

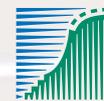
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Waterbirds around the world

A global overview of the conservation,
management and research of the
world's waterbird flyways

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A review of the wetlands of Afghanistan

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ABSTRACT

Afghanistan is a landlocked arid country with a rich biodiversity represented in various life forms and their habitats. The existence of water in arid climates such as that of Afghanistan plays a significant role not only in maintaining human livelihoods but also in creating pristine ecosystems that provide essential services to the local communities. Such wetland habitats in an arid country are important resting, feeding and staging areas for a number of migratory bird species. This paper reviews the wetlands of Afghanistan from the perspective of current status, conservation issues and recommendations for initiatives in the future.

INTRODUCTION

Afghanistan is a landlocked country of about 65.2 million ha in Central Asia. The country's natural resources include forests (2.2 million ha), arable land (7.9 million ha) and rangelands (5.0-14.7 million ha). Altitudes range from 400 m above sea level in the Seistan basin to over 6000 m in the Zebak. The country lies at the confluence of the Palearctic and Indo-Malayan biogeographical realms, and is endowed with rich biodiversity. The climate is characterized by arid and semi-arid conditions with hot summers and cold winters (ICIMOD 1997). Afghanistan's diverse habitats host 119 species of mammals, 400 species of birds, two species of amphibians and 4 000 species of vascular plants. The country is divided into three distinct regions, the Hindu Kush highlands, the Northern Plains and the Southern Plains (Smith *et al.* 1973), and this has given rise to the ethno-cultural division of the country into Pukhtoon, Hazara, Uzbek and Tajik.

Soviet troops invaded Afghanistan in 1979, hampering any development activity and resulting in decades of war. The war in Afghanistan not only brought suffering to communities already living at subsistence level, but devastated structures and institutions. The management and conservation of the country's natural resources, including wetlands and their associated biodiversity, were not spared.

The wetland habitats of Afghanistan consist of three major types: rivers, lakes and marshes, and man-made reservoirs. Since most of Afghanistan is very dry, the few wetlands that exist are of considerable ecological and social importance. Most of the watercourses are liable to great seasonal variation in water level, and they are subject to intensive human use. Many of Afghanistan's rivers drain into depressions where they have no outlet, resulting in the formation of large shallow saline lakes and marshes. Many thousands of birds use the internationally significant wetlands of Ab-i-Estada, Dasht-i-Nawar, Band-i-Amir and Kol-e-Hashmat Khan (ICIMOD 1997).

METHODS

This review of the wetlands of Afghanistan is based primarily upon my thesis research on assessment of the post-war status of

Lake Ab-i-Estada. I used a combination of approaches including literature review, field surveys, formal and informal interviews, and personal observations to collect information about the lake. The literature review was carried out in various libraries including those of the University of Kabul (Afghanistan), University of Wisconsin (USA), University of Peshawar (Pakistan) and United Nations branch in Islamabad (Pakistan). Interviews with local communities were carried out during field surveys at Lake Ab-i-Estada. In addition, I visited the wetlands of Dasht-i-Nawar, Band-i-Amir and Kol-e-Hashmat Khan. Information on protected areas, including key wetland habitats in central Afghanistan, was derived from interviews and personal observation.

DISCUSSION

Important wetlands of Afghanistan

The drainage systems in Afghanistan mostly end in endorreic (closed) basins (UNEP 2003). The Amu Darya, Helmand, Arghandab, Gardez, Ghazni, Mahara and other rivers receive their input from rainfall, snowmelt and glaciers, and create lakes and marshes which are important wetland ecosystems. The rivers are a source of water for irrigation, while the lakes raise the humidity in the surrounding areas and reduce the need for irrigation of crops – a much needed saving in arid climatic conditions. The small number of wetlands formed by these rivers support a wide variety of wetland-dependent birds, particularly migratory waterbirds. Most of the wetlands are used by migratory birds for feeding and resting, while some are used for breeding (UNEP 2003, Sauey 1985). In addition to their importance for birds, these wetlands have great importance for the human communities living around them.

