F. subbuteo*.

Key species			
A1	<i>Aythya nyroca</i>	<i>Oxyura leucocephala</i>	
A4i		Breeding (pairs)	Non-breeding
	<i>Anas strepera</i>	3,220 (1998)	—
	<i>Anas clypeata</i>	8,865 (1995)	—
	<i>Aythya nyroca</i>	600+ (1992)	717 (1997)
	<i>Oxyura leucocephala</i>	c.30 (1991)	256 (1999)
A4iii	Up to 34,000 waterbirds have been recorded at this site.		

■ Other threatened/endemic wildlife

The mammal *Lutra lutra* (VU) is present in the lake.

■ Conservation issues

The whole site was designated as a Ramsar Site in 1983 and it lies within the Parc National d'El Kala, designated in the same year, and within the El Kala Biosphere Reserve. The lake has its own microclimate that allows some tropical species of vegetation to persist, although many of these may have disappeared as a result of drainage works over the centuries. Early drainage, including the diversion behind an embankment of a river that previously fed the lake, led to the replacement of much of the open water by dense emergent vegetation. In 1937, attempts to drain the marsh ceased, but in the 1980s the outflow sluice was closed in winter to store water for irrigation and to improve grazing around the lake edge. The elevated water-levels resulting from this may have killed up to 90% of the alder forest and some of the *Scirpus lacustris* beds in the northern half of the lake. Another potential threat to hydrology and water-levels could come from plantations of exotic poplars and cypresses, which have proved popular in other areas, but which would lower the water-table if planted on the shores of the marsh. Despite its Ramsar status there is reported to be high hunting pressure, especially at weekends.

The 1990 Algerian National Report to the Ramsar Convention listed poaching, eel-fishing and abstraction of water for irrigation and domestic supply as potential threats to the ecological character of the site. In summer 1990 the lake dried out completely due to drought and water abstraction. The report of the Monitoring Procedure Mission (to site DZ001) in 1990 also made recommendations for Lac Tonga. These included that consideration should be given to restoring the natural hydrological functions of the lake and that the lake itself should be established as a zone of strict protection within the Parc National d'El Kala, with no hunting and no eel-fishing permitted. It was reported that many birds and otters were being killed in eel-fishing nets. The report further recommended that surface- and groundwater extraction from the lake should be strictly controlled and that conservation management of the site should be carried out as part of a Regional Plan for the wise use and conservation of land and water resources. The site was added to the Montreux Record in 1993 because of concern about decreases in water-supply to the lake and the spread of emergent aquatic vegetation covering open water areas.

■ Further reading

Boumezeur (1992, 1993), Chalabi *et al.* (1985), Heredia *et al.* (1996), Green (1993), Jones (1993), Ledant and van Dijk (1977), Ledant *et al.* (1981), Morgan (1982), Stevenson *et al.* (1988), van Dijk and Ledant (1983).

Lac Melah

Admin region El Tarf

Coordinates 36°50'N 08°22'E

Area c.900 ha Altitude 0–5 m

DZ003

A4iii

National Park, Biosphere Reserve

■ Site description

The site lies just to the north-west of Lac Oubeïra (site DZ001), and

consists of a small saltwater lagoon fringed by mudbanks and saltmarsh, one of the wetlands making up the El Kala complex. The lagoon is formed from an old river valley invaded by the sea and is connected to the sea at the northern end by an artificially deepened channel c.1 km long. The maximum depth of the lake is 6 m. The lagoon receives fresh water from two inflowing oueds at the southern end (especially in winter), but it is predominantly saline (increasing in salinity towards the northern end), as indicated by the vegetation (e.g. *Zostera* sp.) and the presence of beds of *Mytilus edulis*. Emergent vegetation in the lake includes *Potamogeton pectinatus*, *Ruppia cirrhosa* and *Juncus maritimus* (all at the southern end) and large beds of *Zostera noltii*, although this habitat has been subject to ecological perturbations in recent years (see below). The surrounding area consists of wooded dunes and evergreen scrub. There is a commercial fishery, taking mainly *Mugil* sp., with smaller catches of other fish and *Anguilla anguilla*. Some hunting occurs, but the use of boats on the water is restricted.

■ Birds

In previous years, the primary importance of the site has been for wintering waterbird populations. Several thousand *Aythya nyroca* were said to winter here and on site DZ001 in the 1960s, but the only recent record for this site is of 13 birds in 1989. More than 20,000 waterfowl have been recorded (maximum 50,800 in 1973), with individual totals, also in the 1970s, for *Aythya ferina* (6,000), *A. fuligula* (12,300) and *Fulica atra* (32,500), all close to IBA species thresholds. More recently, the total numbers recorded each year have declined (to 5,000 in the early 1980s and 1,300 in 1986) and *A. ferina* and *A. fuligula* may have disappeared entirely. Marine fish-feeding and scavenging birds such as *Phalacrocorax carbo*, *Larus cachinnans* and *L. ridibundus* have increased in abundance following dredging of the sea channel (see below). The site was, in the past, considered to form part of the integrated wetland complex within the Parc National d'El Kala, linked in particular to site DZ001 by movements of *A. fuligula* between the two sites. There are breeding records for *Egretta garzetta*, *Ardea cinerea*, *A. purpurea*, *Bubulcus ibis*, *Circus aeruginosus*, *Pandion haliaetus* and *Falco peregrinus*. Other species recorded on the site include *Tachybaptus ruficollis*, *Podiceps cristatus* (100 in 1995) and *Podiceps nigricollis* (300 in 1995).

Key species

A4iii Up to 50,800 waterbirds have been recorded at this site.

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

In recent years, the local authorities have dredged and enlarged the sea channel, resulting in considerable ecological change (including invasion by exotic plant species), that has probably caused the declines in wintering waterfowl numbers. The importance of the site for birds has decreased dramatically. However, the site lies within the Parc National d'El Kala and the El Kala Biosphere Reserve and, at least in the past, has formed an important part of the linked complex of wetlands used by certain species, notably *Aythya fuligula*. On this basis it has been listed as an IBA, in the hope that its reinstatement could be incorporated as part of management plans for the National Park.

■ Further reading

Ledant *et al.* (1981), Skinner and Smart (1984), Stevenson *et al.* (1988), van Dijk and Ledant (1983).

Bou Redim

Admin region El Kala

Coordinates 36°45'N 08°15'E

Area Undefined Altitude 0–5 m

DZ004

A4i

National Park, Biosphere Reserve

■ Site description

This site lies just to the south-west of Lac Oubeïra (site DZ001) and consists of a low-lying marsh flooded in winter by water from the Oued El Kebir. It forms part of the El Kala wetlands complex and remains wet throughout the summer due to the high water-table in the surrounding dunes. The site consists of a mixture of open water and wet woodland, with *Fraxinus angustifolia*, *Laurus* sp. and *Ulmus* sp. at the edges and *Alnus glutinosa* and *Salix* spp. dominant in the

centre. There are also tall tussocks of *Carex elata* in the centre of the site and the areas of open water are dominated by *Nymphaea alba*, which is rare in Algeria, and *Potamogeton* spp. Another national rarity, *Lycopus europaeus*, is also present.

■ Birds

See Box for key species. The site is principally important for its mixed breeding colony of *Bubulcus ibis* and *Egretta garzetta* and also as a winter roost for these two species. It is an ideal site for breeding herons, because of its inaccessibility and the shelter from wind provided by the surrounding tall trees, and is the only area where substantial numbers of *B. ibis* were found in Algeria in the 1980s.

Other species observed in and around the marsh include *Tachybaptus ruficollis* and a variety of raptors (all in small numbers): *Milvus migrans*, *Gyps fulvus*, *Circus aeruginosus*, *Accipiter nisus*, *Buteo rufinus* and *Hieraaetus pennatus*.

Key species	Breeding (pairs)	Non-breeding
A4i <i>Bubulcus ibis</i>	2,000 (2000)	2,750–3,500 (1984)

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

The site lies within the Parc National d'El Kala and the El Kala Biosphere Reserve. The species-rich alder woodland (similar in composition to that at Lac Tonga, site DZ002) is regarded as being of high conservation significance in North Africa and this, together with the importance of the heronry, means that the site merits protection. Plans to dam the Oued El Kebir at Mexanna (to provide domestic water for the city of El Kala) could have a serious detrimental impact on this wetland.

■ Further reading

Chalabi *et al.* (1985), Ledant *et al.* (1981), Stevenson *et al.* (1988).

Lac des Oiseaux–Garaet et Touyouur		DZ005
Admin region	El Kala	
Coordinates	36°47'N 08°07'E	A1, A4i
Area	c.70 ha	Altitude 0–5 m
		Non-hunting refuge, Ramsar Site

■ Site description

This site (like Bou Redim, site DZ004) also lies in the flood-plain of the Oued El Kebir, c.20 km west of Lac Oubeira (site DZ001) and just east of Marais de Mekhada (site DZ006). It consists of a small, permanent freshwater lake with a maximum depth of 2.5 m. The edges of the lake slope fairly steeply and there is a wide band of *Scirpus lacustris* (up to 5 m) around the edge, leading to open water in the centre, with submerged vegetation dominated by *Ceratophyllum demersum*, *Myriophyllum* sp. and *Potamogeton* sp., with *Ranunculus* sp., *Phragmites* sp. and *Eleocharis* sp. The lake is rich in quantity and quality of flora (200 species recorded) and also has a diverse insect (especially Odonata) and amphibian fauna. To the north of the site there is extensive grazed pasture and arable land.

■ Birds

See Box for key species. *Aythya nyroca* winters regularly in small numbers and was confirmed breeding (two pairs) for the first time in 1991; up to 22 birds have been seen on the site during the breeding season. *Oxyura leucocephala* also winters regularly in numbers up to around 200 (209 in 1992). This species was also confirmed breeding (six nests) in 1991. There is a possible but unconfirmed breeding record for *Marmaronetta angustirostris* (four birds seen on the site in July 1984).

The site holds a wide variety of wintering waterfowl with large numbers of *Anas penelope*, *A. crecca*, *A. acuta* and *A. clypeata*. 'Considerable numbers' of *Ardea cinerea*, *Grus grus* and *Anser anser* are also reported from the 1970s and 1980s, with one record of 5,000 *Anser anser* wintering in 1977. Over 70 *Vanellus vanellus* were seen in winter 1982. The site may hold more than 20,000 waterfowl; a total of more than 10,000 wintering ducks, and *Fulica atra* have been recorded on several occasions by the Institut National Agronomique, with a maximum total of 17,800 in 1986. The site is closely linked in terms of its use by birds with Marais de Mekhada (site DZ006) and it is reported

that numbers on this site can increase by up to four-fold on days when there is hunting taking place on other sites, notably Marais de Mekhada.

