

Information Sheet on Ramsar Wetlands

Categories approved by Recommendation 4.7 of the Conference of the Contracting Parties.

NOTE: It is important that you read the accompanying *Explanatory Note and Guidelines* document before completing this form.

1. Date this sheet was completed/updated:

13-03-1997

FOR OFFICE USE ONLY

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Designation date

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Site Reference Number

2. Country:

Islamic Republic of Iran

3. Name of wetland: Neiriz Lakes and Kamjan Marshes

4. Geographical coordinates: 29°40'N 53°30'E

5. Altitude: (average, max., min.) 1525 m (lakes); 1540 m (marshes) 6. Area: 108,000 ha

7. Overview: (general summary, in two or three sentences, of the wetland's principal characteristics)

The site comprises two very salty lakes, Lake Bakhtegan and Lake Tashk, in the south-eastern Zagros mountains, their extensive 'delta' and spring-fed marshes, and a large area of permanent, freshwater marshes and seasonally flooded plains along the lower Kur River to the west (Kamjan Marshes). The area is extremely important for breeding and wintering waterfowl of a wide variety of species, including *Marmaronetta angustirostris*. Both lakes are protected within the Bakhtegan wildlife refuge, but the Kamjan Marshes are unprotected.

8. Wetland Type (please circle the applicable codes for wetland types as listed in Annex I of the *Explanatory Note and Guidelines* document.)

marine-coastal: A · B · C · D · E · F · G · H · I · J · K

inland: L · M · N · O · P · Q · R · Sp · Ss · Tp · Ts
· U · Va · Vt · W · Xf · Xp · Y · Zg · Zk

man-made: 1 · 2 · 3 · 4 · 5 · 6 · 7 · 8 · 9

Please now rank these wetland types by listing them from the most to the least dominant: R Ss Sp Ts Tp 3 9 1 N

9. Ramsar Criteria: (please circle the applicable criteria; see point 12, next page.)

1a · 1b · 1c · 1d | 2a · 2b · 2c · 2d | 3a · 3b · 3c | 4a · 4b

Please specify the most significant criterion applicable to the site: 1a

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

(Please refer to the *Explanatory Note and Guidelines* document for information regarding desirable map traits).

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

Please provide additional information on each of the following categories by attaching extra pages (please limit extra pages to no more than 10):

12. Justification of the criteria selected under point 9, on previous page. (Please refer to Annex II in the *Explanatory Note and Guidelines* document).

1a: Lake Bakhtegan and Lake Tashk are outstanding examples of saline lakes with associated fresh to brackish marshes, characteristic to the highlands of western Iran.

2a: The wetlands support substantial breeding and wintering populations of *Marmaronetta angustirostris*. Two other globally threatened species, *Anser erythropus* and *Aquila heliaca*, occur in winter.

2b: The two lakes and adjoining marshes support a very diverse flora and fauna, and thus help to maintain the genetic and ecological diversity of the region.

3a: The lakes hold well in excess of 20,000 waterfowl during the migration seasons and in winter.

3c: The wetland supports over 1% of the regional Middle East populations of the waterbirds *Plegadis falcinellus*, *Pelecanus onocrotalus*, *Phoenicopterus ruber*, at least nine species of Anatidae, *Fulica atra*, *Grus grus*, *Himantopus himantopus*, *Recurvirostra avocetta*, *Calidris alpina*, *Limosa limosa* and *Larus ridibundus*.

13. General location: (include the nearest large town and its administrative region)

The Neyriz Lakes and Kamjan Marshes are situated in the Province of Fars, in a large intermontane basin in the eastern Zagros mountains, 50-160 km east of Shiraz. There are several small settlements in the area.

14. Physical features: (e.g. geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth water permanence; fluctuations in water level; tidal variations; catchment area; downstream area; climate)

Lake Tashk and Lake Bakhtegan are salty lakes with a highly fluctuating water level, situated in an internal drainage basin (the Neyriz Basin). The catchment area of 26,440 sq.km is formed where the northwest to southeast folded ridges of the Zagros Mountains impinge upon the buckled edge of the Central Plateau. Lake Tashk is fed by the Kamjan Marshes and a large permanent spring at Gumoon in the northwest. Lake Bakhtegan receives its water mainly from the Kur River, which enters at the west end, and from Sahlabad Spring on the south shore. In summer no water reaches the lake, since it's all used for irrigation purposes. Water levels in both lakes fluctuate widely according to rain and snowfall in the mountains. During very wet winters the lakes may become temporarily joined to form a single expanse of water of up to 181,000 ha. After very dry years the lakes may almost dry out except for small patches near their feeding springs. This is known to have occurred in 1933-1934 and 1971. The average depth of Lake Bakhtegan is 50 cm, the maximum is 110 cm. Both lakes are noted for their extraordinary range in salinities, from oligohaline at one end to hypersaline at the other. The lake bottoms are covered by alluvial mud, sapropel, silt and some sand, deposited mainly by the river and flood waters.