Band-i-Amir

Band-i-Amir consists of a chain of six lakes formed by travertine dams in the Hazarajat Mountains of the western Hindu Kush, in Bamyan Province (IUCN 1991). These lakes, named Ghulaman, Qambar, Haibat, Panir, Pudina and Zulfiqar, are noted for their distinctive scenic beauty and are also home to a variety of waterbirds. Qambar Lake has been drained and converted to marshland, providing suitable habitat for rails, coots and birds dependent on reed-beds. Ghulaman Lake has thick reed vegetation and provides habitat for waterbirds such as rails and coots. The four other lakes are deeper, and are frequented by diving ducks and grebes. The area is one of the most beautiful landscapes in Afghanistan, and has been a popular tourist attraction since the 1950s, with day tours visiting the site from Bamyan (IUCN 1991). In response to a request from the Afghan Tourist Organization (ATO), the site was declared a National Park in 1973. The National Park covered an area of 41 000 ha, but could not be notified in the official gazette. There has been little impact on the physical condition of this National Park since the 1970s,

and the lakes remain in good shape (UNEP 2003). However, lack of awareness of the importance of the site, unorganized tourism, the influence of warlords in the area, illicit fishing through dynamiting and netting, and the extreme poverty of the local communities are some of the key conservation issues here.

Dasht-i-Nawar Lake

This lake lies in a vast depression at high altitude in the Koh-e-Baba range, an offshoot of the Hindu Kush (Fig. 1). It was formerly a perennial lake with a huge area of mudflats and numerous islands. The lake provided breeding grounds for the Greater Flamingo *Phoenicopterus (ruber) roseus* and a staging area for thousands of migratory waterbirds of various species. The Government of Afghanistan declared the lake a Waterfowl and Flamingo Sanctuary in 1974. In 1999, however, the lake dried up completely due to a severe drought. A study of the lake in 2002 revealed that there were several small ponds fed by spring waters which provided some habitat for waterbirds during drought years. Several species of ducks, including Mallard *Anas platyrhynchos*, Common Teal *A. crecca* and Common Pochard *Aythya ferina*, were present on the ponds in early September 2002 (UNEP 2003). In comparison with other wetlands in Afghanistan, the problems at Dasht-i-Nawar are of relatively low intensity, and the wetland has high resistance to extreme conditions because of the presence of springs as a permanent source of water. However, a lack of awareness and lack of recognition of the important values of the wetland are key issues.

Kol-e-Hashmat Khan

Kol-e-Hashmat Khan, in the south-eastern outskirts of Kabul, is situated at an elevation of 1 973 m and has an area of 191 ha. This lake, which is surrounded by dense reed-beds, was one of the most important and well-protected wetlands until the onset of war in 1979. The lake was formerly a royal hunting ground and was declared a Waterfowl Reserve by King Zahir Shah in the 1930s. Over 150 species of migratory birds have been recorded in the area, and the lake has supported as many as 30 000-35 000 waterbirds. From 1973 until the war, the protection of Kol-e-Hashmat Khan was the responsibility of the Guard-i-Jamhuriat (military). The lake dried out in 1999 due to the severe drought in the region. Prior to the war, it received water from a branch of the Logar River, but this was dammed in various places and became silted up. In addition, water from the Logar River was diverted for irrigation. The local community has encroached on the lake, and settlements have extended all around it. Recent reports suggest that the government has decided to drain the wetland to accommodate the ever-increasing human population of Kabul.

Ab-i-Estada

The Gardez, Ghazni and Mahara rivers and a few unclassified streams drain into a large depression in the Koh-e-Baba and Koh-e-Pughman foothills of the Hindu Kush, and form the large saline lake of Ab-i-Estada (literally “standing water”; Fig. 2). Located between 32°30'N and 67°50'E and at an altitude of 2 070 m, this lake was a Waterfowl and Flamingo Sanctuary prior to the war in 1979. The wetland covers 27 000 ha, including 13 000 ha of surface water and 14 000 ha of mudflats. The width of the mudflats surrounding the lake varies from 0.5 km on the western shore to 7 km in the east. The lake has two small islands near its south-eastern shore. The tiny island of

Kuchney ghundai (500 m²) is 0.3 km from the shore, while the island of Loya ghundai (2 500 m²) is 2.2 km from the shore (Shank & Rodenburg 1977, Khan 2000). In the central basin of the watershed (over 19 400 km²), there are dams on the Gardez River (Band-i-Sardeh) and Ghazni River (Band-i-Sultan).

Bird counts at Ab-i-Estada and in the surrounding area have included 122 species of 84 genera, 45 families and 17 orders (Paludan 1959, Shank & Rodenburg 1977; local information and pers. obs). The importance of the lake for migratory birds is due to its location on an important flyway between breeding grounds in Siberia and Kazakhstan and wintering grounds in Pakistan and India – a flyway characterized by the paucity of stopover sites providing water and wetland habitats. The lake was formerly a very important stopover site for the critically endangered Siberian Crane *Grus leucogeranus* (Khan 2001). Wader species such as the Pied Avocet *Recurvirostra avosetta*, Black-winged Stilt *Himantopus himantopus*, Kentish Plover *Charadrius alexandrinus* and Greater Sandplover *C. leschenaultii* have bred at the lake (Niethammer 1970). The two small islands have provided breeding habitat for Greater Flamingos as well as for Slender-billed Gulls *Larus genei* and Gull-billed Terns *Gelochelidon nilotica*.

