

Information Sheet on Ramsar Wetlands

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

2. Country: Algeria

3. Name of wetland: The Gueltates d'Issakarassene

4. Geographical coordinates:

22° 25' 14" North latitude
5° 45' 22" East longitude

5. Altitude: 2000 metres

6. Area: 35,100 hectares

7. Overview:

A *guelta* is a sort of stream cut into the narrow bottom of gorges or a deep canyon with many watersheds. The permanent water of the Gueltates d'Issakarassene comes primarily from permanent springs at the surface and this is supplemented seasonally by storm rains that are often very intense. A rich and diverse fauna and flora characterize this site, which is a refuge in an environment subject to extremely stressed climatic conditions. The Gueltates d'Issakarassene is one of the most important in the Ahoggar mountains and spreads over about 12 kilometres. It is also the body of water with most fish, relic fish, which reach surprising sizes. The Gueltates d'Issakarassene is also a type of wetland that has not yet been included in the Ramsar list of wetlands of international importance. Its recognition would be the first for this type.

8. Wetland type:

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

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

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

Criteria that best characterize the site: 1

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

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

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

Criterion 1: The biological equilibrium in the Sahara is especially fragile. The bodies of water are the key points, a refuge around which there is symbiotic life. The slightest disturbance risks provoking disruption and irreversible losses. These refuges make possible the concentration of the last living relics of a fauna and flora, which were abundant long ago and of which several species established in the aquatic environment have adapted, allowing them to survive during the gradual desertification of the current Sahara. This type of site, not yet represented on the Ramsar list of wetlands of international importance, is certainly a good example of a representative, rare and unique wetland.

Criterion 2: The Gueltates d'Issakarassene are of particular importance for the maintenance of biological diversity because of the wealth and diversity of its fauna and flora. In an area of about 35,100 hectares, the following endangered species are found: the Dorcas gazelle (*Gazella dorcas*), considered a vulnerable species by IUCN; the rock hyrax (*Procavia capensis*), a Paletropical species more and more rare (the Algerian population is the most northern in Africa); the *goundi* (*Massaoutiera m'zabi*), of which two subspecies are represented in the Ahoggar. Among the endangered species, are the cheetah (*Acinonyx jubatus*) and the Barbary sheep (*Ammotragus lervia sahariensis*). Among the flora, the following species are endemic to the central Sahara: *Fagonia flamandi*, *Lavandula antinea*, *Myrtus nivellei* and *Olea lapperini* and several in the Ahoggar, such as *Carralluma venenosa*, *Pegolettia dubiefana* and *Phagnalon garamantus*.

Criterion 3: The Gueltates d'Issakarassene have a special value for the reproduction of species of fish endemic to the desert, species of ungulates (Dorcas gazelle and the Barbary sheep), the cheetah and species of flora. The Sahara desert area in general constitutes an especially interesting model for the study of the evolution of the biocenosis. The distribution of many species of vertebrates, at a certain time, probably continuous from the Atlas to the Niger, gradually divided. This created a phenomenon of insularity in the spatial distribution of the biocenosis. These insular habitats are favourable to the appearance and development of small mutations, and genetic isolation increased by ecological and ethnological factors can lead to speciation. These elements are especially important for aquatic species (fish and batrachians), whose distribution depends on the hydrographical network. The Gueltates d'Issakarassene are the habitat for *Barbus biscarensis* and two species of Buffonidae: *Buffo veridis* and *B. mauritanicus*. The presence of these permanent bodies of water has made possible the development of a biocenosis specific to the desert environment. The *gueltates* are the only permanent bodies of water available, especially in the summer, for many species of animals and plants.

Criterion 7: One of the important aspects of the animal population of the Gueltates d'Issakarassene is the wealth of its aquatic fauna, which is due to the permanent presence of water. The present aquatic vertebrates include fish and batrachians. The fish are now represented by a Palaearctic species

Barbus biscarensis, a species scattered in several populations that have been totally isolated from each other for thousands of years. They have adapted to extreme and varied ecological situations in the Gueltates d'Issakarassene, where water can freeze in some places and be hot in other places. The morphological modifications of these isolates are known, and have led to the creation of different species, such as *Barbus amguidensis*, in the region of the Tassili (Leberre 1986).