Kamjan Marshes formerly comprised about 10,000 ha of permanent and seasonal marshes along the Kur River, but drainage of the wetland for rice cultivation since 1967 has converted a large part to agricultural land. Despite this cultivation by drainage canals much wetland habitat remains, including expanses of wet mudflats, reeds and other vegetation along canals, ditches and rice fields. Because of a shortage of irrigation water and because of high salinities, much of the reclaimed land remains uncultivated. Some of the irrigation canals are becoming silted up, and parts of the drained land are reverting to marsh. In addition, new areas of marsh have developed at the mouths of the two main drainage canals where they enter the western end of Lake Tashk.

The climate is characterised by hot, dry summers and mild winters. The basin receives low winter rainfall which varies greatly from year to year, average 100-400 mm, mainly between December and February. Frosts are rare and heavy snowfalls are exceptional.

15. Hydrological values: (groundwater recharge, flood control, sediment trapping, shoreline stabilisation etc)

Lake Bakhtegan serves as a sediment trap for the water of the Kur River.

16. Ecological features: (main habitats and vegetation types)

The Neyriz Lakes are oligotrophic and support a dense submerged vegetation including various algae, pondweed and stonewort, especially in areas with relatively low salinity. Amongst the abundant phytoplankton, diatoms are the most significant. The shoreline vegetation is dominated by species of tamarisk, glasswort and seablite.

Kamjan marshes support and emergent marsh vegetation dominated by sedges, reeds, and species of goosefoot (Chenopodiaceae) and grasses. This vegetation also occurs at the mouth of the Kur River in Lake Bakhtegan, and around the Gumoon and Sahlabad springs. Parts of the Kamjan Marshes have been reclaimed for rice cultivation. On the adjacent plains of the lower Kur Valley, the land is either under cultivation for weed, barley, cotton, sugar beet and fruit, or remains as heavily grazed semi-desertic steppe. The area between the lakes consists of sparsely vegetated mountain ranges with some woodland and steppic plains dominated by *Artemisia* sp. and *Astragalus* sp.

17. Noteworthy flora: (indicating, e.g., which species/communities are unique, rare, endangered or biogeographically important, etc)

The submerged vegetation in the lakes consists of *Chara canensis* (stonewort), *Lamprothamnium aragonensis*, *Ruppia maritima* (pondweed) and *Althenia filiformis*. Of the phytoplankton, the diatom *Nitzschia loffleri* is the most predominant species in hypersaline areas. At the shoreline the vegetation is dominated by *Tamarix*, *Suaeda* (seablite), *Cressa cretica* and *Salicornia* (glasswort). The vegetation at the Kamjan Marshes consists primarily of *Carex* sedges, *Phragmites* reeds, the goosefoot family Chenopodiaceae and grasses. The area between the lakes and the islands there have some woodland with *Prunus amygdalus* (almond) and *Pistachio pistacia*. The steppic plains are dominated by *Artemisia* sp. and *Astragalus* sp.

18. Noteworthy fauna: (indicating, e.g., which species are unique, rare, endangered, abundant or biogeographically important; include count data, etc.)

Lake Tashk and Lake Bakhtegan regularly hold huge numbers of waterfowl in winter (e.g. 120,000-140,000 surface feeding ducks and 50,000 *Phoenicopterus ruber* in January 1992). Other waterfowl occurring in large numbers in winter include white stork (*Ciconia ciconia*), glossy ibis (*Plegadis falcinellus*), greylag goose (*Anser anser*), common shelduck (*Tadorna tadorna*), crane (*Grus grus*) and some shorebirds. In recent years Dalmatian pelican (*Pelecanus crispus*) has been a frequent visitor, with up to 67 present. Marbled teal (*Marmaronetta angustirostris*) is present year round, with good numbers breeding in wet years. A wide variety of waterfowl occur on migration, and several species including Baillon's crane (*Porzana pusilla*), black-winged stilt (*Himantopus himantopus*), pied avocet (*Recurvirostra avocetta*) and white-tailed plover (*Vanellus leucurus*) breed at the lakes. One or two black storks (*Ciconia nigra*) often frequent the marshes during the summer months. There is at least one pair of barbery falcons (*Falco pelegrinoides*) breeding in the area, and about 15 white-tailed eagles (*Haliaeetus albicilla*) occur in winter around the lakes, along with marsh harriers (*Circus aeruginosus*), imperial eagles (*Aquila heliaca*) and greater spotted eagles (*A. clanga*).