Breeding birds include *Porphyrio porphyrio* and *Tachybaptus ruficollis* (180 birds in 1984). Raptors recorded from the site include *Milvus migrans*, *Gyps fulvus*, *Pernis apivorus*, *Circus aeruginosus*, *Hieraaetus pennatus*, *Falco vespertinus* and *F. peregrinus*.

Key species			
A1	<i>Aythya nyroca</i>	<i>Oxyura leucocephala</i>	
A4i		Breeding (pairs)	Non-breeding
	<i>Anas clypeata</i>	—	7,000 (1986)
	<i>Oxyura leucocephala</i>	—	209 (1992)

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

The site was designated a Ramsar Site in 1999. It is a non-hunting refuge, a designation that is seemingly respected by local hunters, and clearly of great value as a refuge; numbers of birds on the site can increase by as much as four-fold on days when hunting takes place elsewhere. It has been proposed that the proximity of the site to a main road and the wide variety of waterfowl present would make this an ideal site for an educational and interpretation centre, to increase public interest in the conservation of wetlands. Plans to dam the Oued El Kebir at Mexanna (to provide domestic water for the city of El Kala) could affect the water-supply to Lac des Oiseaux and reduce its ornithological value. Approximately 8,000 people live nearby and human population-growth is seen as a potential threat to the site.

■ Further reading

Boumezeur (1992), Chalabi *et al.* (1995), Chown and Linsley (1994), Heredia *et al.* (1996), Morgan (1982), Skinner and Smart (1984), Stevenson *et al.* (1988), van Dijk and Ledant (1983).

Marais de Mekhada		DZ006
Admin region	El Kala	
Coordinates	36°48'N 08°00'E	A1, A4i, A4iii
Area	c.8,900 ha	Altitude 0–5 m
		Unprotected

■ Site description

This site lies in the flood-plain of the Oued El Kebir and the Oued Bou Namoussa, just to the west of Lac des Oiseaux (site DZ005). It is the second-largest remaining freshwater marsh in Algeria, exceeded in size only by Marais de la Macta (site DZ017) and in winter the area of flooding and emergent vegetation is greater than that in La Macta. The marsh lies just above sea-level and is separated from the sea to the north by a sand-dune system through which the Oued Mafragh flows north into the sea. Water flows into the marsh from the east via the Oued El Kebir and from the south via the Oued Bou Namoussa and Oued Chourka Garaet. There is seasonal pattern of winter flooding and gradual drying out, with the marsh dry for at least three months between June and November. The water-level is usually less than 1 m and does not normally exceed 2 m. There is open water at the edge of the marsh, where it is grazed by cattle, and this extends into the middle in some places, but c.90% of the area is covered by emergent vegetation, dominated by *Scirpus littoralis*, *S. lacustris*, *S. maritimus* and *Juncus* sp. *Phragmites communis* is also widespread and *Typha angustifolia*, *Glyceria fluitans*, *Carex* sp. and *Alisma plantago-aquatica* also occur, as well as a national rarity, *Butomus umbellatus*. Submerged vegetation includes abundant *Myriophyllum* sp., *Chara* sp., *Nitella* sp., *Ruppia* sp., *Callitriche* sp., *Zanichellia palustris* and *Ranunculus* sp. There are scattered *Tamarix* sp. and *Lemna minor*. At the northern end of the marsh there is a saline area with *Salicornia* sp. and, at the base of the dunes, a strip of *Ahuss* forest. There is considerable disturbance on the marsh, caused by large numbers and a high frequency of hunters shooting wildfowl in the winter. There is some pasture and cultivation and heavy grazing by sheep and cattle around the periphery.

■ Birds

See Box for key species. The site is said to be difficult to count (especially in the breeding season) because of its extent and the dense vegetation, so many counts are almost certain to be underestimates.

Marmaronetta angustirostris has been observed on the site in winter in small numbers and up to 20 individuals have been observed flying over the site in July. *Aythya nyroca* is present in small numbers in the breeding season and ‘probably breeds’, as does *Oxyura leucocephala*.

The site regularly holds 30,000 or more wintering waterbirds (39,800 in 1978 and 39,400 in 1986). The numbers of *Anser anser* are especially significant as the whole Central European breeding population (estimated at 25,000) is believed to winter in only three sites in the Maghreb (Marais de Mekhada, Lac Fetzara (site DZ008) and Lac Ichkeul in Tunisia). In addition to the species in the Box, there are significant numbers of wintering *Anas crecca* (over 5,000 in 1998) and *Fulica atra* (12,300 in 1998) and a variety of wintering *Charadrius* and *Calidris* waders. Breeding birds include *Botaurus stellaris* (known to breed from only three other North African sites), *Ciconia ciconia*, *Glareola pratincola* and *Circus aeruginosus* and the site is an important feeding area for *Bubulcus ibis* and *Egretta garzetta* from the breeding colony at Bou Redim (site DZ004). Other ‘probable breeders’ include *Tachybaptus ruficollis*, *Ardeola ralloides*, *Bubulcus ibis*, *Egretta garzetta*, *Ardea purpurea*, *Plegadis falcinellus*, *Anas platyrhynchos*, *Rallus aquaticus* and *Fulica atra*. Over 1,000 individual *Bubulcus ibis* seen on the site in 1976 may have been nesting just outside the marsh and 3,000 individuals seen in July 1984 were thought to be breeders displaced from Bou Redim. The only two *Phoenicopiterus ruber* recorded from this site (in 1978) were subsequently shot.

Raptors recorded from the site include ‘impressive flights’ of *Gyps fulvus* and smaller numbers of *Milvus migrans*, *Circaetus gallicus*, *Circus aeruginosus*, *Buteo rufinus*, *Hieraeetus pennatus*, *Pandion haliaetus* and *Falco eleonora*. *Motacilla flava* is said to ‘nest in great numbers’, but there are no details of any counts.

The site is closely linked to Barrage de la Cheffia (site DZ007) and birds (notably *Anas penelope*) move between the two sites, using Barrage de la Cheffia as a refuge when there is intense hunting on the feeding grounds of Marais de Mekhada. The huge number of 95,000 *A. penelope* observed on Barrage de la Cheffia in 1974 were thought to be taking refuge from Marais de Mekhada because of low water-levels making it unsuitable as a roost. Birds also move from this site, when hunting is taking place, to Lac des Oiseaux (site DZ005), or sometimes take refuge on the sea (including *Anser anser*). This latter species may also be displaced to Lac Fetzara (site DZ008) by hunting disturbance.

Key species

A1	<i>Marmaronetta angustirostris</i>	<i>Oxyura leucocephala</i>
	<i>Aythya nyroca</i>	
A4i		Breeding (pairs) Non-breeding
	<i>Anser anser</i>	— 8,000 (1978)
	<i>Anas penelope</i>	— 27,500 (1978)
	<i>Anas clypeata</i>	— 7,025 (1998)
	<i>Glareola pratincola</i>	100+ (1984) —
A4iii	Up to 39,800 waterbirds have been recorded at this site.	

Other threatened/endemic wildlife

None known to BirdLife International.

Conservation issues

The site lies outside the boundary of the Parc National d’El Kala, although it is clearly part of the El Kala wetlands complex, linked hydrologically and ornithologically to other sites (sites DZ001–DZ004 inclusive) within the park and to Lac des Oiseaux (DZ005), which also lies outside the park boundary. In addition to the serious disturbance caused to wintering species by intense hunting pressure, the marsh habitat is also threatened by drainage. There appears to be no history of attempts to drain this marsh specifically (which is probably a contributory factor in its current conservation importance), but proposals to dam the Oued El Kebir at Mexanna (to provide domestic water for the city of El Kala) could have a serious detrimental impact. The water-supply into the Marais de Mekhada from the Oued Bou Namoussa has already been interrupted due to the construction of the Barrage de la Cheffia and a dam on the Oued El Kebir is likely to reduce substantially the frequency, duration and depth of flooding on the marsh. In the winter of 1985–1986, the construction of a road between Annaba and El Kala had the opposite effect, blocking the outflow to the sea and raising water-levels in the marsh. There have been calls for the marsh to be included within the National Park, especially in view of its importance for wintering *Anser anser*, and there are proposals for the site to become a Ramsar Site and a Natural Reserve.

Further reading

Boumezbeur (1992), Chalabi *et al.* (1995), Heredia *et al.* (1996), Morgan (1982), Skinner and Smart (1984), Stevenson *et al.* (1988), van Dijk and Ledant (1983).

Barrage de la Cheffia

Admin region El Tarf

Coordinates 36°34’N 08°02’E

Area c.3,000 ha Altitude 170 m

DZ007

A4i, A4iii

Unprotected

Site description

The site lies c.35 km south-east of Annaba, 170 m above sea-level. It consists of an artificial reservoir created by a dam across the Oued Bou Namoussa, in the hills about 20 km above the entry of the Oued to the alluvial flood-plain of Marais de Mekhada (site DZ006). The water reaches a maximum depth of 20 m and a maximum area of 30 km² (at capacity), and the reservoir is devoid of rooted vegetation because of the large, rapid fluctuations in water-level.

Birds

See Box for key species. The site acts as an important daytime roost and refuge for wintering waterbirds that feed in other wetlands, particularly when hunting disturbs other sites. More than 20,000 waterbirds have been recorded at this site, with an estimated total of 100,000 birds in 1974 (95,000 of which were *Anas penelope*) and other large counts of ducks including up to 20,000 *A. penelope* and 18,000 *A. acuta* (no information on years) and 11,000 *A. crecca* in 1981. The precise relationship between this site and hunting pressure on other sites is not clear, but the site is thought to be particularly linked with Marais de Mekhada (site DZ006), and the 95,000 *A. penelope* recorded in 1974 were believed to have been displaced from site DZ006 because of very low water-levels making it unsuitable as a roost.

Key species

A4i		Breeding (pairs)	Non-breeding
	<i>Anas penelope</i>	—	95,000 (1974)
	<i>Anas acuta</i>	—	18,000 (pre-1982)
A4iii	Up to 100,000 waterbirds have been recorded at this site.		

Other threatened/endemic wildlife

None known to BirdLife International.

Conservation issues

Although the site has no formal protection, access is severely restricted and hunting is prohibited. Since the site is not a feeding ground, but only a roost and refuge for birds when other sites are disturbed, this level of informal protection may be sufficient to maintain its value for the species that use it.

Further reading

Hughes and Hughes (1992), Skinner and Smart (1984), Stevenson *et al.* (1988).

