

RAMSAR CONVENTION MONITORING PROCEDURE

REPORT NO. 22

LAC OUBEIRA AND LAC TONGA, ALGERIA

General Introduction

1. Each Contracting Party to the Ramsar Convention ("Convention on Wetlands of International Importance especially as Waterfowl Habitat" Ramsar, 1971) "shall designate suitable wetlands within its territory for inclusion in a List of Wetlands of International Importance" (Article 2.1 of the Convention). The Contracting Parties "shall designate at least one wetland to be included in the List" (Article 2.4) and "shall formulate and implement their planning so as to promote the conservation of the wetlands included in the List" (Article 3.1). Furthermore, each Contracting Party "shall arrange to be informed at the earliest possible time if the ecological character of any wetland in its territory and included in the List has changed, is changing or is likely to change as the result of technological developments, pollution or other human interference. Information on such changes shall be passed without delay to the organization or government responsible for continuing bureau duties" (Article 3.2).
2. These are the principal stipulations of the Convention concerning wetlands included in the Ramsar List. Successive meetings of the Conference of the Contracting Parties (held in 1980 at Cagliari, Italy, in 1984 at Groningen, Netherlands, in 1987 at Regina, Canada, and in 1990 at Montreux, Switzerland) have devoted special attention to the conservation of listed wetlands and to the best ways of avoiding 'change in ecological character'.
3. Conference Document C.3.6 of the Regina meeting ("Review of national reports submitted by Contracting Parties and Review of implementation of the Convention since the second meeting in Groningen, Netherlands in May 1984") included a section (paragraphs 66 to 107) entitled "Changes in the ecological character of listed wetlands". This section recalled that it was "essential that, after a wetland has been designated for the List, its conservation status should be maintained", and that "the concept of preventing 'change in the ecological character' is fundamental to the Ramsar Convention". Paragraphs 74 to 107 reviewed the 29 wetlands on the List where such changes had occurred, were occurring, or were likely to occur.
4. During the discussion of these paragraphs, several delegates emphasized the importance of avoiding changes of this kind in listed wetlands and the Conference approved a Recommendation (C.3.9) on this matter. The Recommendation urged Contracting Parties to take swift and effective action to prevent any further degradation of sites and to restore, as far as possible the value of degraded sites; the Recommendation requested Parties in whose territory were located the sites identified in Conference Document C.3.6 as having incurred or being threatened by damage, to report to the Convention Bureau the actions undertaken to safeguard these sites.

5. At the fourth Meeting of the Ramsar Convention Standing Committee, the members (Pakistan, Canada, Chile, Netherlands, Poland, Switzerland, Tunisia and USA) and observers (United Kingdom, IUCN, IWRB and WWF) considered the best way of promoting the implementation of Recommendation C.3.9. A 'Monitoring Procedure' was adopted by the Standing Committee to find a solution to possible change of ecological character at Ramsar sites, and has been used since February 1988 by the Convention Bureau. The fourth meeting of the Conference of Contracting Parties, held at Montreux in 1990 approved a Recommendation (C.4.7) which "endorses the measures taken by the Standing Committee to establish a Ramsar Monitoring Procedure"; the Conference made a number of amendments to the text of the Procedure; this revised text is appended to the present report. Recommendation C.4.7 also "instructs the Bureau to continue to operate this procedure when it receives information on adverse or likely adverse changes in ecological character at Ramsar sites". Recommendation C.4.7 finally "determines that Monitoring Procedure reports shall be public documents once the Contracting Party concerned has had an opportunity to study the reports and comment on them".
6. The Montreux Conference also approved a Recommendation (C.4.8) on 'Change in ecological character of Ramsar sites'. This recommendation referred back to Regina document C.3.6 and to the similar document presented at Montreux (Document INF C.4.18) which, in its paragraph 224, lists 44 Ramsar sites in 23 countries which appear likely to have undergone, to be undergoing or to be likely to undergo a change in ecological character. Recommendation C.4.8 requested the Contracting Parties concerned to take swift and effective action to prevent or remedy such changes; it instructed the Bureau to maintain a record of such sites and to give priority to application of the Monitoring Procedure at sites included in this record.
7. Funding for the Monitoring Procedure is provided from the Convention's core budget and also from additional voluntary contributions, made by Contracting Parties, Unesco, and by interested non-government organizations, notably WWF and RSPB (the Royal Society for Protection of Birds, UK).