Past history of wetland management in Afghanistan

The wetlands of Afghanistan attracted international attention in the late 1960s, and the significance of Ab-i-Estada and Dasht-i-Nawar was recognized at the International Conference on the Conservation of Wetlands and Waterfowl (Ramsar, Iran, 1971) at which the final text of the Ramsar Convention on Wetlands was adopted. Following this conference, the Government of Afghanistan and custodian Department of Wildlife and National Parks declared Band-i-Amir as a National Park in 1973, and Ab-i-Estada and Dasht-i-Nawar as Waterfowl and Flamingo Sanctuaries in 1974 (Shank & Rodenburg 1977). The proposal to declare Ab-i-Estada as a National Park in 1993 (IUCN 1993) did not materialize because of political unrest in the country.

The boundaries of the reserves were delineated and clearly defined. At Ab-i-Estada, the reserve boundaries were drawn by R.G. Petocz to maintain, wherever possible, a 2 km zone around the lake, while including all mudflats and excluding all cultivated areas. Consequently, the boundaries extended some 7 km from the lake in the east where there are extensive mudflats, whereas in the west, where farming is most intensively practiced, the boundary approached to within 0.5 km of the lakeshore in some places (Shank & Rodenburg 1977).

A ban on hunting was strictly enforced to protect the fauna of the protected areas in Afghanistan, and protection staff were recruited for the purpose. The government at the time appointed 10 guards for protection purposes at Ab-i-Estada, six from the army or republican guard (Jandrama) and four from the local community. Four wildlife guards were appointed for the protection of Kol-e-Hashmat Khan Waterfowl Reserve. Similarly, guards were posted for the protection of wildlife at Band-i-Amir National Park and Dasht-i-Nawar Waterfowl and Flamingo Sanctuary. These guards were responsible for patrolling the protected areas to control hunting and report any illegal hunting. There was a fine of 500 Afghanis for illegal hunting. The untrained guards (wildlife protection officers) at Ab-i-Estada were later supplemented with professional wildlife guards trained in Iran (Shank & Rodenburg 1977).

A system of water regulation was introduced at Ab-i-Estada and Kol-e-Hashmat Khan to maintain the water surface during the dry summer months. Water was allocated to Ab-i-Estada from the upstream Band-i-Sardeh during the summer months, and no diversion of water upstream of the lake was allowed for any purpose. Similarly, water was allocated to Kol-e-Hashmat Khan from the Kabul and Gardez rivers during the dry months of the year (Khan 2000).

War and the management of wetlands in Afghanistan

Prior to the war, the interest of the Government of Afghanistan in the conservation of its natural resources had been increasing and by 1970 had attracted international attention. However, all its efforts were hampered by the invasion of troops from the former Soviet Union in 1979. Since then, the conservation status of the country's natural resources has been drastically weakened due to various reasons which can be summarized as follows:

- massive emigration from the country resulting in a critical loss of trained professionals;
- restricted access to former protected areas and high security risks;
- dissolution of the country into small kingdoms under different warring factions;
- increased availability and accessibility of arms (rifles, machine guns, automatic rifles, rocket launchers and missiles) and ammunition;
- destruction of infrastructure such as roads, bridges and water supply systems;
- destruction and loss of existing records and a halt to research and all other information gathering;
- uncontrolled exploitation of natural resources due to disputed ownership; and
- lack of alternative resources.

The problem of uncontrolled shooting of wildlife was further increased due to the great flow of arms and ammunition into the country, making them widely available and accessible. During the war, individuals and groups of fighters reportedly used birds and mammals for target practice. Forests were burned to expose enemies or cut to provide funds for the purchase of weapons.

Effects of war (1979-2001) on the wetlands

Little is known about the status of wetlands in Afghanistan between 1979 and the present. Most of the information available has been provided by verbal accounts from local communities. During the period of fighting, most people left the affected areas and took refuge elsewhere within Afghanistan, while some fled the country. Information from the local community at Ab-i-Estada indicates that about 60% of the community became refugees, while between 23% (UNIDATA 1992) and 33% (UNHCR 1990) of the local community at Dasht-i-Nawar were refugees in Pakistan. Very few people, mostly the old and children, were left behind. About 2.2% of the local people around Dasht-i-Nawar were killed and another 3.2% were disabled (UNIDATA 1992). Government troops were deployed in the area around Ab-i-Estada and are reported to have hunted freely at the lake. Soviet troops in helicopters are reported to have fired several times on waterbirds at this lake, mostly in the flamingo colonies.