Lac Fetzara

Admin region El Tarf

Coordinates 36°45’N 07°28’E

Area c.13,700 ha Altitude 0–5 m

DZ008

A4i, A4iii

Unprotected

Site description

The site lies about 25 km south-west of Annaba and consists of a shallow, seasonally flooded depression in the flood-plain of the Oued Seybouse. In the nineteenth century there was a large freshwater lake on the site, regarded as ‘one of the great freshwater lakes of the Maghreb’ and the site with the richest concentrations of breeding waterbirds of any in Algeria. It was the key site in Algeria for *Marmaronetta angustirostris* which was ‘breeding in countless numbers’. The lake was drained in 1937 and its ornithological value declined dramatically. In the late 1970s, the site was dry for much of the year (May 1976 and January 1978), but in the early 1980s, an annual closure of the sluice on the outflow channel was instituted to retain winter floods. The water is released slowly downstream to permit springtime irrigation and the slow fall in the lake levels also produces good spring and summer grazing on the lake shore. As a result, the lake now frequently holds water in the winter and beds of

Scirpus maritimus, *S. lacustris* and *Eleocharis* sp. have developed in the depression, with patches of *Juncus* sp. The site is heavily grazed when not inundated and is surrounded by arable land. There is some hunting.

■ Birds

See Box for key species. Since the re-flooding in the early 1980s, the site regularly holds total numbers of wintering waterbirds in excess of 20,000 (60,000 unidentified ‘ducks’ in 1989 and 35,000 in 1981). This is now one of the most important wintering sites in North Africa for *Anser anser* with several recent records exceeding 10,000 birds. In addition to those in the Box, species recorded regularly during the 1980s and 1990s in significant numbers include *Anas crecca* (10,000 in 1980), *A. platyrhynchos* (4,850 in 1994) and *A. acuta* (6,500 in 1981). There are also thousands of wintering *Vanellus vanellus* and *Pluvialis apricaria*, which continued to use the site even during the years when it was largely dry (mixed flock of 5,000 in 1976/77), one record of ‘innumerable’ *Gallinago gallinago* in 1978 and up to 3,000 *Larus ridibundus*. Other wintering species include *Tachybaptus ruficollis*, *Egretta garzetta*, *Casmerodius albus* and *Circus aeruginosus*.

There are nineteenth century breeding records for *Marmaronetta angustirostris* (reported as ‘very common’), ‘masses’ of breeding *Aythya nyroca* and *Oxyura leucocephala*. Other species recorded breeding in the nineteenth century include *Ardea cinerea*, *Ardeola ralloides*, *Nycticorax nycticorax*, *Plegadis falcinellus*, *Platalea leucorodia*, *Anser anser*, *Anas strepera*, *Netta rufina* and ‘thousands’ of breeding *Porphyrio porphyrio*. More recently, there are records from the 1980s of breeding *Ardea purpurea*, *Bubulcus ibis*, *Ciconia ciconia* (‘in number’) and *Glareola pratincola* and it has been suggested that *Marmaronetta angustirostris* may still breed in the remains of the lake. Raptors recorded from the site include *Gyps fulvus*, *Neophron percnopterus*, *Milvus migrans*, *Circus gallicus*, *Circus aeruginosus*, *C. pygargus*, *Buteo rufinus*, *Aquila clanga*, *Hieraeetus pennatus* and *Pandion haliaetus*.

Key species

A4i	Breeding (pairs)	Non-breeding
<i>Anser anser</i>	—	13,400 (1994)
<i>Anas penelope</i>	—	<25,000 (1986)
<i>Anas strepera</i>	—	13,800 (1998)
<i>Anas clypeata</i>	—	7,000 (1984)
A4iii	Up to 60,000 waterbirds have been recorded at this site.	

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

The retention of water in the depression after winter floods has clearly gone a long way towards reinstating Lac Fetzara as an important wintering site for waterbirds. The current hydrological management is considered to be a good example of the wise use of wetlands and the potential exists to return the site to its former status as one of the most important wetlands in North Africa. The value of the reinstated wetland for breeding birds is less clear and it may be necessary to adapt the hydrological regime to stop the lake drying out completely in the summer months before Lac Fetzara will become a regular breeding site for waterbirds once again. There may also be a need for some regulation of hunting and other disturbance. Maintaining higher water-levels in the lake may lead to some loss of grazing area, but this is likely to be compensated for by increased production and higher-quality grazing on surrounding land.

■ Further reading

Chalabi *et al.* (1985), Chown and Linsley (1994), Green (1993) (and references therein: Phillips 1923), Heredia *et al.* (1996), Scott (1980), Stevenson *et al.* (1988), van Dijk and Ledant (1983).

Complexe de zones humides de la plaine de Guerbes-Sanhadja

DZ009

Admin region Skikda, El Tarf

Coordinates 36°53'N 07°16'E

Area 42,100 ha Altitude 0–10 m

A1

Ramsar Site (Unprotected)

■ Site description

The site lies about 45 km west of the coastal town of Annaba, between

the hills which rise just to the east of the town of Skikda and those of the forested Massif de l'Edough near Chetaïbi. It consists of a large alluvial coastal plain, the valley and delta of the Oued El Kebir (this is a different river from the one of the same name which floods other sites: DZ001, DZ004, DZ005 and DZ006) in the El Kala complex to the east). The site lies about 30 km north-west of Lac Fetzara (DZ008). The site is open to the Mediterranean at its north-western end, but coastal dunes hold backwater on the flood-plain, resulting in a series of lakes and marshes, formed in depressions and valleys and extending from a few to several dozen hectares. The marshes overall can extend over 30 km inland and reach nearly 20 km wide, with maximum winter water depths of 2 m. Shallow lakes along the Oued El Kebir can reach 4 m deep. The marshes are brackish near the sea and there are dense stands of vegetation, with *Salicornia* sp. dominant in some areas. Further upstream dominant species include *Phragmites australis*, *Typha capensis* and *Carex*, *Cladium*, *Juncus* and *Scirpus* spp. There are also large stands of *Alnus glutinosa*, frequently inundated, with rich ferns in the undergrowth. Human uses of the site include cultivation (especially tomatoes and melons) and grazing.

■ Birds

See Box for key species. Both *Aythya nyroca* and *Oxyura leucocephala* were confirmed as breeding birds on the site (on Lac Ben Azzouz) in 1991. It is considered the second most important site for breeding *A. nyroca* in Algeria (after Lac Tonga, site DZ002), with more than seven pairs and one nest found in 1991. This species also winters on the site (35 birds in 1987). The site is considered the third most important breeding site in Algeria for *O. leucocephala* (after Lac Tonga and Lac des Oiseaux, site DZ005) with one nest found in 1991. Other species recorded wintering on the site included small numbers of *Vanellus vanellus*, *Calidris minuta* and *Limosa limosa* in 1992; older references state that the site was important for wintering *Anser anser*, *Gallinago gallinago* and *Vanellus vanellus*, but no numbers or years are given.

Key species

A1	<i>Aythya nyroca</i>	<i>Oxyura leucocephala</i>
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■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

The site was designated as a Ramsar Site in 2001 and has been proposed as a Regional Nature Park. Potential threats include unmanaged agricultural expansion and run-off and waste-water from villages upstream. There is said to be very little hunting.

■ Further reading

Boumezbour (1992), Chown and Linsley (1994), Heredia *et al.* (1996), Hughes and Hughes (1992), Scott (1980).

Sebkhet Baker

Admin region —

Coordinates 35°58'N 05°44'E

Area c.1,500 ha Altitude 850 m

DZ010

A4i

Unprotected

■ Site description

The site lies about 30 km south-east of the town of Sétif (south-west of Constantine) in the depression between the Petite Kabylie mountains to the north and the Monts du Hodna to the south. It consists of a shallow pan with a clay and silt bottom and some open water. Most of the sebkhet dry out between June and October, although the more easterly ones can retain water for up to two years. There is a fringe of *Salicornia* sp. along the western shore, some *Juncus* sp. and a substantial marshy area, including saltmarsh, to the north-east where a freshwater stream flows into the basin in winter. The basin is surrounded by arable farmland and there is some hunting.

■ Birds

See Box for key species. There is a report of 90 *Numenius tenuirostris* in 1989 that would make this site the most important known wintering ground for the species in recent years, but the record remains unconfirmed. Other birds using the site in winter include small numbers of a variety of duck, such as *Anas penelope* (2,000 in 1990), *A. crecca*

(1,920 in 1992), *A. platyrhynchos*, *A. acuta*, and *A. clypeata* (1,500 in 1999) and waders including *Recurvirostra avocetta*, *Vanellus vanellus*, *Philomachus pugnax*, *Numenius arquata* and up to 900 mixed *Charadrius* and *Calidris* spp. (mostly *Calidris alpina*). A total of nearly 8,000 waterbirds was recorded on the site in 1992.

Key species		
A4i	Breeding (pairs)	Non-breeding
<i>Phoenicopterus ruber</i>	—	3,300 (1992)
<i>Tadorna tadorna</i>	—	5,000 (1993)

Other threatened/endemic wildlife

None known to BirdLife International.

Conservation issues

The small river flowing into the site from the nearby town of El Eulma carries domestic and industrial effluents, which may cause some pollution.

Further reading

Bellamy *et al.* (1990), Chown and Linsley (1994), Gretton (1991), Heredia *et al.* (1996).

Chott de Tinnsilt

Admin region —

Coordinates 35°54'N 06°28'E

Area c.1,000 ha Altitude 800 m

DZ011

A4i

Unprotected

Site description

The Chott de Tinnsilt ('Les Lacs') lies about 60 km south of the town of Constantine in the depression between the coastal range of mountains to the north (the Petite Kabylie) and the Massif de l'Aurès to the south. It consists of a shallow basin fed by springs and rainwater run-off and fringed with *Salicornia* sp., and contains islands also covered in *Salicornia* sp. The southern end of the site runs into an extensive marsh around Chott Gadaine/Taricht, and lies very close to another wetland, Sebket Ez-Zemoul (site DZ012), from which it is separated by the main N3 road running south from Constantine to Batna. The water is saline and salt is harvested on the western shore of the basin: there are also abandoned salines to the south-east. Generally flat arable land and stony desert surround the site.

Birds

See Box for key species. Although there is only one count of *Tadorna tadorna* which exceeds the IBA threshold, this is a recent record and it seems likely that the site will prove to be regularly important for this species if repeat winter surveys are carried out. In the winter of 1991/92, significant numbers of *Tadorna tadorna* were also counted on the neighbouring wetland, Sebket Ez-Zemoul (site DZ012). It is likely that birds move between these two sites due to their proximity and the fact that they may be disturbed from Sebket Ez-Zemoul by hunting. Other wintering ducks include *Anas penelope* (up to 3,000), *A. crecca* (up to 5,500), *A. acuta* (2,400) and *A. clypeata* (up to 2,000). Other species observed wintering on the site in 1991 included 34 *Phoenicopterus ruber*. There were also several hundred 'small waders' *Calidris/Charadrius* spp. on this site, combined with the connected marsh (Gadaine/Taricht) to the south, including c.900 *Calidris minuta* and c.70 *Charadrius alexandrinus* on Gadaine/Taricht. *Numenius tenuirostris* was also reported from nearby Chott Gadaine in 1989 (no information on numbers), but the record remains unconfirmed.