Lakes Oubeira and Tonga - general background

8. The document confirming Algeria's accession to the Ramsar Convention was published in the Official Journal of the Algerian Republic on 11 December 1982. The Algerian instrument of accession was deposited with the Director-General of Unesco on 4 November 1983 and so, in conformity with Article 10.2 of the Convention (which provides that the Convention shall enter into force for each Contracting Party four months after the day it deposits an instrument of accession), Algeria became a Contracting Party on 4 March 1984.


9. At the time of accession, Algeria designated two wetlands for the "List of wetlands of international importance" - Lac Tonga and Lac Oubeïra - and provided an outline map and general description of the two sites. In subsequent correspondence with the Ramsar Bureau, the Algerian authorities confirmed that the area of Tonga was 2,700 hectares and that of Oubeïra 2,200 hectares. Both wetlands are situated in the El Kala National Park, established in 1982 and covering an area of 85,000 hectares of forest, mountain, coastline and wetland in the Wilaya (province) of Et-Tarf, in eastern Algeria, on the border with Tunisia. Oubeïra and Tonga are part of the larger El Kala wetland system - a mosaic of wetlands including sea inlets, lakes, rivers, Scirpus marshes, dune slacks and alder thickets in the eastern part of the Wilaya Et-Tarf. The El Kala complex is generally recognised with Coto Doñana in Spain, Camargue in France and Ichkeul in Tunisia - to be one of the four major wetland complexes in the Western Mediterranean. The other components of the complex (notably Lac Mellah, Garaet Mekhada and dune slacks with alder thickets such as Lac Noir, Bou Redim or Garaet Zerga) have not been designated for the Ramsar List. One of the most striking ornithological characteristics of the area is its very rich and varied population of breeding, passage and wintering birds of prey - always a very strong indication of biological richness.
10. Algeria was represented at the first and second meetings of the Conference of the Contracting Parties (held respectively in Cagliari, Italy in 1980 and Groningen, Netherlands in 1984). Algeria was not represented at the third Conference held in Regina, Canada in 1987 though it submitted a national report, which was published in the Proceedings. At the fourth meeting, held in Montreux, Switzerland in June/July 1990, an Algerian observer took part and a national report was submitted. The Algerian authorities originally indicated that the Ministry responsible for implementation of the Convention was the Ministry for Hydraulics, Water and Forests. After reorganization of the Algerian Ministries, the Ministry of Agriculture (Directorate of Forests and Natural Region) became responsible. In addition to operating the Monitoring Procedure, the Ramsar Bureau was anxious to re-establish direct contact with the competent authorities, both in Algiers and at regional level in the El Kala area.
11. Article 3.1 of the Convention provides that "Contracting Parties shall formulate and implement their planning so as to promote... as far as possible the wise use of wetlands in their territory". In recent years, the Contracting Parties have given much greater emphasis to this aspect of the Convention; at Regina the following definition of 'wise use' was adopted:

"The wise use of wetlands is their sustainable utilization for the benefit of humankind in a way compatible with the maintenance of the natural properties of the ecosystem".

Sustainable utilization is defined as "human use of a wetland so that it may yield the greatest continuous benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations". Natural properties of the ecosystem are defined as "those physical, biological or chemical

components, such as soil, water, plants, animals and nutrients, and the interactions between them". The Regina Conference also established a Working Group on Wise Use, whose mandate was renewed at the Montreux Conference. The Working Group's task is to develop the concept of wise use, produce guidelines and furnish examples. As will become clear in the following paragraphs, the Ramsar concept of wise use seems particularly appropriate in the El Kala wetlands.

12. Oubeïra is a shallow freshwater lake (only a few metres deep), fed by water from the surrounding catchment and aquifer, which flows into the Oued El Kebir and thence into the sea. At times of high flow in the Oued El Kebir, some water may flow back into Oubeïra. The reason for its inclusion in the Ramsar List was the large number of wintering waterfowl (especially Tufted Duck Aythya fuligula, Pochard Aythya ferina, Gadwall Anas strepera, Wigeon A. penelope and rare species such as White-headed Duck Oxyura leucocephala. The lake is eutrophic with extensive macrophytic vegetation, notably Potamogeton pectinatus and the rare water chestnut Trapa natans. It supports an abundant fish fauna, and may play a major role in the recharge of regional groundwater, but this remains to be determined.
13. Lake Tonga is only a few kilometres away from Oubeïra, but is in a separate catchment, and drains directly into the sea, through the Oued Messida. Several unsuccessful attempts have been made to drain it this century, and as a result it presents the appearance of a large reed-bed, interspersed with alder Alnus glutinosa carr and small patches of open water. Because of its thicker vegetation, the lake serves as a feeding area for waterfowl that rest during the day on Oubeïra; it is especially important as a breeding area for such rare waterfowl as Ferruginous Duck Aythya nyroca, White-headed Duck and Purple Gallinule Porphyrio porphyrio.
14. As early as the Regina Conference in 1987, Oubeïra was included among the 29 Ramsar sites in Doc. C.3.6 where changes in ecological character "had occurred, were occurring or were likely to occur". This inclusion was based partly on information, contained in the Algerian national report to the Regina Conference, on the effect on the Oubeïra ecosystem of the introduction of six million young carp in 1985 and 1986, and partly on concern over possible effects of the Mexenna Dam on water supply to Oubeïra. At the Montreux Conference, document C.4.18 maintained Oubeïra in the record of Ramsar sites where change in ecological character might occur (the document identified 44 sites in 23 countries); this was on the basis of information in the Algerian report to the Montreux Conference which referred to the following problems:

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- Introduction of carp fry in 1985-1986
 - Degradation of vegetation round the edges of the lake
 - Use of lake water for irrigation of neighbouring land
 - Use of lake water for provision of drinking water to El Kala
 - Development of neighbouring land for agriculture
 - Grazing
 - Extension of cities

15. Oubeïra was clearly, therefore, a prime site for operation of the Ramsar Monitoring Procedure. It proved impossible to arrange a monitoring mission before the Montreux Conference, and the Ramsar Bureau therefore proposed to the Algerian authorities in August 1990 that a mission be organized. By his letter of 1 October 1990 (ref. 257/DFRN/SPR/90 - 188/90 BCCR) the Director of Forests and Natural Regions of the Ministry of Agriculture indicated his agreement with this proposal. The dates chosen were in late November 1990, to enable coordination and exchange of results with an important World Bank mission, which is to visit El Kala in December 1990. The participants in the Monitoring Mission were M. Smart (Ramsar Bureau) and G.E. Hollis (University College London), both of whom have visited the area on several occasions and written papers about the El Kala wetlands.
16. Although Tonga was not included among the 44 Ramsar sites listed in Montreux document C.4.18 as likely to undergo change in ecological character, the Algerian national report to Montreux did mention the following factors likely to cause such change:
- Poaching
 - Eel fishing
 - Use of lake water to irrigate neighbouring land

After visiting the El Kala region in the company of Algerian officials, it was apparent that the Monitoring Mission should be applied not only at Oubeïra, but also at Tonga, and indeed that the present report should be extended to cover the wetlands of the Wilaya of Et-Tarf as a whole, also including some wetlands in the neighbouring Wilaya of Annaba.

Programme of the visit

17. The following programme was carried out:

- Friday 23 November: GEH and MS flew London-Algiers
- Saturday 24 November: Early morning flight Algiers-Annaba. Met by R. Baba Ahmed of the El Kala National Park staff, later joined by D. Boukhalfa of the Ministry of Agriculture, Algiers and other National Park staff. Visits to:

- Annaba salines
- New road (CW 109) from Annaba airport to El Kala
- Garaet Mekhada drainage and irrigation scheme
- Mexenna Dam site (with Soviet technical advisors)
- Lake Oubeïra
- Wilaya of Et-Tarf (Discussions with Secretary-General)

Overnight in El Kala, with accommodation costs generously covered by the National Park.

- Sunday 25 November: Visits to:

- Lake Tonga (northeast sector)
- Wilaya of Et-Tarf (further discussions with Governor and Secretary-General)
- Lake Tonga (west side)
- National Park education centre, El Kala
- Dune slacks and alder carr (including Lac Noir) north of new CW 109 road.

Evening flight: Annaba-Algiers

- Monday 26 November: Discussions in Algiers with

- Staff of Directorate of Forests and Natural Regions (Ministry of Agriculture)
- Members of World Bank Mission (Messrs. N. Krafft and J.G. Lewis)


- Tuesday 27 November: Discussions in Algiers with Director of Forests and National Parks