Despite the changes which have occurred at the Kamjan Marshes, the area continues to provide ideal feeding habitat to a wide variety of waterfowl, notably white stork, glossy ibis and black-tailed godwit (*Limosa limosa*). The marshes also constitute an important feeding area for large numbers of ducks which spend the day roosting on Lake Bakhtegan and Lake Tashk.. At least 220 species of birds have been recorded at the Bakhtegan wildlife refuge. A list with some peak counts is attached.

The mammalian fauna of the reserve includes wolf (*Canis lupus*), golden jackal (*Canis aureus*), red fox (*Vulpes vulpes*), brown bear (*Ursus arctos*), striped hyena (*Hyaena hyaena*), caracal (*Lynx caracal*), jungle cat (*Felis chaus*), leopard (*Panthera pardus*), wild boar (*Sus scrofa*), goitred gazelle (*Gazella subgutturosa*), Persian ibex (*Capra hircus aegagrus*) and wild sheep (*Ovis ammon*). Only one species of fish has been recorded at the lake, *Aphanius sophiae*. It occurs throughout the lakes and in the lower sections of the inflows.

Zooplankton at the lakes include the ciliate *Fabrea salina* and the foraminifera *Streblus beccarii*. Flagellata probably constitute most of the nannoplankton. *Brachionus plicatilis* and *Hexartha fennica* are the most typical rotifers in both lakes, although there are many other species present. Crustaceans and copepods are abundant, their distribution showing a distinct correlation with salinity, while ostracods and nematodes form the bulk of the benthic fauna. Dominant species include *Artemia salina*, *Apocyclops dengizicus*, *Diaptomus salinus* and *Eucypris inflata*.

19. Social and cultural values: (e.g. fisheries production, forestry, religious importance, archaeological site etc.)

The region is renowned for its spectacular scenery.

20. Land tenure/ownership of:

(a) site: The Neyriz Lakes are owned by the National Government, the Kamjan Marshes are private property.

(b) surrounding area: no information available

21. Current land use:

(a) site: subsistence fishing in fishponds at Lake Tashk, livestock grazing at Kamjan Marshes and around the lakes, rice growing at Kamjan Marshes, and there are some nomadic tribes with their cattle, and small settlements with adjacent agricultural areas.

(b) surroundings/catchment: there are a few small settlements with some wheat, cotton, barley, sugar beet and fruit cultivation, and some cattle grazing at the steppes.

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

(a) at the site: Conversion of wetland to agricultural land, especially in the Kamjan Marshes, and expansion of the fishponds in Lake Tashk might be accelerated by the building of a paved road between the two lakes, as is currently proposed. It would accelerate agricultural development and settlement, with unpredictable consequences for the wetland and the overall hydrology of the system. It is also feared that with better accessibility to the western part of the lakes, poaching will increase. At the moment there is a little poaching going on.

A major drainage programme of the Kamjan Marshes to provide land for agriculture has destroyed much of the original marsh vegetation. As much of the water entering Lake Tashk flows through the Kamjan Marshes, this could have a profound effect on the quality of the water entering the lake.

(b) around the site: The construction of a large water storage reservoir on the Kur River, Dorudsan Dam, in the 1970s and various irrigation projects in the upper reaches of the river have reduced the flow of water into the lakes.

23. Conservation measures taken: (national category and legal status of protected areas - including any boundary changes which have been made: management practices; whether an officially approved management plan exists and whether it has been implemented)

Lake Bakhtegan, Lake Tashk and the intervening hill ranges were first protected as the Bakhtegan protected region in 1968. In the early 1970s this was upgraded to a wildlife refuge, and its size was then 327,820 ha, not including Kamjan Marshes nor Gumoon Springs. The Ramsar site does include both the marshes and the springs, but it does not include the steppes between the lakes (together they form a large oxbow, each lake being half of the bow).

24. Conservation measures proposed but not yet implemented: (e.g. management plan in preparation; officially

proposed as a protected area etc.)

A Ramsar Monitoring Procedure Mission that visited the lakes and marshes in 1992 made several recommendations: to demarcate the borders of the site clearly with signs, review alternatives for the road through the wildlife refuge, see if there are possibilities to restore the marshes at the Gumoon springs, restore and manage the Kamjan Marshes as a buffer zone for the wildlife refuge, including establishing a game guard station at the marshes. Furthermore, it has been recommended by the mission that hunting should be prohibited and that the use of fertilisers and pesticides should be restricted. During dry years the water supply to the lakes and marshes should be ensured.

25. Current scientific research and facilities: (e.g. details of current projects; existence of field station etc.)

The Ornithology Unit of the Department of the Environment has carried out annual mid-winter censuses since 1968, and many other surveys have been undertaken on other times of the year. Visiting researchers can be accommodated at the Game Guard Station in the centre of the wildlife refuge.

26. Current conservation education: (e.g. visitors centre, hides, information booklet, facilities for school visits etc.)

no information available

27. Current recreation and tourism: (state if wetland is used for recreation/tourism; indicate type and frequency/intensity)

no information available

28. Jurisdiction: (territorial e.g. state/region and functional e.g. Dept of Agriculture/Dept. of Environment etc.)

Department of the Environment

PO Box 5181

15875 Teheran

Islamic Republic of Iran

29. Management authority: (name and address of local body directly responsible for managing the wetland)

Department of the Environment, address as mentioned above (28)

30. Bibliographical references: (scientific/technical only)

Carp, E. (1980). *A Directory of Western Palearctic Wetlands*. IUCN, Gland, Switzerland.

Evans, M.I. (1994). *Important Bird Areas in the Middle East*. BirdLife International, Cambridge, United Kingdom.

Mansoori, J. (1983). *National Report on Iran's Wetlands of International Importance as Habitat for Waterfowl*. Prepared for the Groningen Conference, Netherlands, in May 1984.

Scott, D.A. (1976). *A List of the Wetlands of Iran*. Internal Report. Department of the Environment, Teheran, Iran.

Scott, D.A. (1995). *A Directory of Wetlands in the Middle East*. IUCN, Gland, Switzerland and IWRB, Slimbridge, United Kingdom.

Scott, D.A. and Smart, M. (1992). *Wetlands of the Seistan Basin, South Caspian and Fars, Islamic Republic of Iran*. Ramsar Convention Monitoring Procedure Report no. 26, Ramsar Convention Bureau, Gland, Switzerland.

WCMC (1990). Iran. In: Spagnesi, M (ed.), *Proceedings Conference on the Conservation of Wetlands of International Importance especially as Waterfowl Habitat, Cagliari, Italy, 24-29 November 1980*. Supplemento alle Ricerche di Biologia delle Selvaggina. Vol.III (1): 741-747.

**List of bird species including counting results
Neyriz Lakes and Kamjan Marshes**

waterfowl

- globally threatened species

<i>Marmaronetta angustirostris</i>	5,000 w
<i>Pelecanus crispus</i>	67 w

- 1% or more of Middle East population

<i>Anas acuta</i>	14,550 w
<i>Anas clypeata</i>	14,400 w
<i>Anas crecca</i>	48,800 w
<i>Anas penelope</i>	14,300 w
<i>Anas platyrhynchos</i>	127,500 w
<i>Anas strepera</i>	8,300 w
<i>Anser albifrons</i>	154 w
<i>Anser anser</i>	8,245 w
<i>Ardea cinerea</i>	193 w
<i>Calidris alpina</i>	6,000 pass
<i>Casmerodius albus</i>	340 w
<i>Ciconia ciconia</i>	550 w
<i>Fulica atra</i>	29,300 w
<i>Grus grus</i>	3,427 w
<i>Himantopus himantopus</i>	450 w
<i>Larus genei</i>	2,500 w
<i>Limosa limosa</i>	4,500 w
<i>Phoenicopterus ruber</i>	50,000 w
<i>Plegadis falcinellus</i>	445 w
<i>Recurvirostra avocetta</i>	777 w
<i>Tadorna ferruginea</i>	13,400 w
<i>Tadorna tadorna</i>	5,700 w
<i>Tringa totanus</i>	800 w
<i>Vanellus leucurus</i>	40+ br
<i>Vanellus vanellus</i>	800 w

- other waterfowl:

<i>Ixobrychus minutus</i>	br
<i>Egretta alba</i>	340 w
<i>Calidris temmickii</i>	12 w
<i>Philomachus pugnax</i>	240 w
<i>Larus ridibundus</i>	2,000 w

other birds:

<i>Aquila heliaca</i>	2 w
<i>Haliaeetus albicilla</i>	15 w

all counts individual birds

br = breeding, w = wintering, pass= passing on migration

sources: Evans, 1994 and Scott, 1995