Key species		
A4i	Breeding (pairs)	Non-breeding
<i>Tadorna tadorna</i>	—	5,200 (1993)

Other threatened/endemic wildlife

None known to BirdLife International

Conservation issues

Hunting was observed on the neighbouring wetland of Sebket Ez-Zemoul (site DZ012) in winter 1990 and 1991; it is probable that these two sites (sites DZ011 and DZ012) are linked ornithologically, as they

are separated only by a main road and birds may move between the two sites, especially if disturbed.

Further reading

Bellamy *et al.* (1990), Chalabi pers. comm. (in Bellamy *et al.* 1990), Chown and Linsley (1994).

Sebket Ez-Zemoul

Admin region —

Coordinates 35°54'N 06°33'E

Area c.4,700 ha Altitude 800 m

DZ012

A4i

Unprotected

Site description

The site lies about 60 km south of the town of Constantine in the depression between the coastal range of mountains to the north (the Petite Kabylie) and the Massif de l'Aurès to the south. It lies at 800 m, just to the east of the main N3 road running south from Constantine to Batna, which separates it from Chott de Tinnsilt (site DZ011). It consists of a shallow pan, with a clay and silt bottom and shallow, salty water. There is a sparse fringe of *Salicornia* sp. around the shore and the wetland is surrounded on three sides by arable land. To the east there is a strip of uncultivated, sparsely vegetated land. There are salines on the western shore and some illegal hunting occurs using traps, which are prohibited on the chotts and sebkhas. The site is linked hydrologically to Chott de Tinnsilt (site DZ011) and at high levels, water flows from Tinnsilt into Ez-Zemoul. Another wetland to the south (Sebket Djendli, site DZ013) is separated from Ez-Zemoul by low rocky hills.

Birds

See Box for key species. This is the only site at which *Numenius tenuirostris* (one individual) was recorded during specific surveys to investigate the presence of this species on the 'Chotts Constantinois' in 1990. There is also an earlier record of two individuals in 1982. Four or five thousand *Tadorna tadorna* were recorded using the site on several occasions during the winter of 1991/92. On two occasions, large numbers (5,300 and over 6,000) of 'white waterfowl' were recorded. While a proportion of these were identified as *Tadorna tadorna*, it is possible that there were also significant numbers (more than 1,500) of *Recurvirostra avocetta*. During the same winter the site was also used by large numbers (more than 600) of *Phoenicopterus ruber*, c.400 *Charadrius alexandrinus* and c.900 *Calidris minuta*.

Key species		
A4i	Breeding (pairs)	Non-breeding
<i>Tadorna tadorna</i>	—	5,000 (1992)

Other threatened/endemic wildlife

None known to BirdLife International.

Conservation issues

No information.

Further reading

Bellamy *et al.* (1990), Bellatreche *et al.* (1982), Chown and Linsley (1994), Gretton (1991).

Sebket Djendli

Admin region —

Coordinates 35°44'N 06°28'E

Area c.6,000 ha Altitude 825 m

DZ013

A4i, A4iii

Unprotected

Site description

The site lies about 13 km west of the small town of Bouleilet, north-east of Batna on the plateau between the coastal Petite Kabylie range of mountains to the north and the Massif de l'Aurès to the south. It is c.15 km south of Sebket Ez-Zemoul (site DZ012). The site consists of a shallow muddy basin and is defined by Morgan (1982) as a vegetated sebkhet, with unusually high salinity for this kind of wetland: it is dry for at least two months of the year. Vegetation includes a wide (up to 100 m) fringe of *Salicornia* sp. covering almost all the shoreline, some areas of *Juncus* sp. above the *Salicornia* fringe and scattered *Ruppia*

sp. Non-intensive arable farmland, market gardens and low hills surround it to the north. There is extensive cattle- and sheep-grazing in the surrounding hills and some hunting on the site.

■ Birds

See Box for key species. The site is important for large numbers of wintering ducks and waders, with estimates of total numbers of ducks in winter 1991/92 exceeding 10,000 and 14,000–15,000. More than 20,000 total waterbirds have been recorded at the site (20,402 in 1992). More than 3,000 *Phoenicopterus ruber* were recorded in 1998 (see Box). In addition to *Anas clypeata*, the principal ducks are *Tadorna tadorna* (3,000), *A. penelope* (5,500), *A. crecca* (over 3,000), *A. platyrhynchos* (3,500) and *A. acuta* (3,000). Other species wintering in significant numbers include 4,000 *Fulica atra*, 300 *Grus grus*, 780 *Recurvirostra avosetta* and hundreds of small waders, especially *Charadrius alexandrinus* (see Box) and *Calidris minuta*.

Key species

A4i	Breeding (pairs)	Non-breeding
<i>Phoenicopterus ruber</i>	—	3,200 (1998)
<i>Anas clypeata</i>	—	9,000 (1992)
<i>Charadrius alexandrinus</i>	—	1,000 (1992)
A4iii	More than 20,000 waterbirds occur regularly at this site.	

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

No information.

■ Further reading

Bellamy *et al.* (1990), Chown and Linsley (1994), Morgan (1982).

Garaet et-Tarf

Admin region —

Coordinates 35°40'N 07°09'E

Area c.30,000 ha Altitude c.830 m

DZ014

A4i

Unprotected

■ Site description

The site lies about 25 km south-west of the town of Aïn Beïda, on the plateau south of Constantine, which divides the northern coastal mountain range (the Petite Kabylie) from the Massif de l'Aurès to the south. It lies due east and c.60 km from Sebket Djendli (site DZ013), at the same altitude (c.830 m). The site consists of a very large, muddy, saline basin containing some standing water, at least in winter, and surrounded by uncultivated land and rough grazing. The shores are grazed, but no evidence of hunting was found in the winter of 1991/92.

■ Birds

See Box for key species. There is a report of 29 *Numenius tenuirostris* in 1989, but the record is unconfirmed. Although the record of 5,000 *Phoenicopterus ruber* is from the 1970s, there are also more recent counts (2,000 in 1999) in excess of the IBA threshold for the species. There were 2,750 *Tadorna tadorna* and 2,000 *Grus grus* wintering on the site in 1978. Other species recorded wintering include 2,470 *Anas penelope* and over 100 mixed *Calidris/Charadrius* waders. There are also records of wintering *Tadorna tadorna* (average 2,840) and *Anas penelope* (average 2,510) from 'the Constantine complex' which comprises this site combined with others on the plateau south of Constantine.

Key species

A4i	Breeding (pairs)	Non-breeding
<i>Phoenicopterus ruber</i>	—	5,000 (1971)

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

No information.

■ Further reading

Bellamy *et al.* (1990), Chown and Linsley (1994), Gretton (1991), Heredia *et al.* (1996), Scott (1980).

Barrage de Boughzoul

Admin region —

Coordinates 35°38'N 02°50'E

Area c.5,000 ha Altitude 635 m

DZ015

A1, A4iii

Unprotected

■ Site description

The site lies about 90 km south of the town of Blida (south of Alger), in the Hauts Plateaux mountain range, on the southern edge of the Massif de l'Ouarsenis. It is the largest artificial impoundment on the Hauts Plateaux and lies close to the main N1 road, which leads south from Blida to Djelfa. The site consists of an open water surface in excess of 1,000 ha (when the lake is full) and extensive marshland to the south, surrounding the various oueds that flow into the lake. The lake is replenished by autumn and winter rainfall and water-levels vary greatly through the year as a result of evaporation and water flow out of the lake, with lowest levels usually occurring just before the rains in autumn. Vegetation in the permanent marshland includes lush areas of *Phragmites* sp. and *Typha* sp.

■ Birds

See Box for key species. *Marmaronetta angustirostris* is present on the site from the end of April to June in numbers up to 240 individuals, and also on passage. Some birds are known to breed (with at least three breeding pairs present out of 240 adults in 1978). There are also occasional winter records of individuals or small numbers of this species and two other globally threatened species, *Geronticus eremita* (four individuals in the 1960s) and *Oxyura leucocephala*.

The site is important for a variety of wintering and passage waterbirds. More than 20,000 waterbirds have been recorded (22,621 birds in 1991) and there is also a reported total of 30,000 'ducks, coots and waders' with no information on the year. There is a record of 3,000 *Phoenicopterus ruber* from 1972, but this species does not appear to have been recorded at the site since the 1970s. Other species recorded in large numbers, both in the 1970s and more recently, include *Anas penelope* (12,000), *A. crecca* (2,500), *A. acuta* (2,500), *A. clypeata* (3,000), *Aythya ferina* (4,000) and *Fulica atra* (9,000). Other species wintering in smaller numbers include *Podiceps cristatus*, 380 *Tadorna tadorna*, 70 *Grus grus* and a variety of waders, including hundreds of *Himantopus himantopus*, *Recurvirostra avocetta*, *Charadrius alexandrinus* and *Calidris minuta*. *Sterna nilotica* winters and breeds at the site. There are records from the nineteenth century of *Tadorna ferruginea* breeding at the site and of wintering birds of this species in the 1980s. The site is important for a few breeding species (such as *Sterna albifrons*) which are otherwise known to breed only on the Mediterranean coast of Algeria. Other breeding birds include *Tachybaptus ruficollis*, *Podiceps cristatus*, *P. nigricollis* (this was said to be the only breeding site in Algeria, with 50 pairs in the late-1970s), and small numbers of *Tadorna tadorna*, *Anas platyrhynchos*, *Porphyrio porphyrio* and (probably breeding) *Larus genei*.

A variety of raptors is recorded, including breeding *Falco tinnunculus*, wintering *Circus aeruginosus* and *C. cyaneus* and occasional large concentrations of *Milvus migrans* (together with *Ciconia ciconia*) attracted by locusts.

Key species

A1	<i>Marmaronetta angustirostris</i>
A4iii	More than 20,000 waterbirds occur regularly at this site.

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

The site is an important wintering ground and stop-over site for migrants (especially waterbirds), on the edge of the steppe habitats of the Hauts Plateaux. It has no formal protection status and threats to the site and species include deliberate destruction of nests, uncontrolled burning of reedbeds and hunting (including illegal hunting from boats and vehicles). In addition, the rapid changes in water-levels may cause problems for some species, especially during the breeding season. A regime of controlling water-levels could be implemented to alleviate this problem, while also allowing for adequate water flow out of the lake to satisfy agricultural and domestic requirements downstream.