13. General location

The Gueltates d'Issakarassene are located 120 kilometres north of city of Tamarasset and 60 kilometres from the village of Ideles.

14. Physical features

They are at about 2000 metres in altitude and were created by the natural dam of the Tihaliouine Valley, which was dug out by a flow of basalt. The *oued* has dug this gully in a gorge where there were small strings of more or less permanent small ponds. This gorge is cut by two basalt cliffs forming waterfalls during the rainy season. At the base of these cliffs, there is a permanent pond called a *guelta*. In the upper part of the gorge, the wall of basalt on the left has greyish limestone travertine in all the faults. At the point of the joining of a lateral ravine, there is at the base of the basalt a small terrace of limestone travertine spread over an alluvial bed. This grey travertine, a conglomerate of many fragments of basalt, contains abundant fossils of stems and leaves of *Phragmites*, *Scirpus* and *Juncus* (Maire 1940). Studied in 1965 by Gast, water from the Issakarassene contains the following chemical elements: 26 mg/l of calcium, 5 mg/l of potassium, 13 mg/l of chlorine, 19 mg/l of sulphates, 43 mg/l of carbonates and 7.5 mg/l of phosphorus. Several of the Gueltates d'Issakarassene are more than 10 metres deep, depending on the type of previous flooding.

Climate: The region is subject to the influence of a Mediterranean climate between November and February and a tropical climate between May and September. The heaviest rains fall as storms, occurring at the time of the Sudan monsoon season. The average annual rainfall recorded at the nearest meteorological station, located at 2770 metres in altitude and distant about 15 kilometres, is 117.8 millimetres. The average maximum annual temperature is 24.1° C and the average minimum is 1.9° C.

15. Hydrological values:

Replenishment of the downstream water table is noticeable near the area of the farms at IN Amguel, Abalessa, etc. The other values are only estimates because of a lack of detailed hydrological studies.

16. Ecological features:

There are three types of habitat in the Gueltates d'Issakarassene: a transitional aquatic environment of permanent *Veronica anagallis-aquatica*

caduca; an environment of transition, of many plant species, such as *Adainthum capillus-veneris*, *Cyperus laevigatus*, *Gnaphalium luteo-album*, *Juncus maritimus*, *Lotus jolyi* (species endemic to the Sahara), *Mentha longifolia*, *Nerium oleander*, *Phragmites communis*, *Scirpus holoschoenus*, *Tamarix gallica*, *Typha australis* and *Typha elephantine*; a continental environment among the faults in the cliffs, rich in perennial plant species. Scattered among this vegetation are the following endemic species: *Dianthus crinitus* (endemic to the Sahara), *Lavandula antinea pubescens*, *Marrubium desertii* (endemic to the Sahara) and *Pituranthos scoparius* ssp.

17. Noteworthy flora:

The noteworthy flora includes the following species.

Figure 1. Outstanding flora of the Gueltates d'Issakarassene

| Species | Status | Species | Status |
|-----------------------------------|-------------------------------|-----------------------------|--|
| <i>Globularia alypum</i> | | <i>Helianthemum eniorum</i> | Endemic to the Tassili |
| <i>Clematis flammula</i> | Not reported in the Ahoggar | <i>Lavandula antinea</i> | Endemic to the Ahoggar and the Tassili |
| <i>Ballota hirsuta</i> | Endemic to the Mediterranean | <i>Marrubium desertii</i> | |
| <i>Carralluma enenosa</i> | Endemic to the Ahoggar | <i>Myrtus nivellei</i> | Endemic to the Central Sahara |
| <i>Ephedra altissima</i> | Endemic | <i>Olea lapereni</i> | Endemic |
| <i>Fagonia flamandi</i> | Endemic to the Sahara | <i>Pistacia atlantica</i> | Endemic to North Africa |
| <i>Ficus salicifolia telouket</i> | Endemic to the Central Sahara | <i>Salvia chudaei</i> | |
| <i>Osyris alba</i> | | | |