Return flight Algiers-London

18. G.E. Hollis is to visit Algiers and El Kala again from 10-20 December 1990 with the World Bank mission to El Kala.

El Kala wetlands: current situation

19. General: The El Kala wetlands - like the whole of Algeria - are very much affected by the enormous changes and reorganization proceeding at national level. In the first place, the introduction of a multi-party political system means much wider discussion of all major issues and decisions; the differing political complexions of communes within the Wilaya of Et-Tarf clearly influences local decision-making. Secondly, the move towards decentralization gives much greater autonomy and influence at Wilaya, commune, or even local level. Thirdly, agriculture is being reorganized. There may be a number of autonomous offices and there will be greater emphasis on individual initiative. This means that it is much easier for land owners and tenants to change uses of land or water resources: clearing of forest or scrub, pumping of water for irrigation from lakes or specially dug water holes is much more prevalent and much less controlled than before.
20. The new road: Another major new factor of recent years is the construction of the new road, CW 109, from Annaba airport across the Oued Mafragh, along the coastal dunes through Sebaa (the village where President Chadly Bendjedid was born) to El Kala. Previously, this area was largely inaccessible, and could be reached only by difficult sandy tracks from Annaba or Lac des Oiseaux; Garaet Mekhada, the Scirpus marsh behind the coastal dunes, was accessible only to the most determined fishermen and hunters. Construction of the road has shortened the distance from El Kala to Annaba by 20 kilometers (the old road hugged the higher ground to the south of Garaet Mekhada). However, by making access to untouched natural areas much easier, the road also introduces a danger of disturbance and degradation of these sites, and acts as a physical barrier to waterflow through the dunes, dessicating some sites.
21. Drought: Our attention was repeatedly drawn to the drought situation, caused by lower winter rainfall throughout the 1980s in the Et-Tarf area. Some observers considered that this was the principal, if not the sole reason, for the problems of water supply mentioned in paragraph 22 below. During our exploratory mission, we had no time to obtain the detailed meteorological and hydrological data which are undoubtedly available. It will be important for the World Bank mission in mid December to obtain these data.
22. Drinking Water: The Wilayas of Et-Tarf and Annaba have the highest rainfall of anywhere in Algeria, a large and mainly dry country. This precipitation is important for provision of drinking water to the city of Annaba (half a million inhabitants) and other cities and villages of the region). One large dam,



at Cheffia on the Oued Bounamoussa, which flows into the Garaet Mekhada and on via Oued Mafragh to the sea, is already in existence; a second at Mexenna on the Oued el Kebir, which joins the Bounamoussa just before the Oued Mafragh, is under construction. Some 48 wells in the sand dunes help supply Annaba with water; another five have been built since a visit by the then Minister of Hydraulics in 1988, to supply El Kala (10,000 inhabitants normally, but 30,000 in the summer tourist season). Provision of drinking water has always been difficult in El Kala, despite its relatively high rainfall; on previous visits (and again this time) water was only intermittently available in the principal tourist hotel; in summer 1990, water had to be brought by lorries. The new villages which have been built as part of the "degourbification" programme (replacement of huts and sub-standard village housing by modern stone buildings) have their own well for mains drinking water. A pumping-station was built on the southwest shores of Lake Oubeira by the hydraulic authorities, but this has been abandoned after representations from the National Park staff.

23. Water for irrigation: Many of the agricultural areas around El Kala use water for irrigation. Such water may be drawn from wells, pumped directly from the wetlands, or - especially in recent years - taken from holes dug in the topsoil down to groundwater level. There appears to be little control of the excavation of such holes nor of the amount of water extracted. The authors suspect that increasing use of groundwater may be as important, if not more important, than the drought in depleting surface and groundwater resources. However, they have no figures to support this assertion, and - as pointed out very strongly by several local officials - it will be important for the World Bank mission to obtain figures and to provide clear evidence on this issue.

24. The Mexenna Dam: The dam is situated on the Oued El Kebir, just south of the old (N 44) road from Annaba to El Kala, near the town of Ain El Assel. According to information from Soviet advisors, some 30 % of the cost has been spent, and 15 % of the building work completed (a normal figure, given the cost of preparatory work). Completion of the work is planned for 1992, when the total flow of the Oued El Kebir (295 million cubic metres per annum) will be held back. It is planned to use 250 million cubic metres per annum to supply drinking water requirements of cities of the region. We were not able to see detailed operating instructions for the barrage, but it appears that little or no consideration has been given to its effects downstream; possible effects that spring to mind are desiccation of the Garaet Mekhada (with consequent loss of grazing, fish spawning-grounds and wildlife habitat) and loss of replenishment (in times of high flood) of the Oubeira Ramsar site. The World Bank mission should undoubtedly seek further information on operation of the dam, and consider the need for an operating regime which recognises all of the demands for water in the area, including release of water to maintain the productive ecosystems downstream of the dam.

25. Garaet Mekhada: This freshwater marsh (8,000 hectares) is situated between the coastal dunes and the old Annaba-El Kala road (RN 44). It receives water from both the Oued Bounamoussa and the Oued El Kebir. It floods in winter and dries out in summer, so that there are no buildings in it - simply an old railway embankment, now disused and breached in several places. It has a largely natural vegetation and is one of the largest Scirpus marshes left in the western Mediterranean. It is currently used for grazing, and some areas round the edges have been reclaimed for agriculture; it is one of the most important sectors of the El Kala wetlands for wintering waterfowl, especially Greylag Geese (the Central European breeding population winters exclusively at El Kala, Lac Fetzara (Wilaya of Annaba) and Ichkeul in Tunisia). It is likely that Mekhada acts as an important fish spawning area and nursery, though further information on this subject is required.
26. Mekhada will be severely affected by the completion of the Mexenna Dam, which will cut off its main source of water supply. When the dam's operating rules are established, it will be important to allow for releases of water through the dam to maintain the Mekhada wetland.
27. An even more immediate threat to the ecological character is the agriculture project, currently being developed on the edge of the southern central section of the wetland, near the N 44 road. The project which aims to establish a dairy farm, includes extensive drainage works, and will require irrigation in spring and summer. In the short time available we were unable to see detailed plans, though we visited the Ministry of Agriculture's Division of Hydraulic and Agriculture Activities in Et-Tarf. We did however have discussion on the spot with field staff. A large embankment (more or less parallel with the disused railway line) has been constructed, enclosing an area of 2,000 (some said up to 3,500) hectares. A ditch is being dug around the perimeter of this enclosed area; the effect of this ditch will be to desiccate the enclosed area, to lower ground water and eventually to increase salinity in the soil. The effect of this drainage will not be limited to the enclosed area, since it is proposed to dig three more canals northwards across the centre of the Garaet Mekhada, to evacuate water from the irrigated area by gravity. Some of the land outside the enclosed area has already been ploughed. These developments, in our view, will severely decrease the productivity and integral value of the Garaet Mekhada (as has happened with similar canals to evacuate water at the Ichkeul Ramsar site in Tunisia): groundwater levels will drop, soil salinity will increase considerably.
28. Garaet Mekhada is not part of the El Kala National Park, though it entirely merits inclusion because of its natural conditions, rich fauna and flora, and productivity for natural cattle grazing, hunting and probably fishery. In our view, the proposed dairy farm will only be economically profitable for a short

period; wider ecological and environmental factors have not been taken into consideration in its development. We consider that the project should be suspended and fully re-appraised. In our view it would be much more appropriate to include Garaet Mekhada in the National Park, with a regime that maintains the habitat and guarantees wise use.

29. Oubeïra: For the first time in living memory, Oubeïra dried out almost completely in summer 1990, leaving an area of dried mud with fissures 70 centimetres deep. A very small area of water near the Oued Messida outlet to the Oued El Kebir remained. National Park staff tried to preserve this to maintain fish and water chestnut populations. We were told that there was strong local feeling against this drying-out, particularly in the nearby village of El Frine, whose inhabitants staged a demonstration in protest. During our visit the water area had to some extent reconstituted itself; the central part of the lake was covered with an extremely shallow stretch of water (probably no more than 50 cms deep at the deepest part). A broad strip of dry to dampish mud, up to a kilometre broad, extended round the edges. The number of shells of freshwater mussels round the edges was very striking. Numbers of waterfowl, especially surface feeding ducks but also some Greylag Geese, were considerable - perhaps up to 10,000.
30. There was some dispute over the cause of the drying-out of Oubeïra. The drought of recent years had undoubtedly played its part. During the summer of 1990, water was also extracted directly from Oubeïra to provide drinking water for El Kala, because the five wells approved in late 1988 (see paragraph 22 above) were not yet in operation. In addition, water was extracted for agricultural purposes, both by pumps and pipes placed round the edge of the lake and from holes dug round the edge of the lake. In our view, extraction of water for drinking and agriculture was probably a more important factor than the drought in causing desiccation; however, factual data to support this assertion are lacking and the reasons for the drying-out should be properly investigated by the World Bank mission.
31. National and local officials told us of their determination to maintain the ecological character of the Ramsar site - by prohibitions, as at present, if need be. They felt however, that in the long run, a guarantee of maintaining ecological character could be given only if local people were in agreement with the policies. The officials were therefore anxious to develop a strategy which would take account of human needs and requirements, as well as floral and faunal values.
32. The desiccation of the lake has - quite fortuitously - overcome one of the major problems - the introduction in 1985 and 1986 of young carp which was affecting the macrophytes in the lake. More carp should certainly not be re-introduced for the moment, and if any are to be re-introduced in future, this should be only after a full assessment of the ecological system.


33. As noted above, (paragraph 24) the effect of the Mexenna Dam on water levels in Oubeïra should not be too great, though inflow back up the Oued Messida at times of high flood may be lost; this could affect entrance of fish from the sea. Restoring this loss would be another reason for allowing releases of water from the Mexenna Dam.
34. The most serious long-term threat to the ecological character seems to the authors to be extraction of water for agriculture. With the functioning of the five new wells and eventually of the Mexenna Dam, the provision of drinking water for El Kala should be ensured. However, pumping of water for agriculture and digging of water holes - particularly if this develops further in an uncontrolled fashion - could have a serious long term effect on the wetland. We suggest therefore that a plan for controlling use of water and land resources be developed - preferably not only for Oubeïra, but in an integrated fashion for the whole National Park, the whole catchment of the Oued Mafragh and indeed the catchment of the Oued Seybousse (Wilaya of Annaba).
35. Tonga: Like Oubeïra, Tonga dried out completely in summer 1990, partly because of the drought, but also, though hard facts are again desirable, because of extraction of water for irrigation in the immediately adjoining agricultural land. As far as we were able to find out, no water was extracted from Tonga for drinking water. At the time of our visit, some small areas of surface water and reed-beds and alder carr had survived, but the edges of the wetland were still very dry and there had been some attempts to cultivate them.
36. As mentioned above (paragraph 11) there have over the years been a number of unsuccessful attempts to drain the lake for agriculture. One river which originally ran into the lake has been diverted and is separated from the present lake by an embankment; it then runs directly into the sea. At the outflow from Lake Tonga to Oued Messida, there is a sluice to control water levels. Present management techniques maintain the sluice closed to keep water levels high, though the sluice has on occasion been opened by unauthorized persons to promote eel fishery. The embankment was breached in two places (possibly by pressure of water but possibly by human action). The authors suggest that the World Bank mission should investigate the history and functioning of the lake in more detail: it might be possible to develop an imaginative management scheme, involving restoration of the former course of the river and reappraisal of the function of the embankment and of the use of the area outside the embankment.
37. The Algerian national report to the Montreux conference mentioned two other problems at Tonga - poaching and eel-fishing. The problem of poaching is probably not too serious, and could be solved by reinforcement of the personnel of the National Park.

Some eels are caught at Lac Tonga (as indeed also on the Oued El Kebir and Oued Mafragh), using nets across the water courses. National Park staff expressed concern about the numbers of otters Lutra lutra and waterfowl caught in these nets. The eels are normally exported to Italy. We understand that the permit to catch eels within the Tonga Ramsar site will run out in 1991. In our opinion, harvesting of eels should not be allowed in the areas of strict protection, but could continue in certain sectors of the National Park, as long as it is controlled by the park authorities, in the spirit of wise use.

38. Drying-out of a Ramsar site which normally remains wet clearly represents a serious (even if temporary) change of ecological character. As in the case of Oubeïra, it would be desirable to develop a management plan which would meet with the approval of local people, and would guarantee water supplies. Such a plan could best be developed in the context of a broader water and land-use plan for the whole Et-Tarf/Annaba region.
39. Dune slacks: As noted above (paragraph 9) the National Park includes a number of small wetlands in the dunes. Although these have not been designated for the Ramsar List, they represent an important part of the El Kala wetland mosaic, and have been severely affected by the new road (see paragraph 20) by the drought, and by the increased drilling of wells in the dune area. One of the most important sections from the botanical point of view, the Lac Noir, an area of peat surrounded by alders north of the CW 109 road, was supposed to be included as a strict nature reserve (Zone 1 in the park planning). During summer 1990, the water level dropped severely and the lake is now completely dry; the reasons for the drop in water level are probably twofold - establishment of a pumped well by the nearby new road and unauthorized pumping by local inhabitants (currently the subject of a court case). A fire was started - probably deliberately, and as a result, all the vegetation of the former lake and the surrounding alder forest has been destroyed. At Bou Redim, another small lake which houses the area's major colony of nesting herons, there was also a fire in 1990.
40. In order to prevent such severe impacts on small but extremely important areas of natural vegetation, measures need to be devised to guarantee water levels, to prevent intrusion of seawater into the dune aquifer, and to ensure respect for the natural vegetation. We were not able to visit the Garaet Zerga (Lac Bleu), but understand that it did not suffer at all during the summer drought, because of a general consensus among local people that it should be preserved. This is an important illustration that consensus is possible.
41. Lac des Oiseaux: Lac des Oiseaux is another illustration of the possibility of consensus. It is a small lake, near the old main road (RN 44) at the village of the same name. Despite the popularity of waterfowl hunting in the region, it has long been recognised - at the instigation of local hunters and with no statutory protection - as a non-shooting area. The birds rapidly

recognise this "refuge" function, and on days when shooting is permitted elsewhere (Fridays and public holidays) they congregate here in large numbers. During our visit - which took place on a non-shooting day - some 4,000 waterfowl, mainly ducks including 7 White-headed Duck, were present. We were informed by National Park staff that, some days before our visit, a concentration of 35,000 had been recorded.

42. Not only is Lac des Oiseaux respected as a non-hunting area, but no water was extracted during summer 1990. There is therefore a clear and popularly accepted precedent for maintenance of natural ecological conditions.
43. Impact at local level of the National Park: We were very much impressed by the greatly increased impact of the National Park since our previous visits four or five years before. The park is much more visible - there are signs advertizing its presence everywhere; there is an ideally sited Ecomuseum on the main road from El Kala to Tunisia; nature trails have been developed around Tonga; a camp-site and open air-activities centre has been established alongside Tonga; an information and interpretation centre has been established in the centre of the town of El Kala, with a highly motivated staff. We understand that the International Council for Bird Preservation (Cambridge, UK) may be willing to help develop the Ecomuseum.
44. At the same time, the personnel of the National Park has been strengthened to include - as we were told - some 30 workers, including surveillance, technical and scientific staff. It seemed very obvious that the staff of the park were highly respected by local officials from other administrations and that they were able to have a considerable impact in other environmental issues. (We were told, for instance, that El Kala is the only coastal city in Algeria with a fully functioning waste water treatment centre - even if the capacity of the centre is insufficient). The pumping station built on the southwest shores of Oubeïra to extract water for drinking has been abandoned at the instigation of park staff. Furthermore, the Wali, with the support of the National Park staff, has already established a local consultative committee, to advise on environmental issues.
45. We wish to express our appreciation of the work and influence of the National Park personnel, and to express our hope that further areas, not currently included in the National Park, may in future be incorporated into the park or given protected status. We are thinking in particular of Garaet Mekhada, Lac Mellah and Lac des Oiseaux; stronger protection needs to be given to some sites, already included, such as Bou Redim and Lac Noir. We would also like to suggest that formal conservation measures be taken at Lac Fetzara in the Oued Seybousse plain, south of Annaba. Although we did not visit the latter area on this mission, its importance is well known and there is undoubtedly much movement of migratory




waterfowl (notably Greylag Geese) between El Kala and Fetzara. At Fetzara too, there have been attempts at drainage over the years; of late however, the sluice gates have been closed in winter, so that irrigation water is available in spring and spring grazing is available behind the sluice after the release of the water. This seems an excellent example of "wise use". If Fetzara is considered too distant from El Kala to be considered as part of the El Kala national park, a separate protected area/reserve structure should be established.

46. We were informed of certain internal difficulties in the workings of the National Park relating to personnel management. We very much hope that these can be resolved rapidly and amicably, so that the El Kala National Park can continue, and indeed extend its excellent work.

Recommendations

47. Based on the observations made and the information received during our brief visit we make the following recommendations. They are intended to be of assistance to the Algerian authorities; we hope that the World Bank will also take account of them in developing projects relating to conservation and wise use of wetlands in the Wilaya of Et-Tarf, since the Bank's involvement in such projects was - we understand - motivated by the Ramsar status of Oubeïra and Tonga.
48. Recommendation on Lake Oubeïra:
- The original fears of change in ecological character of the Ramsar site were based principally on the impact of introduced carp on submerged vegetation and the impact of the Mexenna Dam on water supplies. The carp problem no longer exists since the lake dried out in summer 1990. The effect of the Mexenna Dam will be minimal: the Oued El Kebir's contribution to the Oubeïra water supply appears to have been small and restricted to times of exceptionally high flooding. However, it may be possible to continue this recharge of the lake in wet periods, especially when the Mexenna Dam is spilling over.
 - Much more serious is the depletion of the water table caused partly by drought. However, it is also - and in our opinion, more significantly - caused by direct extraction for drinking water in El Kala, by pumping for agriculture and by extraction from shallow excavations. The functioning of the five new wells should obviate the need for further extraction of drinking water, and operation of the Mexenna Dam should relieve the problem further. We were encouraged to learn that the Algerian authorities intend to maintain the ecological character of the lake, by controlling and limiting further extraction of water.