Further reading

Green (1993), Hughes and Hughes (1992), Jacob and Jacob (1980), Ledant *et al.* (1981), Morgan (1982), Scott (1980).

Dayette Morsli– Plaine de Remila (Dayet El Ferd)

DZ016

Admin region —

Coordinates 35°27'N 00°23'E

Area Undefined Altitude c.700 m

A4i

Unprotected

Site description

This site, also known as Dayet El Ferd, lies south-east of the coastal town of Oran and just south of the town of Relizane, in the Monts des Beni-Chougran hills (part of the coastal Tell Atlas) at an altitude of about 700 m. There is no information available on the site's habitats.

Birds

See Box for key species. There are recent records for both *Tadorna ferruginea* and *Grus grus* wintering in numbers exceeding IBA thresholds, but no further information is available. There were 300 *Larus cachinnans* wintering on the site in 1994.

Key species

A4i	Breeding (pairs)	Non-breeding
<i>Tadorna ferruginea</i>	—	760 (1991)
<i>Grus grus</i>	—	2,500 (1995)

Other threatened/endemic wildlife

None known to BirdLife International.

Conservation issues

No information.

Marais de la Macta

DZ017

Admin region Mascara, Mostaganem, Oran

Coordinates 35°41'N 00°10'W

Area c.44,500 ha Altitude 1–13 m Natural Reserve, Ramsar Site

A1, A4i, A4iii

Site description

The site lies about 30 km south-west of the coastal town of Mostaganem (just to the east of Oran) and c.60 km north-west of Dayette Morsli–Plaine de Remila (site DZ016). It consists of the flood-plain and marshland system of several oueds that spread across the Plain of Habra before discharging into the Mediterranean Sea to the north (via the River La Macta). Three major oueds flow into the flood-plain from the south and two of these, the Oued Sig and the Oued l'Habra, flow all year-round. The site is roughly triangular in shape and is bounded to the south, west and east by hills. It consists of open water, marsh, humid steppe and 'sansouires' (saltmarsh) very similar to those of southern France, but rare in North Africa.

To the north, the flood-plain is separated from the sea by a dune system, through which flows the River La Macta; there is also an old river channel which runs west behind the dunes and permanently contains water and beds of *Phragmites* sp. The site consists of large areas of shallow, open water and permanent marsh, with other areas of temporary inundation following rainfall. The salinity is extremely variable, but can be very high, especially at the seaward end. Large parts of the site can be dry from July to October, while the permanent marsh and other areas of open water are replenished year-round by the inflowing oueds. *Scirpus maritimus* and *Juncus subulatus* dominate the northern part of the marshland and other emergents throughout the marsh include *S. lacustris*, *S. littoralis*, *Juncus acutus* and *Phragmites communis*. There is heavy grazing by goats, cattle and sheep, which restricts *P. communis* to the edges of open water areas and drainage channels. Flooded areas show scattered growth of *Potamogeton pectinatus*, *Ruppia maritima*, *Zannichellia palustris*, *Enteromorpha* sp. and filamentous algae. The southern end consists of *Salicornia* sp. steppe, with clumps of *Tamarix* sp. in the south and east. On the northern, dune area there is *Sarcocornia fruticosa* and *Juncus acutus*, with bushes of *Arthrocnemum glaucum* and *Tamarix gallica*. The site is surrounded by irrigated agriculture and there is heavy grazing pressure and some hunting.

Birds

See Box for key species. Up to 220 *Marmaronetta angustirostris* winter on the site and this species has also been recorded breeding, but with no information on numbers. *Tetrax tetrax* occurs all year-round (more than 75 birds in 1975). The site is especially important for wintering waterbirds, including large numbers (approaching IBA thresholds) of several duck species, *Tadorna tadorna* (3,500), *Anas penelope* (15,100), *A. crecca* (9,500), *A. acuta* (2,500), *A. clypeata* (4,000) and *Netta rufina* and significant numbers of wintering and passage waders. There is a single record of 800 *Tringa erythropus* in 1975, which exceeds the IBA threshold for this species. Other numerous waders include *Recurvirostra avosetta*, *Calidris alpina*, *C. minuta* and *Limosa limosa*. There are unpublished reports (by Metzmacher) of 'hundreds' of *Grus grus* overwintering on the plain of La Macta. More than 20,000 waterbirds have been recorded wintering (27,866 in 1978).

The full value of the area for breeding birds has not been evaluated, but large numbers of *Himantopus himantopus* nest, together with *Tachybaptus ruficollis*, *Podiceps cristatus*, *Circus aeruginosus*, *Fulica atra* and *Recurvirostra avosetta*. Many other potential breeding species are observed in spring and summer, including unpublished earlier records by Metzmacher of 'large numbers' of heron species and *Ciconia ciconia* nesting around La Macta, which serves as their principal feeding area. There are irregular records of *Tadorna ferruginea* in spring and summer, suspected to be birds dispersing following early breeding attempts elsewhere.

Key species

A1	<i>Marmaronetta angustirostris</i>	<i>Tetrax tetrax</i>	Non-breeding
A4i	—	Breeding (pairs)	220 (1977)
A4iii	More than 20,000 waterbirds occur regularly at this site.		

Other threatened/endemic wildlife

None known to BirdLife International.

Conservation issues

The wetland is important for local residents grazing cattle and nomads grazing sheep, especially during dry periods. Attempts to drain the site in the 1960s were partially successful, but the rupture of a dyke in 1969 reversed the situation and the wetland has apparently returned to its former extent. However, agricultural pollution is increasing and grazing is intensive, both of which may affect vegetation and the value of the site for waterfowl. There are reports of proposals for other industrial developments (a steel mill and port at the northern end), that could also have serious detrimental impacts on the site. The main road from Oran to Mostaganem has been constructed across the northern end of the site since the most recently published information (1982). There appear to have been no surveys of the site since this date and thus the current status of the site and its importance for waterbirds are unknown. The location of the site, close to Oran, and its biological richness would make it ideal for educational purposes. Most of the marsh (10,000 ha) has been declared a Natural Reserve, but it is not clear how much protection this designation will afford. There is a need for an integrated management plan to reconcile the needs of agriculture and conservation in the area and to prevent inappropriate or damaging industrial development. The site was designated as a Ramsar Site in 2001.

Further reading

Hughes and Hughes (1992), Ledant *et al.* (1981), Morgan (1982), Rutjes and van Wijk (1977) (in Morgan 1982), Scott (1980).

Sebkha d'Oran

DZ018

Admin region Oran

Coordinates 35°22'N 00°48'W

Area 56,870 ha Altitude 90–102 m

A1, A4i

Ramsar Site (unprotected)

Site description

The site lies just south of the city of Oran, only 12 km distant from the Mediterranean Sea at its closest point and some 70 km south-west of Marais de la Macta (site DZ017). It consists of a huge basin, subject to inundation after rainfall, that produces a wetland varying in extent from 50,000 to 100,000 ha. The basin is deeper/lower at its eastern

end, leading to deeper flooding there, which spreads westwards with increasing rainfall. The sebkha dries out (becoming increasingly saline) in late summer, for a period of up to three months. It has been classed as an ‘unvegetated sebkhet’, but there is some *Phragmites australis*, *Arthrocnemum glaucum*, *Juncus acutus* and *Scirpus* sp. fringing the shores and watercourses, and *Suaeda fruticosa* is the dominant vegetation on the seasonally inundated saltflats. The site is surrounded by agricultural land and it is a popular hunting area. Lac de Gharabas (which also has some fairly high winter waterbird counts) lies c.30 km to the east of the site and it is possible that birds move between Sebkha d’Oran, Lac de Gharabas and Marais de la Macta (site DZ017), still further east.

■ Birds

See Box for key species. *Marmaronetta angustirostris* was regularly recorded wintering in the 1970s (200 birds in 1972 and a total of 360 birds at this site, Marais de la Macta (site DZ017) and Lac de Gharabas combined during the 1970s). Although these records are sparse (three records from the 1970s and none since), there are additional winter records from nearby Lac de Gharabas (including 150 birds in 1975 and 38 in 1981). It is probable that counts in the 1970s were more comprehensive and that *Marmaronetta angustirostris* may have been overlooked in more recent years or may have been absent in years when the site dried out. There is an unconfirmed record of a single wintering *Numenius tenuirostris* in 1994. *Phoenicopterus ruber* has been counted on the site in numbers exceeding 2,000 birds during most winters in the 1990s. The site is important for wintering waterbirds generally, with regular counts in excess of 1,000 birds for *Tadorna tadorna* (1,200 in 1994), *Anas penelope*, *A. acuta* and *A. clypeata* (3,100). Other species recorded wintering on the site include *Podiceps nigricollis*, *Egretta garzetta*, *Grus grus* (up to 900 in the 1990s), *Anser anser* (over 900 in 1997), *Fulica atra* and *Larus cachimans* (2,100 in 1999).

Key species

Code	Species	Breeding (pairs)	Non-breeding
A1	<i>Marmaronetta angustirostris</i>		
A4i	<i>Phoenicopterus ruber</i>	—	3,055 (1998)
	<i>Marmaronetta angustirostris</i>	—	200 (1972)
	<i>Recurvirostra avosetta</i>	—	1,250 (pre-1980)

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

Hunting pressure on waterbirds using the site is said to be high. The richness of the wetland and its proximity to a large city with a university suggests that the site would lend itself well to being used for educational and research purposes. The site and the nearby Lac de Gharabas are considered to be key sites requiring protection for *Marmaronetta angustirostris*. There is a need for surveys to investigate the current use of both these sites by this species, possible links between the sites in terms of their use by wintering waterbirds and to determine whether Lac de Gharabas should also be listed as a separate IBA. Sebkha d’Oran was declared a Ramsar Site in 2001.

■ Further reading

Bellatreche *et al.* (1982), Green (1993), Heredia *et al.* (1996), Hughes and Hughes (1992), Morgan (1982), Scott (1980).

