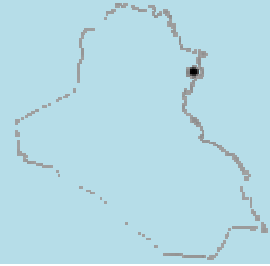


Darbandikhan Lake (S1)



Surveyed in summer 2007-2009 and winter 2007-2010.

Admin Area: Sulaimani

Coordinates: N 35° 8' 41" E 45° 45' 18"

Area: 43861 ha

Altitude: 450-578 m

Directional information: The lake is located 60 km southeast of Sulaimani city on the road to the town of Darbandikhan.

KBA Criteria: V

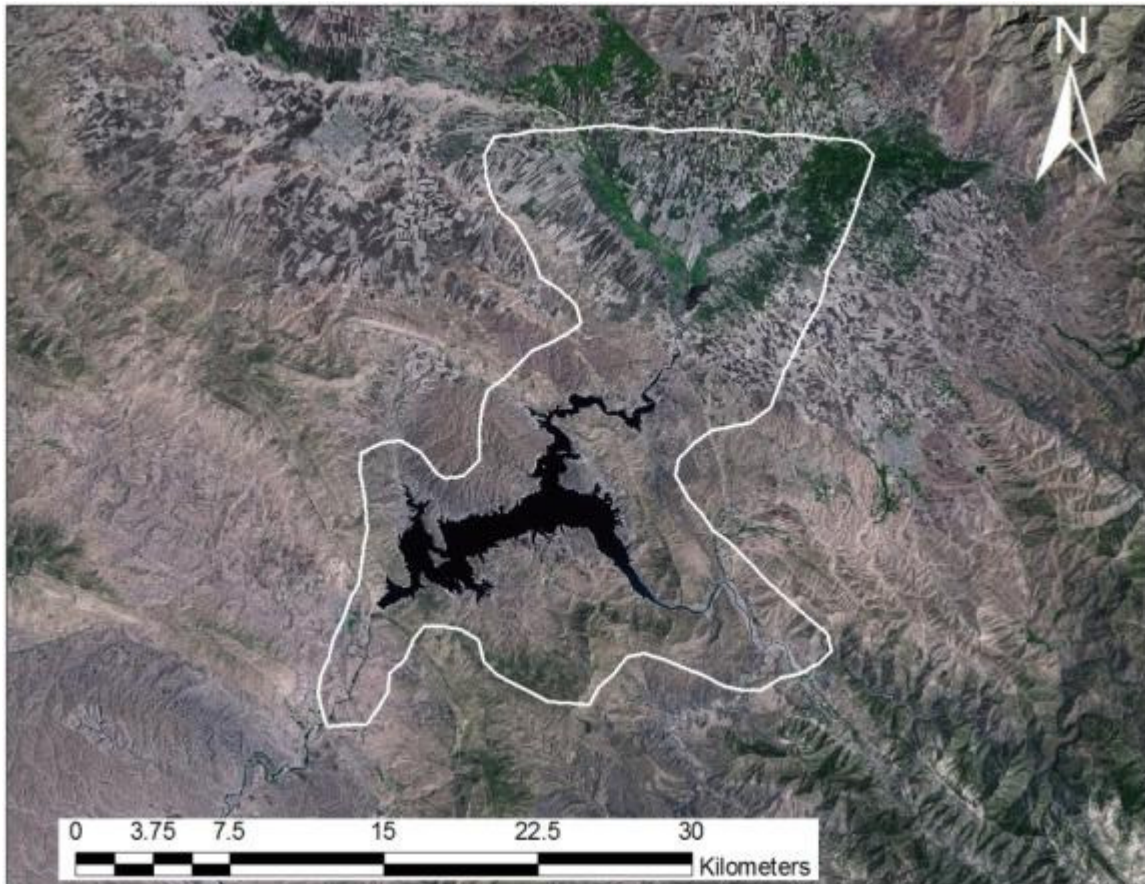
IBA Criteria: A1 and A4i

IPA Criteria: Under assessment

Status: Unprotected

Ecoregion: Zagros Mountains

Forest Steppe (PA0446)