18. Noteworthy fauna:

The Gueltates d'Issakarassene are a refuge for many species of animals of which the cheetah (*Acinonyx jubatus*) is certainly the rarest and most threatened because of a drastic decrease of its populations. The Dorcas gazelle (*Gazella dorcas*) is also considered vulnerable by IUCN. The presence of the Barbary sheep (*Ammotragus lervia*) (Pallas 1777) is also noteworthy. The subspecies found in the Sahara, *Ammotragus lervia* according to the studies of Pallas (1777) and Kowalski (1991), this species originated in North Africa, while Rotschild (1913) noted that the description of Pallas was based on Shaw's data concerning Algeria. In 1913, using a specimen from the Oued Mya in the Tadmait (Algerian Sahara), Rotschild created a new species based on the colour of the hair and the form of the horns, *Ammotragus lervia sahariensis*. In 1946, Harper limited its range to the department of Oran. Since then, the population of northern Algeria has been

designated as a subspecies *Ammotragus lervia lervia*. No information is available to state that the mouflon des Gueltates d'Issakarassene is *Ammotragus lervia lervia* or *Ammotragus lervia sahariensis*. The taxonomy of this species is still uncertain because of the absence of reliable genetic information. Nonetheless, the range of this species continues to decrease because of many threats. Among the other mammals are the rock hyrax and the *goundi du Sahara* represented by two subspecies in the Ahoggar (*M. m'zabi* and *M. rotschildi*). The Gueltates d'Issakarassene are especially important for the maintenance of biological diversity because of the wealth and diversity of its fauna and flora. Although still little known, one of the important aspects of the animal population of the Gueltates d'Issakarassene is the abundance of its aquatic fauna. This is the result of the permanent presence of water. The aquatic vertebrates include fish and batrachians.

The current fish species are four species (*Barbus ablaves*, *B. biscarensis*, *Clarias azera*, *Tilapia zilli*), in three families. The batrachians are represented by two species of Ranidae (*Rana ridibunda*, an extremely abundant Palaeartic species, and *Ptychadena mascareniensis*, also a Palaeartic species).

19. Social and cultural values:

The nomad Tuaregs use the Gueltates d'Issakarassene for water for their domestic needs and for their herds. Beyond that, there are no other known social values of these *gueltates*.

20. Land tenure/ownership of:

The land belongs to the private domain of the State.

21. Current land use:

The Gueltates d'Issakarassene are located on bare rocky and gravelly soils in an environment strongly resembling the moon. It is almost barren, apart from skeletal vegetation, except for grazing areas located in the valleys where there are scattered forage species and Acacia groves. The valley bottoms and the streams where there is a micro-climate favourable are colonized by several species, such as the date palm, the pink laurel and a large number of herbaceous plants.

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

Given the infrequent frequentation of this area, the Gueltates d'Issakarassene do not appear to suffer from any unfavourable factors at both the site and in the surrounding area. However, if tourism increases, it will be necessary to regulate it.

23. Conservation measures taken:

The Gueltates d'Issakarassene has the status of Parc National de l'Ahoggar.

24. Conservation measures proposed but not yet implemented:

Classification as a full reserve within the Parc National de l'Ahaggar.

25. Current scientific research and facilities:

The area has been the object of a survey of the fauna and flora carried out by the Institut National de Recherche Forestière (INRF) - Station de Tamanrasset and the Office du Parc national de l'Ahaggar.

26. Current conservation education:

An awareness programme (folders, conferences, guided visits and production of documentary films) has been carried out by the Parc National de l'Ahaggar and the INRF-Station de Tamanrasset for the general public and school children.

27. Current recreation and tourism:

Located on a road of difficult access, the Gueltates d'Issakassene is an important tourist attraction for visitors to the Ahaggar (Sahara Central).

28. Jurisdiction:

Territorial jurisdiction is the responsibility of the Parc National de l'Ahaggar.

29. Management authority:

The agency directly responsible for the Gueltates d'Issakassene is the Parc National de l'Ahaggar, with headquarters in Tamanrasset.

30. References:
