IUCN Conservation Outlook Assessment 2017 **(archived)**
Finalised on 09 November 2017

Please note: this is an archived Conservation Outlook Assessment for Ichkeul National Park. To access the most up-to-date Conservation Outlook Assessment for this site, please visit https://www.worldheritageoutlook.iucn.org.

Ichkeul National Park

SITE INFORMATION

Country:
Tunisia
Inscribed in: 1980
Criteria:
(x)

Site description:
The Ichkeul lake and wetland are a major stopover point for hundreds of thousands of migrating birds, such as ducks, geese, storks and pink flamingoes, who come to feed and nest there. Ichkeul is the last remaining lake in a chain that once extended across North Africa. © UNESCO

SUMMARY

2017 Conservation Outlook

Good with some concerns

The conservation outlook for Ichkeul National Park is of low concern considering the improving overall status demonstrated by the fact that it was removed from the Montreux record in 2016. The hydrological status of the property has improved significantly over the last 10 years but the site remains somewhat vulnerable with regards to its hydrological management and the recovery of its values could be reversed by a series of low-precipitation seasons.
Following the water supply crisis of the 1990s and early 2000s, and thanks in part to unusually rich rainfalls in 2004-06, Lake Ichkeul has recovered a significant part of its outstanding value as a waterbird resting and breeding site and as one of the last intact examples of coastal lakes along the southern Mediterranean. Since the sustainable development of this ecosystem cannot rely on favourable weather conditions alone, there remains the need to mainstream conservation of the national park and strengthen the institutional setup, local support and management (including effective monitoring) of Ichkeul National Park.

Current state and trend of VALUES

Low Concern
Trend: Improving

The main values of the Ichkeul National Park underwent a severe crisis starting in the early 1990’s due to critically reduced water supply. Since 2004, these values have partially recovered, partly due to increased precipitation and partly thanks to the improved hydrological management. The effects of this recovery have been sustained through sluice water provision even during the low-precipitation season 2007/08. However, the recovery of the site’s values could be reversed in the future by a series of several consecutive low-precipitation seasons, or as a consequence of a relaxation of the current hydrological management regime of

the property.

Overall THREATS

High Threat

By far the greatest pressure on Ichkeul National Park has been insufficient water supply due to dam construction, with salinization, partial desiccation and shifts in the vegetation to halophytic forms of low food value to waterbirds. Recent activities aimed at hydrological management have contributed to reducing this pressure. Secondary pressures and potential threats to the park’s values are poaching, agricultural encroachment, increasing use of fertilizers, and unsustainable grazing. Climate change is likely to aggravate existing pressures in the future. Potential impacts are unclear.

Overall PROTECTION and MANAGEMENT

Some Concern

Significant efforts aimed at hydrological management of Ichkeul National Park have contributed to its recovery since 2004. A management plan was developed with GEF support in 2005-2008. At the same time, there is still no sufficiently broad consensus, adequate institutional setup and strong local participation for the sustainable long-term management of the site.

FULL ASSESSMENT

Description of values

Values

World Heritage values

▶ **Freshwater and wetland vegetation**
Criterion:(x)

Complex assemblage of reeds, tamarisks, submerged macrophytes (mainly Potamogeton), cord grasses, bulrush (Scirpus), halophytes, typical for coastal lakes along the southern Mediterranean (UNEP-WCMC, 2012).

▶ **Waterbirds of global conservation concern**
Criterion:(x)

Species of worldwide interest for their protection (e.g. the white-headed duck (Oxyura leucocephala), the ferruginous duck (Aythya nyroca) and the marbled duck (Marmaronetta angustirostris) are present in the area.

▶ **Wintering area for palaearctic waterfowl**
Criterion:(x)

Ichkeul National Park contains important natural habitats as an essential wintering site for western Palaearctic birds. Each winter, the property provides shelter to an exceptional density of water fowl with, in certain years, numbers reaching more than 300,000 ducks, geese and coots at the same time (SoOUV, 2010). It is one of the four top wintering sites in the western Mediterranean at that time (UNEP-WCMC, 2012).

Other important biodiversity values

▶ Rich Fish Fauna

The Lake supports a rich fish fauna including eels, mullet, sole, sea bass, barbel, and seahorses (Ramsar 2012).

Assessment information

Threats

Current Threats

High Threat

By far the greatest pressure on Ichkeul National Park has been insufficient water supply due to dam construction, with salinization, partial desiccation and shifts in the vegetation to halophytic forms of low food value to waterbirds. Recent activities aimed at hydrological management have contributed to reducing this pressure to a certain extent. Secondary pressures and potential threats to the park’s values are poaching, agricultural encroachment, and unsustainable grazing.

▶ Erosion and Siltation/ Deposition

Very Low Threat
Inside site, extent of threat not known

Sedimentation might eventually lead to the drying-up of the lake. High sedimentation rates have been observed for the last 30 years (Trabelsi et al., 2012) . Partly a natural process, it is exacerbated by dams, and requires further monitoring and management.

▶

Fishing / Harvesting Aquatic Resources, Hunting (commercial/subsistence), Poaching

Low Threat
Inside site, extent of threat not known
Outside site

Poaching was considered a threat in 2004, and (to a lesser degree) in 2008. Hunting was permitted in the periphery of the property in 2008. Illegal fishing was considered a significant but manageable problem in 2008 (GOPA, 2008, UNEP-WCMC, 2012).

► Crops

Low Threat
Inside site, localised(<5%)

800 ha (ca. 6%) of land within PNI was cultivated in 2007.

► Dams/ Water Management or Use

High Threat
Inside site, extent of threat not known
Outside site

From 1996 to 2006 the site was listed as World Heritage in danger because of damming, resulting in salinization and degradation of vegetation (WHC 1996, 2006). Inclusion of the site on the List of World Heritage in Danger was already suggested by IUCN in 1985 and in 1987 (IUCN, 1985, 1987). Reduction of water inflow from 350 to 230-270 million m3 following dam construction and salinity increase to 73 g/l lead to a shift in vegetation to halophytes and a dramatic reduction in waterbird numbers (Baccar et al., 2000). Exceptionally abundant rainfall in 2002/03 - 2005/06 winters replenished the water resources of the lake and contributed to desalinization to acceptable levels (IUCN, 2004, 2005). This replenished the water table and reduced salinity to 5-6 g/l, resulting in partial ecosystem recovery, but the threat from potentially insufficient water input remained. A positive trend was maintained through sluice water release in 2006/07 (IUCN, 2007, 2008). In response to this positive trend, the site was removed from the List of World Heritage in Danger in 2006. Nevertheless, the site has seen highly fluctuating water inflow between 6 and 345 million m3 (average 140 million m3) from 2003 to 2009 (IUCN, 2010). Declining water levels during dry years threatens aquatic fauna, including the highly recognized European eel (IUCN

2017).

▶ Livestock Farming / Grazing

Very Low Threat
Inside site, localised(<5%)
Outside site

2,500 head of livestock grazed within the property in 1988 (UNEP-WCMC, 2012). 1,000 people were living inside the property until 2004 (UNEP-WCMC, 2012), but this number had reduced to 400 by 2008. Overgrazing is most serious at Jebel Ichkeul, but in general the site is little used (GOPA, 2008).

Potential Threats

Data Deficient

Climate change is likely to aggravate existing pressures in the future. Potential impacts are unclear. Nutrient load entering the system may become an issue if the use of fertilizer in agricultural fields in the site's surroundings continues to increase.

▶ Habitat Shifting/ Alteration, Droughts, Temperature extremes

Data Deficient
Inside site
Outside site

Climate change is likely to aggravate existing pressures in the future.

▶ Agricultural effluents

Low Threat
Inside site, localised(<5%)
Outside site

An increased area outside the site devoted to cereal crops, accompanied by an increase in applied fertilizer, has an impact on the nitrate concentrations in the surface water. Nitrate load reaches 14.5-17.5 kg/ha in some parts of the Joumine Basin of the Park (Aouissi et al 2014).

Protection and management

Assessing Protection and Management

► Relationships with local people

Some Concern

In 2008 there were around 400 persons living on southern Jebel Ichkeul (GOPA, 2008). Locals reportedly felt disenfranchised after the creation of Ichkeul National Park because of a loss of economic opportunities and livelihoods (grazing, timber, fish). Poor communication with farmers around the park and little involvement was noted in 2008. Community livelihood projects and public outreach and information campaigns were implemented until 2010 (IUCN, 2010). Agenda 21 process for participative environmental management in the national park area was initiated in 2008. Areas for sustainable natural resource use were foreseen in the 2008 draft management plan, as compensation areas for local communities (GOPA, 2008). The Ichkeul National Park Management Committee is composed of members from the local community and other stakeholders, enabling local people to capitalize on tourism and increase their incomes (Ramsar 2012). Locals are trained as guides and participate in credit schemes initiated by the Park (UNESCO).

► Legal framework

Some Concern

Most of the site is ceded to Direction des Forêts for conservation (1974). Ichkeul was recognized as a UNESCO Biosphere Reserve in 1977. The area has National Park status since 1980, but its administration is not independent, but falls under the Regional Commissariat for Agricultural Development/Department of Forestry Bizerte and other State institutions (UNEP-WCMC, 2012). A need for a clearer institutional setup, mandate and strengthening of the park's Administration has been noted several times since 2000 (Baccar et al., 2000), and corresponding steps were initiated by the State Party in 2007 (Ministry of the Environment and Sustainable Development, 2010). A limited staff capacity was noted in 2004 and 2008, with only 38 staff in 2008, among them 25 guards. Additional enforcement infrastructure and equipment were planned for in 2008 (GOPA, 2008). A step-

wise establishment of an autonomous, permanent management authority has been ongoing since 2010 (IUCN, 2010).

► Enforcement

Data Deficient

No specific information is available from the reviewed documents, although the general impression is that a certain level of enforcement and control is occurring.

► Integration into regional and national planning systems

Some Concern

Until 2012, no specific information about the integration of the site’s management into regional and national planning systems was available although there have been concerns in the past that too many poorly coordinated State Institutions with overlapping mandates are involved in the management of the site (UNEP-WCMC, 2012). In 2016, the Directorate General of Forests (DGF) stated special attention is given to Ichkeul at the national level: improvements, management, and follow-up (2016). This represents a slight improvement on the integration level.

► Management system

Some Concern

The area's first management plan was approved in 1977. A need to update the management plan has been reiterated since 2000 (Baccar et al., 2004). A GEF supported management planning project ($2.2 million, including hydrological management) was implemented in 2003-2008. A Scientific Management Council was established in 2007. A draft 5-year participatory management plan (GEF project output) was finalized in 2008 (GOPA, 2008). This draft management plan aims at sustainable hydrological management, zoning, conservation management, institutional strengthening, staff development, monitoring, participation and local community development and ecotourism development. Complex responsibilities, inter-institutional conflict and lack of mainstreaming remain a challenge to the management of Ichkeul National Park (UNEP-WCMC, 2012).

► Management effectiveness

Mostly Effective

Although not expressed in terms of a formal management effectiveness assessment, a lack of effectiveness of the overall management framework of the park has been highlighted at various occasions in the past (e.g. GOPA, 2008, IUCN, 2007, 2010, 2017). Key issues have been lack of autonomy and authority and resources of the management authority. There has reportedly been progress in creating an autonomous management structure and thus increasing overall management effectiveness until 2020 (Ministry of the Environment and Sustainable Development, 2010) but no more recent information is available. Management actions have improved the ecological status of Ichkeul, leading to its withdrawal from the List of World Heritage in Danger in 2006, and removal from the Montreux Record of the Ramsar Convention in 2016.

► Implementation of Committee decisions and recommendations

Some Concern

A programme of corrective measures for freshwater supply was requested from the State Party at 20.COM (1996) and 21.COM (1997), and a threat mitigation report was provided by the State Party at 23.COM (1999). A progress report on 5-yr monitoring was requested at 23.COM, and submitted by 25.COM (2001). Five requests of SP Reports on conservation status of the site between 28.COM (2004) and 32.COM (2008) were generally followed within 1-2 years (e.g. Ministry of the Environment and Sustainable Development, 2010). At 27 COM (2003), the Committee requested the State Party to make a commitment to provide 80-100 million m3/yr of water to the lake, followed by a discussion about water supply management on year-to year basis at 30.COM (2006), which resulted in the removal from the List of World Heritage in Danger without a formal commitment (WHC, 2006). Water allocation in 2006/07 was unclear and a request to commit to minimum allocation was renewed at 30.COM (IUCN, 2006). Establishment of a participatory management plan and permanent/ independent management authority for the site was requested at 27.COM-30.COM, and a draft plan submitted at 32.COM (IUCN, 2008); steps to strengthen and clarify Ichkeul National Park Administration were undertaken in 2007-09, and were still

ongoing by 34.COM (IUCN, 2010). The Committee's request at 30 COM (2006) to launch Agenda 21 Committee in the Ichkeul National Park area was met by 32.COM (2008) (IUCN, 2010). At 34 COM (2010) the Committee requested the State Party to submit EIAs for three additional dams and to use these dams to ensure water supply to site (WHC, 2010); progress made in the implementation of this request is thus far unclear. Due to the lack of a formal commitment to ensure minimum water inflows to the lake, some concern remains about the implementation of Committee decisions and recommendations.

► Boundaries

Mostly Effective

Boundaries and zoning (including core, buffer, and peripheral zones) of Ichkeul National Park are mapped in the draft Management Plan 2008 (GOPA, 2008). Some fences were installed to protect the core zone by 2010. Boundaries and zoning are likely to be adequate if implemented and respected by all stakeholders.

► Sustainable finance

Some Concern

The annual budget (excluding project funds) of ca. $11,600 was considered insufficient in 2004. The required annual budget was defined in 2008 (GOPA, 2008) – at this time no independent budget was provided, and the site depended instead on allocations from the budget of the Directory of Forestry Bizerte. The site has received support from a GEF project and various donors in the past, e.g. WWF for a monitoring workshop ($50,000, UNEP-WCMC, 2012). A total World Heritage Fund assistance of $140,000 was provided between 1981 and 2002 (WHC, 2013).

► Staff training and development

Some Concern

Room for improvement of staff number and qualification, as well as measures to address this were noted in the new (2010-2014) management plan of the property (GOPA, 2008). There is a continued lack of coordination and involvement of all actors to develop Park services (IUCN 2017).

► Sustainable use

Mostly Effective

The lake is used legally for fishing by one concession holder (GOPA, 2008). This may have had an impact on the fish community in the lake although this appears to have been altered primarily because of hydrological changes (Sellami et al., 2010). Although hunting and grazing are officially illegal in the park (UNEP-WCMC, 2012), some livestock enters the property from its periphery, and some poaching persists (GOPA, 2008). The new (2010-2014) management plan includes a community development plan with measures to support sustainable alternative livelihoods (e.g. beekeeping, agricultural improvement outside the property, microcredit) of the local population (Ministry of the Environment and Sustainable Development, 2010).

► Education and interpretation programs

Mostly Effective

The State Party reported a number of education and interpretation activities in 2010, including school visits, TV commercials, the production of guides to this and other parks, and workshops (Ministry of the Environment and Sustainable Development, 2010). The new (2010-2014) management plan also contains measures to raise awareness, particularly in relation to key threats like poaching (GOPA, 2008).

► Tourism and visitation management

Some Concern

Establishment of some visitor interpretation facilities (network of trails, Museum/visitor centre) since 1989 (UNEP-WCMC, 2012). Extended exploitation of the tourism area of the site, aimed at improving living conditions of local populations, was included in the draft management plan of 2008, and some facilities were rehabilitated in 2009. Visitor management was considered weak in 2008 (GOPA, 2008). Between 2005 and 2012, tourist numbers doubled to around 50,000 per year (Ramsar 2012). Negative impacts were minimized through the use of observation towers and by restricting access to approved trails (UNESCO).

► Monitoring

Mostly Effective

There has been a waterfowl monitoring programme with international collaboration since 1963 (UNEP-WCMC, 2012). A 5-year hydrological monitoring programme was developed with the World Heritage Centre and IUCN in 1999. A need for a systematic monitoring programme was noted in 2000 (Baccar et al., 2000). Such a monitoring programme was developed jointly with IUCN in 2002 and some reports were published afterwards (Ministry of the Environment and Sustainable Development, 2009). The need for centralized storage of scientific and monitoring data (including bird data) was noted in 2008 (IUCN, 2008). Some steps in this direction started in 2009/10 (Ministry of the Environment and Sustainable Development, 2010).

► Research

Mostly Effective

Considerable ornithological and ecological research has been carried out at Ichkeul (UNEP-WCMC 2012). A hydrological model was developed in 1996 and is in need of updating, in order to guide hydrological management in a sustainable way (see Ministry of the Environment and Sustainable Development, 2010). Hydrological impacts of agriculture has been studied (Aouissi et al 2014).

Overall assessment of protection and management

Some Concern

Significant efforts aimed at hydrological management of Ichkeul National Park have contributed to its recovery since 2004. A management plan was developed with GEF support in 2005-2008. At the same time, there is still no sufficiently broad consensus, adequate institutional setup and strong local participation for the sustainable long-term management of the site.

► Assessment of the effectiveness of protection and management in

addressing threats outside the site

Mostly Effective

Dams were erected in 1983 and 1995 for irrigation and drinking water provision in spite of objectives of the 1977 management plan. As a mitigation measure, Oued Tindja sluice was established in 1996 (Baccar et al., 2000). A rehabilitation programme was launched in 2002. Some additional hydrological mitigation measures had been established by 2002. Proactive hydrological management and planned water provision were first tested in 2007, with satisfactory success (IUCN, 2008). A project on integrated water resource management (Wetlands International) started in 2009 (Wetlands International, 2013b). Grazing management and provision of alternative grazing areas for local resource users is en effect since 2007/8 (Ministry of the Environment and Sustainable Development, 2010).

▶ **Best practice examples**

Implementation of a sustainable management plan led to the restoration and rehabilitation of the Site, and its removal from the List of World Heritage in Danger in 2006, and its removal from the Montreux Record in 2016.

State and trend of values

Assessing the current state and trend of values

World Heritage values

▶ **Freshwater and wetland vegetation**

Low Concern
Trend:Improving

Strongly altered/degraded following shift in species composition and vegetation structure in response to salinization (Baccar et al., 2000). Ecologically crucial Potamogeton submerged macrophyte area reduced from 3,000 to 500 ha in 1989. Since 2003 the area has been recovering. Re-appearance of reed beds has been observed since 2007 (Ministry of the Environment and Sustainable Development, 2009). Increases in release of water from upstream dams and successful regulation of seawater inflows led

to 66% reduction in lake salinity (UNEP-WCMC 2012).

► Waterbirds of global conservation concern

Data Deficient
Trend:Improving

Limited recent information is available on the status of breeding (as opposed to migratory) waterbirds although a general recovery of their populations has also been reported (Ministry of the Environment and Sustainable Development, 2009).

► Wintering area for palaearctic waterfowl

High Concern
Trend:Improving

Abundances reduced to 25-50% of original numbers by 2000 and shifts in community structure were noticed (Baccar et al., 2000, Hamdi et al., 2012). There has been a significant reduction of Greylag Geese (Anser anser) numbers (Hamdi et al., 2008). Reportedly 300,000 wintering waterbirds used the property in 2007/08. The avifauna remains sensitive to the hydrological state of property.

Summary of the Values

► Assessment of the current state and trend of World Heritage values

Low Concern

Trend: Improving

The main values of the Ichkeul National Park underwent a severe crisis starting in the early 1990’s due to critically reduced water supply. Since 2004, these values have partially recovered, partly due to increased precipitation and partly thanks to the improved hydrological management. The effects of this recovery have been sustained through sluice water provision even during the low-precipitation season 2007/08. However, the recovery of the site’s values could be reversed in the future by a series of several consecutive low-precipitation seasons, or as a consequence of a relaxation of the current hydrological management regime of the property.

▶ **Assessment of the current state and trend of other important biodiversity values**

Data Deficient

Trend: Data Deficient

There is insufficient data available on the status and trend of Lake Ichkeul's fish fauna

Additional information

Benefits

Understanding Benefits

▶ **Fishing areas and conservation of fish stocks, Traditional agriculture, Livestock grazing areas**

Ichkeul National Park sustains a small licensed fishery, and fishing and grazing are considered to be of some of the most important benefits for the Park (IUCN 2017).

Cereal culture occupies more than 70% of the Joumine basin (the most important basin of the Ichkeul Lake watershed), winter wheat is grown throughout the park, and sunflowers and oats are also grown (Aouissi et al 2014).

The increase of area devoted to cereal crops, accompanied by increase in applied fertilizer amounts, has an impact on the nitrate concentrations in surface water (Aouissi et al 2014).

▶ **Outdoor recreation and tourism**

The property has a considerable, as yet underused potential for nature based tourism, such as birding tours.

▶ **Importance for research**

Ichkeul National Park comprises a wide range of phenomena, which in turn support global knowledge generation on shallow lagoon ecosystem dynamics, bird migration, and ichthyology.

▶ **Contribution to education**

The property has a potential to support increased environmental education at the local, regional and national level.

▶ **Soil stabilisation, Flood prevention, Water provision (importance for water quantity and quality)**

The most important ecosystem services derived from the Park are flood protection, groundwater recharge, and sediment retention (IUCN 2017).

▶ **Tourism-related income, Provision of jobs**

Local people are trained as tour guides and residents sell produce to visitors (Ramsar 2012). The value of regulatory services accounts for the majority of profit (73%), followed by supply services (18%), and cultural services (9%) (Daly-Hassen 2016).

The population of the Mateur region benefits most (57%) from the economic value of services provided by water regulation (Daly-Hassen 2016).

Summary of benefits

The conservation benefits of Ichkeul National Park reach beyond its boundaries, as illustrated by its role in bird migration. There are also significant potential benefits, which could be developed further, such as those related to tourism and education. The most important benefits are related to environmental services, grazing, recreation, and fishing (IUCN 2017).

Projects

Compilation of active conservation projects

№	Organization/ individuals	Project duration	Brief description of Active Projects
1	Wetlands International		Integrated water management and biodiversity conservation

Compilation of potential site needs

№	Site need title	Brief description of potential site needs	Support needed for following years
1	Supplement Lake Ichkeul with Dam Water	During drought years, Lake Ichkeul needs to be fed with dam water to maintain biodiversity. This water is generally allocated to drinking water supply and irrigation (IUCN 2017).	
2	Scientific Research	Studies should be carried out to answer the questions: What are long-term effects of dams on the flow of ecosystem services? What are the effects of certain uses (i.e. overgrazing, dams) on biodiversity conservation and sustainability of ecosystem services? (IUCN 2017).	
3	Integrated Management Plan	Ichkeul is in critical need of the development and adoption of an integrated management plan which take in consideration the water basin within and outside the World Heritage Property. A prime component of the plan is the ecological and socio-economic monitoring system, in addition to the improved Site governance using participatory approaches.	From: 2018 To: 2022

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