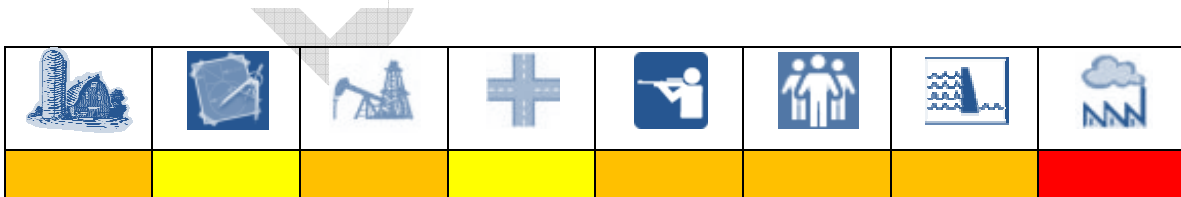




Darbandikhan Dam in winter (Photo by Hana Raza, 2010)



Darbandikhan Lake in summer (Photo by Saman A. Ahmad, 2012)



Site Description: Darbandikhan is a large freshwater reservoir created by the Darbandikhan Dam that is fed by two main rivers, the Tanjero in the north and the Sirwan in the east, and covers (depending on the time of year) approximately 7,500 ha (Evans, 1994) who listed Darbandikhan, along with Dukan and Bakhma, as an Important Bird Area. The lake is surrounded by hills covered with grass and small shrubs and mountains (including Bashari, Zmnako and Zawaly) that are covered in oak forests. The area as a whole supports a significant amount of bird life. The rock-filled

embankment dam was constructed between 1956 and 1961 for irrigation, flood control and power generation. The lake also supports recreational uses and a fishery. Due to problems after construction there have been several slope failures upstream and repairs required of the dam. Water levels decline in summer after the spring melt due to dam release and rise again when winter rains return in the late fall. The land is used for field crops especially wheat and barley.

Key Biodiversity Area Criteria	Notes	
V. Vulnerability Criteria: Presence of Critically Endangered and Endangered species – presence of a single individual or Vulnerable species – 30 individuals or 10 pairs.		
<i>Capra aegagrus</i>	No direct observation, but reliably reported by locals.	
<i>Panthera pardus saxicolor</i>	No direct observation but one Persian Leopard was killed by a landmine near the village of Mortka in October 2008.	
<i>Rafetus euphraticus</i>	One individual was photographed in May 2009.	
Important Bird Area Criteria	Observations made 2007-2009.	
A1. Globally threatened species		
	Breeding	Wintering/Passage
Egyptian Vulture <i>Neophron percnopterus</i> (Summer visitor)	2-3 pairs (counts, 2007-2009)	
A4i. 1% or more of biogeographical population of a congregatory waterbird species		
	Breeding	Wintering/Passage
Slender-billed Gull <i>Chroicocephalus genei</i> (Summer visitor)	3200 pairs (based on counts in 2009).	

Additional Important Bird Observations: During the surveys 56 species were recorded. In addition to those in the table the site also held breeding populations of three Irano-Turanian, one Mediterranean and one Sahara-Sindian Desert biome-restricted species (Table XX) but these did not trigger inclusion under criterion A3. European Roller *Coracias garrulous*, a Near Threatened species was also recorded.

Other Important Fauna

Mammals, Reptiles, and other Fauna: Mammal surveys were conducted in 2007 and 2010. In addition to those listed in the table, important species present at the site include the Near Threatened Eurasian otter *Lutra lutra*, Golden Jackal *Canis aureus* and one local fisherman reported seeing a Eurasian Lynx *Lynx lynx* in 2006.

Fish: Data were collected in 2007 and 2008, when 26 species were observed. Species of economic importance, according to Coad (2010) were: *Acanthobrama marmaid*, *Alburnus mossulensis*, *Luciobarbus esocinus*, *Carassius auratus*, *Cyprinus carpio*, *Cyprinion macrostomum*, *Cyprinion kais*, *Hypophthalmichthys nobilis*, *Hypophthalmichthys molitrix*, and *Heteropneustes fossilis*. Four species of conservation concern as well as economically important were: *Aspius vorax*, *Barbus subquincunciatus*, *Luciobarbus xanthopterus*, and *Tor gypus*. Seven species that have no economic importance but whose conservation status is unknown in Iraq were also found: *Alburnus caeruleus*, *Mastacembelus mastacembelus*, *Squalius lepidus*, *Silurus triostegus*, *Capoeta barroisi*, *Capoeta damascina* and *Chondrostoma regium*.

Plants & Habitats: This area contains about 125 identified plant species. Two waypoints were surveyed in the two main habitat types:

1. Mountain Forest Vegetation-Mountain Riverine Forest (N 35 06' 54" E 45 43' 04"), which is characterized by *Salix acmophylla* and *Morus alba* (trees); *Nerium oleander* and *Rubus sanctus* (shrubs); *Mentha longifolia* and *Equisetum ramosissimum* (herbs).

2. Mountain Forest Vegetation- Oak forest-Low Sub-zone (N 35 06' 17" E 45 42' 04"), which is characterized by *Quercus aegilops* and *Q. infectoria* (trees), *Anagyris foetida*, *Prunus orientalis*, *Pistacia eurycarpa* and *P. khinjuk* (shrubs), *Sinapis arvensis* and *Gundell tournefortii* (herbs), and *Aegilops crassa* (grass).

The condition of the site was very disturbed, with an ecological scale of four (especially along the Sirwan (Diyala) River downstream). The slope is between moderate (6–14°) near the riverine woodlands and steep (27–45°) in the oak forest. The site is located in the Zagros range where the geology is limestone and soil types are clay and sandy clay. The non-vegetated area was 15-20%.

Conservation Issues: High threats include hunting and fishing, livestock production/grazing, tourism (mainly along the Sirwan River, which people from Sulaimani City, Darbandikhan and Kalar District use as a picnic site). The presence of the dam was also considered a high threat because of its impacts downstream especially on fish and the widely fluctuating level of the reservoir from year to year; there is a wide belt of land around the reservoir with little to no vegetation. But the presence of the reservoir also attracts birds and other fauna. Collectively, sewage, water pollution and garbage were assessed as very high threats to the area, causing periodic fish mortality events (several large enough to receive attention in the local media in 2008, 2009 & 2011, but locals report they are a yearly occurrence in summer). These are most likely caused by untreated sewage from Suliamani and other towns polluting the Tanjero River.

There are gravel mines throughout the Tanjero basin and along the Sirwan River that comes in from the east. One of the most critical threats is from an Iranian state-built dam on the Sirwan River, which prevents the river water from feeding into the lake. This has lowered the water level, which in turn threatens life in and around the lake. Heavy metal contamination appears to be extensive, with lead, zinc, cadmium and nickel often above reference standards for most of the sites. These results point to chronic problems in the lake and feeder rivers (Mahir et al. 2009).

Recommendations: Several ecologically important plants and birds were observed here, highlighting the urgent need to both raise awareness of and address the conservation needs of this area. Further work should be done in the Darbandikhan Basin in general to follow the track of pollution through the basin and pinpoint all contamination sources. These issues are examined further in subsequent Nature Iraq survey efforts following a fish kill that occurred on the lake at the end of July 2008, culminating in a State of the Environment Report on the basin (Nature Iraq & Twin Rivers Institute, 2009). The report outlined a roadmap to fill gaps in information and take steps to address a wide-range of environmental issues that threaten the basin. To date, no action has been taken by local, regional or national authorities on the recommendations of the report.

References

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- Mahir, A.M., Radhi, A.G., Falih, H.A., Al-Obaidi, G.S. and Al-Saffar, M.A.T. (2009). *Key Biodiversity Survey of Kurdistan, Northern Iraq: Water Quality Review – Winter & Summer 08 Survey*. Sulaimani: Nature Iraq. Publication No. NI-0209-004.
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