We recommend that Oubeïra be considered as a zone of strict protection in the National Park, that extraction of surface and groundwater from the lake and its catchment be strictly controlled in the immediate future, and that conservation and management of Oubeïra be incorporated into a Regional Plan for wise use and conservation of land and water resources.

49. Recommendation on Lake Tonga:

- The lake has undergone a variety of changes in the last hundred years following attempts (generally unsuccessful) to drain it. The exact sequence and effect of these drainage projects is poorly understood, and requires investigation. The risk of change in ecological character of the Ramsar site stems, as at Oubeïra, in disruption of water supplies caused partly by the recent drought but also - to a greater extent in our opinion - by overuse of water for agriculture. As at Oubeïra, we welcome the stated intention of the Algerian authorities to maintain the ecological character of the lake by controlling and limiting further extraction of water.

We recommend that Tonga be considered as a zone of strict protection in the National Park, that surface and groundwater extraction from the lake be strictly controlled in the immediate future and that conservation and management of Tonga be incorporated into a Regional Plan for wise use and conservation of land and water resources.

50. Recommendation on some other wetlands in the Wilayas of Et-Tarf and Annaba

- Oubeïra and Tonga have been designated as Ramsar sites, but they form only a part of the El Kala wetland complex, which is one of the four prime wetland systems of the Western Mediterranean. Other components of the complex - notably Lac Mellah, Garaet Mekhada, Lac des Oiseaux and smaller dune slack and alder carr communities also merit protected status, perhaps as part of the National Park and eventually as Ramsar sites. The site where action is most urgently needed is the Garaet Mekhada, which is facing immediate degradation and eventual destruction through an irrigation project. In addition, the more distant site of Fetzara in the Wilaya of Annaba is undoubtedly of international importance and merits conservation measures, either in the context of the National Park or under some other arrangement. Some areas within the park such as Lac Noir and Bou Redim illustrate the need for better application of existing Park regulations.

We recommend that legal measures be taken to give protected status to Garaet el Mekhada, Lac des Oiseaux, Lac Mellah, and Lac Fetzara, preferably in the context of a Regional Plan for wise use and conservation of land and water resources. In particular we recommend that the irrigation project at Garaet Mekhada be suspended until its environmental and ecological impact has been appraised. We suggest that efforts be made to strengthen implementation of National Park regulations at Lac Noir and Bou Redim.

51. Recommendation on a Regional Plan for wise use and conservation of land and water resources

- The National Park at El Kala is set in an area which has retained the integrity of natural ecosystems in a remarkable manner, but which also supports a large human community. The Park has given protected status to some of the major elements of these natural ecosystems, though some prime examples still need further measures. At the same time the recent drought and the legitimate requirements of local people for socio-economic development have placed considerable stresses on the natural resources of the region - especially water and land. In order to conserve the natural value and originality of the region and to promote wise use and sustainable development of the region, a master plan for management of these resources is required; it should cover not only the area of the National Park, but the greater part of the Wilaya of Et-Tarf and sectors of the Wilaya of Annaba. It is essential that the plan be approved and accepted by all sections of the community, both at local level and in the capital. The consultative committee already established by the Wali of Et-Tarf (paragraph 44) could form the nucleus for discussion and approval of the plan by local and national bodies and individuals. Among the organizations to be involved in the round table where the plan is formulated and implemented are:

- At national level: National Dams Agency; different directorates of the Ministry of Agriculture; Ministry of Equipment; Ministry of Interior (the Ministry to which the Walis are responsible, and which also has an environment department); National Planning Council; Institut National d'Agronomie, El Harrach; Bureau National des Etudes Forestières, Blida; interested non-governmental conservation organizations.

- At local level: The Walis of Et-Tarf and Annaba and their staff, the University of Annaba, the local offices of national ministries, the El Kala National Park, representatives of political parties, representatives of user groups (farmers, hunters, fishermen, graziers, tourism, industry).

We recommend strongly that the forthcoming World Bank mission should develop this concept - in close cooperation with the national and local authorities in Algeria - that the subsequent study should produce a Regional Plan for wise use and conservation of land and water resources, and that funding for the application of the Plans should be provided. Among the possible sources of funding for this Plan are: the World Bank, the European Investment Bank, the Commission of the European Communities, the UN Development Programme and their joint Mediterranean Environmental and Technical Assistance Programme (METAP).

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