Chott Merouane et Oued Khrouf

DZ019

Admin region El Oued

Coordinates 33°55'N 06°10'E

Area 337,700 ha Altitude -40 m

A4i, A4iii

Ramsar Site (unprotected)

■ Site description

The site lies about 250 km south of Constantine and c.80 km south of Biskra. It lies in the depression south of the Massif de l’Aurès (part of the Saharan Atlas) at the very northern fringe of the Sahara desert and is separated from the line of wetlands just south of Constantine (sites DZ010–DZ014 inclusive) by the Massif de l’Aurès. Chott Merouane et Oued Khrouf lies between the two roads leading south, the N48 to El Oued and the N3 to Touggourt and just south of the larger Chott Melrhir, from which it is separated by a strip of dry land

about 4 km wide and by the N48 road. A series of small, seasonally flooded wetlands extends eastwards from Chott Melrhir into Tunisia. The northern part of Chott Merouane lies 40 m below sea-level. It is surrounded by arid steppe (sand and salt scrub) and is seasonally inundated, with the lowest parts remaining permanently flooded with saline water due to the outflow from Oued Khrouf. The inundated areas are fringed by *Arthrocnemum*, *Limonium*, *Juncus*, *Salicornia*, *Sarcocornia*, *Scirpus* and *Suaeda* spp. A shallow lake at the western edge of the site, which is fed by a spring and becomes contiguous with the inundated areas after heavy rain, contained filamentous algae and *Potamogeton* and *Chara* spp. in 1977. There is a small grove of date-palms to the north of the site, irrigated via a channel (containing filamentous algae and *Phragmites communis*) which leads from a small oasis at the northern end of the site. There is some hunting, but this appears to be largely confined to the strips of dry land adjoining the two main roads that run either side of the site. Other human activities include livestock-raising (mainly sheep), salt extraction and fishing.

■ Birds

See Box for key species. Numbers of wintering *Phoenicopterus ruber* appear to be increasing (from 1,000 in 1993 to 12,000 in 1998). The site also holds significant numbers of wintering ducks: more than 20,000 have been recorded. In 1999 on Oued Khrouf there were *Anas penelope* (8,500), *A. crecca* (1,500), *A. acuta* (1,200) and *A. clypeata* (4,500). These numbers, combined with 10,000 unidentified ducks on Chott Merouane in the same year, give a total of at least 35,700 ducks over the whole site. There are older records of wintering *Tadorna ferruginea* and *Anas* spp. and resident *Chlamydotis undulata*.

Key species

Code	Species	Breeding (pairs)	Non-breeding
A4i	<i>Phoenicopterus ruber</i>	—	12,000 (1998)
A4iii	More than 20,000 waterbirds occur regularly at this site.		

■ Other threatened/endemic wildlife

There are said to be indigenous fish species in the saline ponds, but no further information is available.

■ Conservation issues

The site is largely inaccessible and hunting is more or less confined to the strips of dry land adjoining the two main roads that run either side of the site. Water-pollution and overgrazing are seen as potential threats to the ecological character of the site. It was declared a Ramsar Site in 2001.

■ Further reading

Hughes and Hughes (1992), Ledant *et al.* (1981), Morgan (1982).

Garet el-Haaies el Beni Mohammed

DZ020

Admin region —

Coordinates 31°21'N 02°10'E

Area Undefined Altitude 630 m

A4i

Unprotected

■ Site description

The site is some 110 km north-west of the town of El Golea, in the Sahara. It lies in the huge sand desert, the Erg Occidental. No further information is available.

■ Birds

See Box for key species. There is one record of 20 *Aythya nyroca* wintering on the site in 1994. Other wintering waterbirds, in addition to 1,500 *Anas strepera*, include 2,500 *A. penelope*, 3,780 *A. clypeata*, 2,500 *Aythya ferina* and 800 *Vanellus vanellus*.

Key species

Code	Species	Breeding (pairs)	Non-breeding
A4i	<i>Anas strepera</i>	—	1,500 (1996)

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

No information.

Djebel Babor

Admin region —

Coordinates 36°30'N 05°30'E

Area 1,700 ha Altitude c.1,200–1,995 m

DZ021

A1, A2 (s039), A3 (A01)

Natural Reserve

Site description

The site is located in the Petite Kabylie mountain range, which runs roughly parallel to the Mediterranean coast, south and east of the coastal town of Bejaïa and north-west of Constantine. The Djebel Babor forms a long crest (running west-south-west to east-north-east) within this mountain range, extending over 4 km and reaching a peak of 1,995 m (one of the highest peaks in the Petite Kabylie). The site lies only c.20 km from the coast at the Gulf of Bejaïa. The climate of Djebel Babor is particularly humid and cold, with annual precipitation c.2,500 mm, much of it falling as snow during the winter months. Snow can fall in all months between November and April and can lie as deep as 2–3 m. Spring can also be cool and stormy, but the summer months (August to October) tend to be dry with a more typically Mediterranean climate. The northern slopes are wetter due to the proximity to the coast. The southern slopes are steeper, less vegetated and tend to be drier and sunnier.

The principal vegetation above 1,650–1,800 m and covering the summit is mixed oak-fir forest, highly atypical of the Mediterranean zone and considered to be a relict habitat, containing some temperate species (e.g. *Populus tremula*) that occur nowhere else in Africa. The dominant species of tree (reaching c.13 m high) are *Quercus faginea* and *Abies numidica*, with *Cedrus atlantica* and occasional *Taxus baccata* (including very old individual trees), *Populus tremula*, *Acer obtusatum*, *Sorbus aria* and *S. torminalis*. There is a dense understorey, with the field layer dominated by *Viola munbyana*, *Senecio perralderianus* and *Paeonia corallina*. The fir, *Abies numidica*, is endemic to Babor in Algeria (and found nowhere else in the Mediterranean) and several other herbs (*Saxifraga numidica*, *Silene reverchoni*, *Hieracum ernesti* and *Orchis maculata baborica*) are also endemic to the mountain. Below 1,800 m the vegetation on the northern and southern slopes differs markedly. On the wetter northern slopes there are extensive *Cedrus atlantica* forests down to 1,600 m, thought to be secondary forest which has grown up on areas denuded by fires in the late nineteenth and early twentieth centuries. Between 1,200–1,600 m the forest is primarily *Quercus faginea* and other deciduous oaks and below this (to 1,200 m), evergreen oaks, *Q. ilex*. Due to the steep gradient and calcareous outcrops on the southern slopes, there are large bare areas, with some *Cedrus atlantica* up to 1,700–1,800 m and below this (to 1,450 m), evergreen oaks, *Q. ilex*.

Birds

See Box and Table 2 for key species. This site was the first-discovered location for the endemic (to Algeria) and probably sedentary *Sitta ledanti*, first described in 1975. This is also a restricted-range species, the distribution of which defines the North Algerian mountains Secondary Area (s039). An initial, conservative estimate of numbers on the site was 20 pairs, although a total of 54 territories was identified in 1978, 10 with breeding confirmed. Subsequent surveys in 1982 revised the estimate upwards to 80 pairs. Until 1989, the species was thought to be endemic to Djebel Babor and dependent on the presence of *Abies numidica* and *Cedrus atlantica*, but in fact larger populations were found that year in the Parc National de Taza (site DZ022). Birds were found in 1990 in two other nearby forests in the Petite Kabylie, namely Tamentout (9,500 ha up to an altitude of 1,626 m) and Djimla (1,000 ha, up to 1,352 m), where they appeared to be widely distributed in *Quercus canariensis* and *Q. afares* woodland above 1,000 m. The four known sites for the species all lie within 30 km of each other, but it is not yet known whether there is any interchange of birds between the sites. *Sitta ledanti* is restricted to the Mediterranean North Africa biome and three other species of this biome are also recorded from the site. These are *Phoenicurus moussieri* (probably breeding), *Sylvia cantillans* and *Picus vaillantii* (the latter species has not been recorded from any other IBA in Algeria). A number of raptors are also recorded, including breeding *Gypaetus barbatus*, *Neophron percnopterus* and *Hieraetus pennatus* and (probably breeding) *Accipiter nisus*.

Key species

 A1 *Sitta ledanti*

 A2 (s039) North Algerian mountains Secondary Area: the single species, *Sitta ledanti*, that defines this Secondary Area has been recorded at this site.

A3 (A01) Mediterranean North Africa biome: Four of the 17 species of this biome that occur in Algeria have been recorded at this site; see Table 2.

Other threatened/endemic wildlife

Djebel Babor shows high levels of endemism in all the groups that have been studied. In addition to the flora (see above), there is an endemic beetle (*Carabus morbillosus mirei*).

Conservation issues

The site is classified as a Natural Reserve. In 1978 it was reported that the *Quercus faginea*–*Abies numidica* forest, estimated at 250 ha and considered to be essential habitat for *Sitta ledanti*, was threatened by lack of tree regeneration. It appears that the young saplings are unable to establish due to a combination of dense understorey and deep winter snow. This, combined with the effects of fire, fuelwood-collection and of summer grazing by herds of cattle and goats was thought to threaten the survival of the unique forest and its endemic bird. However, the more recent discovery that *Sitta ledanti* is not endemic to Babor, but also occurs (in larger numbers) and in slightly different climates and habitats elsewhere in Algeria (see DZ022), suggests that the immediate threats to the survival of this species are not as serious as first thought. The threats to the forest and its other endemic species presumably still remain, although the difficulties of access to the site (especially in winter) afford some degree of protection. A number of specific conservation proposals have been suggested and relevant authorities are said to be very supportive of action to protect the site, but no more recent information is available regarding its current status and management. The various actions proposed included a reduction in the levels of fuelwood exploitation, habitat management including selective tree-felling, reforestation and supplementary planting in areas of cultivation, restrictions on grazing in certain habitat-types, surveillance, visitor management and prevention or control of forest-fires.

Further reading

Bellatreche (1991), Bellatreche and Chalabi (1990), Ledant *et al.* (1981), Ledant *et al.* (1985), Viellard (1978).

Parc National de Taza

Admin region —

Coordinates 36°36'N 05°30'E

Area 3,807 ha Altitude 0–1,500 m

DZ022

A1, A2 (s039)

National Park

Site description

The site lies in the Petite Kabylie mountain range, 60 km east of the town of Bejaïa, c.100 km north-east of Sétif and 30 km south-west of the coastal town of Jijel. The site lies within the large (10,500 ha) forest of Guerrouch and its northern end consists of a 9 km stretch of the Mediterranean coast. The climate is humid Mediterranean, with annual precipitation of 1,000–1,400 mm and an annual mean temperature of 18°C, with temperatures below freezing very rarely recorded. The principal tree species are *Quercus canariensis*, *Q. afares* (dominant at higher altitudes) and *Q. suber* (dominant at lower altitudes), together with *Alnus glutinosa*, *Prunus avium*, *Salix pedicellata*, *Fraxinus angustifolia* and *Acer monspessulanum*.

Birds

See Box for key species. The only information available concerns the population of *Sitta ledanti*, discovered in 1989 and estimated at 350 individuals (by extrapolation from those forest areas surveyed). The species is widespread in *Quercus* spp. woodlands of different composition between 350 m and 1,121 m altitude, probably also outside the limits of the National Park. This is a significantly larger population than that on Djebel Babor (once thought to be the only location for the species; see site DZ021).

Key species

 A1 *Sitta ledanti*

 A2 (s039) North Algerian mountains Secondary Area: the single species, *Sitta ledanti*, that defines this Secondary Area has been recorded at this site.

Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

The population of *Sitta ledanti* in this site is considered well protected because of the status of the site as a National Park and the high quality and extent of the forest habitats within the park. There is also the possibility that further populations of the species will be found in other, adjacent forest areas within the Petite Kabylie where there are large stands of *Quercus canariensis*.

■ Further reading

Bellatreche and Chalabi (1990).

Parc National du Djurdjura

DZ023

Admin region —

Coordinates 36°28'N 04°05'E

A1

Area c.18,550 ha Altitude c.1,000–2,000+ m

National Park

■ Site description

The site lies in the Grande Kabylie mountain range, which runs south and south-east from Algiers, just behind the Mediterranean coastline. It is within the Massif du Djurdjura, north-east of Bouira and just south of Tizi-Ouzou. The coordinates given are derived from various large-scale maps and may not accurately reflect the position of the National Park. The area is mountainous, with several peaks over 2,000 m, and the climate is humid due to the close proximity of the coast. There is extensive karst topography at high altitudes and *Quercus suber* forests up to 1,300 m.

■ Birds

See Box for key species. There are records of breeding colonies of *Falco naumanni* from several locations in and around the Djurdjura massif and surrounding area. Colonies (usually occupied between the end of April and beginning of October) have been reported from Lakhdaria, gorges de l'oued Keddara, Djemaa Taguengourt (all in the Djurdjura) and from nearby—possibly between Tikjda and Tizi N'Kouilal and at Bouira. It is also possible that the species overwinters in the Kabylie, but its current status in Algeria remains poorly known. The selection of the National Park as an IBA is the most practical choice of site, as this designation will afford at least some level of protection. Further survey work is required to determine more precise locations and numbers of *F. naumanni* within the colonies, to confirm the boundaries of the IBA and to investigate the other bird fauna within the site. Other species occurring in the area of the Parc National above Tikjda include *Gypaetus barbatus* and *Pyrhocorax pyrrhocorax*.

Key species

 A1 *Falco naumanni*

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

The site's status as a National Park will afford at least some protection.

■ Further reading

Ledant *et al.* (1981).

Parc National du Belezma

DZ024

Admin region —

Coordinates 35°37'N 06°03'E

A1, A3 (A01, A02)

Area 8,500 ha Altitude c.1,000–2,000+ m

National Park

■ Site description

The site lies south-west of Constantine and about 20 km north-west of the town of Batna, in the range of mountains called the Monts de Belezma. These mountains (which reach 2,178 m at Djebel Rafaa, near Col de Telmet) are the northern outlier of the Massif de l'Aurès, which lies at the eastern end of the Hauts Plateaux. The Monts de Belezma have a sub-humid climate with cold winters. There are large areas of *Cedrus atlantica* forest above 1,300 m. The coordinates are estimated from maps and derived from the town of Col de Telmet and may not accurately reflect the location of the National Park and its boundaries.

■ Birds

See Box and Table 2 for key species. There is a colony of *Falco naumanni* at Col de Telmet and reports of another possible colony at Djebel Chélia in the Massif de l'Aurès, c.70 km to the south-east. There is no additional information concerning these colonies and the status of the species in Algeria generally is poorly known. Most records of the biome-restricted species are from the Massif de l'Aurès region in general, but it is considered valid to suppose that most if not all of these occur in the Parc National du Belezma, providing suitable habitats are present. More survey work will be needed to confirm this and to determine whether the National Park boundaries are also the most appropriate for the IBA. Given the lack of information available at present, the National Park is used to provide a pragmatic, working definition of the site. This is the only IBA in the north of the country from which *Ammomanes deserti* is recorded.

Key species

 A1 *Falco naumanni*

A3 (A01) Mediterranean North Africa biome: 11 of the 17 species of this biome that occur in Algeria have been recorded at this site; see Table 2.

A3 (A02) Sahara-Sindian biome: Six of the 15 species of this biome that occur in Algeria have been recorded at this site; see Table 2.

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

No information.

■ Further reading

Ledant *et al.* (1981).

El Bayadh

DZ025

Admin region —

Coordinates 33°41'N 01°00'E

A3 (A01)

Area Undefined Altitude c.1,300–1,500+ m

Unprotected

■ Site description

The site lies in the Saharan Atlas mountain range, south of the Hauts Plateaux, c.270 km south-east of the city of Oran and 160 km west of the town of Laghouat (which is situated on the edge of the Sahara desert). The site lies within the Djebel Amour mountain chain, which runs north-east from El Bayadh (1,310 m), with many peaks over 1,500 m. There is no designated protected area in the region and more survey work will be required to define the boundaries of an IBA. The coordinates given are those for the town of El Bayadh itself, but a number of records have been included which in fact derive from the road between El Bayadh and Aflou, c.110 km to the east.

■ Birds

See Box and Table 2 for key species. A 'small colony' of *Geronticus eremita* was reported from the Djebel Amour near El Bayadh in the 1970s and the species continued to breed here into the early 1980s. It has not been recorded since 1988 when there was no evidence of any breeding attempt (S. J. Farnsworth pers. comm., P. Isenmann pers. comm.). Three of the biome-restricted species (*Ramphocoris clotbey*, *Chersophilus duponti* and *Eremophila bilopha*) are unknown from any other IBA in Algeria.

Key species

A3 (A01) Mediterranean North Africa biome: Five of the 17 species of this biome that occur in Algeria have been recorded at this site; see Table 2.

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

No information.

■ Further reading

Ledant *et al.* (1981).

Aïn Sefra

Admin region —

Coordinates 32°45'N 00°34'W

Area Undefined Altitude c.1,000–2,000+ m

DZ026

A3 (A02)

Unprotected

Site description

The site lies in the Saharan Atlas mountain range, south of the Hauts Plateaux, c.180 km south-west of El Bayadh (site DZ025) and only 50 km from the Moroccan border. The town of Aïn Sefra is surrounded by peaks of over 2,000 m. The coordinates given are those for the town of Aïn Sefra itself. There is no designated protected area in the region and more survey work will be required to define the boundaries of an IBA, but records from the location suggest that the site will qualify as a biome-restricted IBA.

Birds

See Box and Table 2 for key species. The biome-restricted species known from this site include the only record of *Ammomanes cincturus* for any Algerian IBA north of the Sahara and one of only two Algerian IBA site records for *Scotocerca inquieta*.

Key species

A3 (A02) Sahara–Sindian biome: Seven of the 15 species of this biome that occur in Algeria have been recorded at this site; see Table 2.

Other threatened/endemic wildlife

None known to BirdLife International.

Conservation issues

No information.

Béni Abbès

Admin region —

Coordinates 30°08'N 02°10'W

Area Undefined Altitude <600 m

DZ027

A3 (A02)

Unprotected

Site description

The site lies in the vast sand desert known as the ‘Grand Erg Occidental’, c.160 km due south of the town of Béchar, which itself lies just south of the Moroccan border at this point. The town of Béni Abbès lies in the valley of the Oued Saoura, a continuation of the Oued Guir that flows out of the Moroccan Atlas, south-east into Algeria and is perennial in its upper reaches. The Oued Saoura flows 500–700 km into the desert, becoming increasingly salty due to evaporation, and ends in a series of pans further south, near Adrar and Reggane. Along the length of the Oued Saoura the encroaching sands result in a string of moist sand pools (‘gueltas’) and pans adjacent to and within the riverbed. At Béni Abbès the mean annual precipitation is 50 mm, although this is highly variable and higher levels can lead to some flooding. Most floods result from rainfall in the Moroccan Atlas and can occur several times a year.

Due to the variable water-levels, emergent macrophytes are generally absent from the riverbed, but occur along irrigation channels and around oases, with *Phragmites australis* usually the dominant species, together with *Typha capensis*, *Cynodon dactylon*, *Juncus maritimus*, *Scirpus holoschoenus* and *Sonchus maritimus*, all of which are salt-tolerant. On the banks of the oued there are stands of *Hyphaene* spp. palms and some stunted *Ficus sycomorus*, with thickets of *Nerium oleander* and *Tamarix* spp. occurring more locally. *Phoenix dactylifera* has been planted widely and is the commonest tree in the valley. The whole valley is an ancient caravan route, along which towns such as Béni Abbès have grown up in areas with freely available water, used for drinking, irrigation and watering livestock—probably since Neolithic times. The coordinates given are those for the town of Béni Abbès itself. There is no designated protected area in the region and more survey work will be required to define the boundaries of an IBA, but records from around the town of Béni Abbès suggest that a biome-restricted IBA should be located in this general area.

Birds

See Box and Table 2 for key species. The biome-restricted species include the ‘very common’ *Pterocles senegallus* (said to co-occur at this site with *P. coronatus*) and one of only two Algerian IBA site

records for *Scotocerca inquieta*. There is a large thermal spring just downstream of the town (which is used to irrigate gardens) and also attracts large numbers of migrating warblers and wintering passerines.

Key species

A3 (A02) Sahara–Sindian biome: 10 of the 15 species of this biome that occur in Algeria have been recorded at this site; see Table 2.

Other threatened/endemic wildlife

The waters of the Oued Saoura are said to contain a dense (but not species-rich) invertebrate fauna, typical Atlas fish species in the fresh headwaters, which move downstream with the floods, and euryhaline fish species, *Aphanius fasciatus* and *A. iberus*, downstream. Amphibia—*Bufo mauritanicus*, *Discoglossus pictus* and *Rana ridibunda*—are recorded from the middle valley and carnivores include *Felis margarita*.

Conservation issues

The site is unprotected. The valley is quite densely populated and tourism in the area is becoming increasingly popular. The Oued Guir has been dammed to the north (upstream of Abadla), resulting in increasing salinity of the underground waters around Béni Abbès and there are some problems of pollution where untreated or partly treated sewage is discharged directly into the oued.

Further reading

Hughes and Hughes (1992), Ledant *et al.* (1981).

Parc National du Tassili N’Ajjjer

Admin region Illizi

Coordinates 24°55'N 08°30'E

Area c.8,000,000 ha

Altitude 1,100–2,158 m

DZ028

A3 (A02)

National Park, World Heritage Site,

Biosphere Reserve, Ramsar Site

Site description

The site lies in the far south-east of the country, in the Sahara desert, less than 200 km from the border with Libya (to the east) and c.500 km north-east of Parc National de l’Ahaggar (site DZ029). The Tassili N’Ajjjer consists of a high limestone plateau outlier to the north-east of the A’Haggar Massif (see site DZ029), which reaches a maximum height of 2,158 m at Mount Afao. The climate is typical of desert and mountain with large diurnal temperature ranges. Maximum temperatures do not usually exceed 32°C and do not usually drop below freezing, although frosts and snow have been recorded from higher ground. The mountain slopes drain principally to the north-east through deep gorges running down to the plain. There are many oueds and over 300 permanent, and many temporary, ponds or gueltas on the Tassili N’Ajjjer plateau, with flowing water and waterfalls following rain, and springs (including a hot spring) in some areas. The karstic valley of the Oued Iherir lies at 1,100 to 1,400 m and has 45 permanent gueltas, intermittent streams, marshes, lakes and freshwater springs. Rainfall is very variable, with the annual mean probably c.25 mm, but reaching 150 mm locally in some years. Salinity in the gueltas varies with rainfall and the degree of flushing.

There is a variety of emergent and submerged vegetation in the various water-bodies; the lake and many watercourses are fringed with beds of *Typha capensis* and *Phragmites australis* and filamentous green algae are found at the edges of many of the gueltas. Tree species found along the oueds include abundant *Nerium oleander* and *Tamarix gallica*, with *Acacia nilotica*, *Hyphaene thebaica*, *Olea laperrinii* and planted *Phoenix dactylifera* in the valleys. There is a resident human population in the valleys, estimated at several thousand people, but probably fluctuating greatly. Activities include cultivation of palms, figs and vegetables on terraces; grazing of camels, goats and sheep; fishing in the gueltas; collection of *Typha* for thatching and mat-making and some tourism. The latter is based particularly on the cave paintings on the valley walls, evidence of some of the earliest inhabitants of the Sahara. There are visitor facilities and entrance fees are charged: 8,200 people visited the Park in 1990. Tourism diminished drastically between 1992 and 2000, but is now said to be recovering.

Birds

See Box and Table 2 for key species. There are records of passage *Crex crex*, said to be abundant during autumn passage in the 1960s, but with

few recent records from anywhere in Algeria. This is one of only two IBAs in Algeria (together with Parc National de l'Ahaggar, site DZ029) from which the biome-restricted *Pterocles lichtensteinii* and *Alaemon alaudipes* are recorded.

Key species

A3 (A02) Sahara–Sindian biome: 13 of the 15 species of this biome that occur in Algeria have been recorded at this site; see Table 2.

Other threatened/endemic wildlife

The site has a diverse invertebrate fauna including relict species and representatives of both Afrotropical and Palearctic realms. There are also fish species from both these realms (including *Barbus* spp., *Clarias* spp. and *Tilapia* sp.), a number of amphibians have been recorded and *Crocodylus niloticus* (now extinct on the site) occurred until at least 1924. Mammals include *Felis chaus* and *F. margarita*.

Conservation issues

The whole area is a National Park and the valley of the Oued Iherir was designated as a Ramsar Site (La Vallée d'Iherir) in 2001. This smaller area is also designated as a 'nature park', however this latter designation only affords protection to the frescoes on the plateau, not the fauna and flora. Tourism is at a very low level and probably causes little disturbance. Wells and irrigation channels dug in the Oued Tadjeradjeri system may have some effect on hydrology, but have fallen into disuse.

Further reading

Hughes and Hughes (1992), IUCN (1991), Ledant *et al.* (1981).

Parc National de l'Ahaggar

Admin region Tammanrasset
Coordinates 22°56'N 05°09'E
Area c.4,500,000 ha
Altitude c.1,500–2,981 m

DZ029

A1, A3 (A02)
National Park,
Ramsar Site

Site description

The site lies in the far south of the country, in the Sahara desert, east of the town of Tamanrasset and c.500 km south-west of Parc National du Tassili N'Ajjer (site DZ028). The A'Haggar Massif comprises ancient volcanoes, jagged peaks and sedimentary rock plateaus with sculpted rock formations. There are areas of Pre-Cambrian granites, overlain in some areas above 1,900 m by Tertiary and Quaternary lavas. The massif extends south to within 230 km of the border with Niger and contains the highest mountains in Algeria, with a peak of 2,981 m at Mount Tahat, a second peak, Mount Assekrem at 2,728 m and several others exceeding 2,300 m. The climate is more temperate than that of the lowlands around the massif, with a mean annual July temperature of 29°C and a mean annual January temperature of 12°C. The overall annual mean of 21°C is lower than that on the adjacent Tanzerouft Plain and frosts are quite common at higher altitudes, with temperatures of -12°C and even -20°C and frequent snow recorded on the peaks. Rainfall increases with altitude, and annual levels fluctuate greatly: less than 10 mm has been recorded in some years at Tamanrasset, but 160 mm was recorded in 1933. The main drainage to the west is via the Oued Tamanrasset, which carries occasional floods out to the Tanzerouft Plain.

There are deep gorges and smaller oueds on the higher slopes and numerous gueltas between 1,000 and 2,000 m, which freeze in winter. Often these are composed of strings of pools among rocks and boulders in open riverbeds, with flowing water and even waterfalls for much of the year, depending on the rainfall. A variety of emergent and submerged macrophytes occur in the gueltas and watercourses, dominated in most places by *Typha capensis* and *Phragmites australis*. Along the banks of oueds, especially where the water-table is close to the surface, *Nerium oleander* and *Tamarix gallica* are common and *Acacia nilotica* and *Hyphaene thebaica* occur close to gueltas, although in many areas they have been replaced by planted *Phoenix dactylifera*. There are also occasional trees of *Ficus sycomorus* and *Olea laperinii* in inaccessible side gullies. There is some low-key tourism, but no permanent human habitation in the upper gueltas: lower down the gueltas are used for watering camels, cattle and goats. Permanent gueltas are very important features to the nomadic Tuareg herdsman. At lower levels there is also some grazing of stock and some agricultural and horticultural cultivation and plantations of *Phoenix dactylifera*.

Birds

See Box and Table 2 for key species. *Circus macrourus* is considered 'not rare, wintering in the Hoggar (= Ahaggar) mountains'. Two biome-restricted species, *Pterocles lichtensteinii* and *Alaemon alaudipes*, are recorded only from this site and one other IBA in Algeria (Parc National du Tassili N'Ajjer, site DZ028). The permanent gueltas are said to be very important for migrants crossing the Sahara, but there are no details of species or numbers.

Key species

A1 *Circus macrourus*
A3 (A02) Sahara–Sindian biome: 13 of the 15 species of this biome that occur in Algeria have been recorded at this site; see Table 2.

Other threatened/endemic wildlife

The Ramsar Site (Les Gueltates d'Issakarassene, 31,500 ha) supports concentrations of wetland-dependent species that have survived through adaptation to the gradual drying out of the Sahara. A number of fish (*Tilapia* and *Barbus* spp.), including some desert endemics, are recorded from the site, with *Tilapia zillii* widespread in the upper permanent gueltas except those where winter temperatures are too low. Various amphibia (*Bufo* spp. and *Rana* sp.) are recorded, and mammals known to occur include *Felis chaus*, *Acinonyx jubatus* (VU) and *Gazella dorcas* (VU).

Conservation issues

The whole area is classified as a Parc National and a smaller area (Les Gueltates d'Issakarassene) was designated as a Ramsar Site in 2001. No significant threats to the Ramsar Site are foreseen, except possible increases in tourism.

Further reading

Hughes and Hughes (1992), Ledant *et al.* (1981).

Îles Habibas

Admin region Oran
Coordinates 35°44'N 01°07'W
Area c.40 ha Altitude 0–103 m

DZ030

A1, A3 (A01)
Unprotected

Site description

The site consists of two rocky islands lying 12 km west of the Algerian coastline just below the headland known as 'Les Andalouses' (which itself lies 45 km west of Oran). The larger island is called 'Gharbia' and reaches 103 m. The smaller and more easterly island is 'Charguia' and reaches no more than 25 m in height. Scrub vegetation includes *Ephedra fragilis*, *Wthania frutescens* and *Frankenia corymbosa*.

Birds

See Box for key species. The colony of *Larus audouinii* on the eastern side of Île Gharbia consisted of 350 individuals (including 130–150 young and at least 100 nests) in July 1989. An earlier record of 200 individuals on the islands in July 1986 was thought to comprise birds that had moved (probably due to human disturbance) from previously known colonies. Two previous colonies on Cap Falcon and l'île Plane, totalling 400 individuals, have now disappeared. Wintering numbers for the whole Algerian coastline were estimated at 824 individuals in 1978, but the key wintering sites have not been identified and it is possible that many Algerian breeding birds winter further east, from Morocco to Mauritania.

Other seabirds recorded from the site include breeding *Calonectris diomedea* (27 nests), *Phalacrocorax aristotelis*, *Pandion haliaetus* (seven nests) and *Larus cachinnans* (a colony of several hundred individuals). This latter species nests on Île Charguia and thus appears not to nest alongside *L. audouinii* on the Habibas islands. This is the only IBA from which the biome-restricted *Falco eleonorae* is recorded as breeding, with at least five pairs seen on the Îles Habibas and four further individuals on the coast in July 1989, and four seen along the same section of coast in June 1987.

Key species

A1 *Larus audouinii*
A3 (A01) Mediterranean North Africa biome: One of the 17 species of this biome that occur in Algeria have been recorded at this site; see Table 2.

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

The site is considered to be relatively undisturbed because of the difficulty of access, although ‘massive’ collection of eggs of all species by local people was reported in 1992. Predation by *Larus cachinnans* and small mammals may also threaten the *L. audouinii* colony. The creation of a network of coastal and marine nature reserves, particularly on the Habibas islands, is the recommended conservation action for breeding *L. audouinii*. Other necessary mechanisms to ensure continued protection of this species include enforcement of national wildlife legislation and control of rodents in the main breeding colonies.

■ Further reading

Boukhalifa (1990, 1992, 1995), Heredia *et al.* (1996).

Île Rachgoune

Admin region Oran

Coordinates 35°19'N 01°25'W

Area Undefined Altitude 0–c.100 m

DZ031

A1

Unprotected

■ Site description

The Île Rachgoune is located 4 km off the coast of Algeria near the

town of Béni-Saf, south-west of Oran and c.60 km south of Îles Habibas (site DZ030). There is no available information concerning habitats.

■ Birds

See Box for key species. A new colony of 60 pairs of *Larus audouinii* was discovered in 1993. In addition to nesting *L. audouinii*, there are also records of breeding *L. cachinnans* (300–350 pairs in 1978).

Key species

A1 *Larus audouinii*

■ Other threatened/endemic wildlife

None known to BirdLife International.

■ Conservation issues

In a similar way to Îles Habibas (site DZ030), this island is considered to be relatively undisturbed because of the difficulty of access. The creation of a network of coastal and marine nature reserves, coupled with enforcement of national wildlife legislation and control of rodents in the breeding colonies, have been proposed as the best mechanisms for ensuring continued protection for breeding *Larus audouinii*.

■ Further reading

Boukhalifa (1990, 1995), Heredia *et al.* (1996), Jacob and Courbet (1980).

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