The wetlands lost their protection when they lost the guards that had been posted there. Six of the guards at Ab-i-Estada reportedly left the area, and the four guards from the local villages were old and have since died. A tower built at Ab-i-Estada for the effective protection of the lake was completely destroyed. Two of the guards at Kol-e-Hashmat Khan died during the war, while the other two were restored to their duties by the Taliban Government in 1998. Local communities were able to hunt waterbirds and collect eggs with no controls. As a likely result of these activities, there was an alarming decline in the central population of the Siberian Crane at this time. The population of 100 in 1967-68 (Sauey 1985) had declined to 57 by 1976 and to only 23 by 1989 (New York Times 1989). All tourism organized by the Afghanistan Tourism Organization ceased during the war. The wetlands also lost their traditional water allocation systems, and local communities began to encroach on the land (pers. obs). The community upstream of Ab-i-Estada began diverting water from the Gardez and Ghazni rivers for irrigation, and this might have contributed to the drying up of the lake. The local community around Kol-e-Hashmat Khan occupied land at the margins of the lake, thus reducing its area.

Current status of wetlands in Afghanistan

Land ownership

The local communities at Ab-i-Estada, Kol-e-Hashmat Khan, Dasht-i-Nawar and Band-i-Amir have no claims to ownership of the land, and admit government ownership (according to personal discussions with the local communities in 1999, 2000 and 2002). However, a number of nomadic groups (Kochis) who migrate into these areas with their livestock claim that they have traditional grazing rights which are recognized as legal by the government (Khan 2004). This grazing, along with grazing by livestock belonging to the local communities, could result in a change in vegetation structure around the wetlands. The local community at Dasht-i-Nawar came into conflict with the Kochis on the use of this area in 1999.

Legal protection and management

At present, there are no protection staff at any of the wetlands. The local communities at Ab-i-Estada and Kol-e-Hashmat Khan regularly hunt waterbirds for fresh meat. At Ab-i-Estada, almost every man in the local community is a part-time hunter, and at least 10% are full-time hunters (Khan 2000, 2004). Falcon trapping was introduced into the Ab-i-Estada area by falcon trappers from Pakistan, and is becoming a common activity. In 2002, there were numerous falcon-trapping camps operated by people from the surrounding villages (Khan 2000, UNEP 2003). At Band-i-Amir, unorganized local tourism creates problems of water pollution and disturbance to migratory birds. On the other hand, informants state that the previous rules regarding wildlife protection have been put back in place and will be implemented when the government has sufficient funds to do this (Khan 2000, 2004, UNEP 2003).

Grazing and collection of fuel wood

At present, grazing and the collection of fuel wood in the vicinity of Ab-i-Estada are open to anyone. Nomads exercise their grazing rights during the summer months, and local people take year round benefit of the wetland's status as "no man's land". The uncontrolled grazing activity is likely to have brought



Over-grazing by domestic stock, and deforestation are major issues throughout much of Central Asia. These hillsides have been heavily grazed by goats and sheep leading to soil erosion; note the high concentration of livestock on the right. A short distance up the valley, in the Chatkal State Nature Reserve, Uzbekistan, the hillsides are fully wooded (see p. 885). Photo: David Stroud.

about changes in vegetation cover and species composition of the plant communities. Some effects of the overgrazing and collection of fuel wood on the vegetation have already been reported (Goudie 1986).

River flows and traditional water management

The Ghazni and Gardez rivers are the main sources of water for Ab-i-Estada. The Band-i-Sardeh (dam) on the Gardez River was constructed by the Soviets under the Sardeh Irrigation Project (1967-76) to irrigate 18 752 ha of land. This dam can potentially provide water to irrigate about 80 000 ha in Khawaja Omri, Deh Yak and Ghazni districts; however, at present only 40% of this area is under cultivation because of the poor state of the irrigation canals. The reservoir of the Band-i-Sardeh covers an area of about 9 600 ha when full; however, at present only half of the capacity is being used (UNIDATA 1992). A second dam, the Band-i-Sultan, restricts the flow of the Ghazni River and diverts water for irrigation. Both these dams have decreased the flow of water in the rivers that reach the lake. The full effects of the change in the lake's hydrology caused by these marked reductions in water flow have not yet been studied.

Downstream from the two dams, the local communities of Dilla and other villages have constructed small dams on the Ghazni and Gardez rivers to divert water for the irrigation of agricultural land. This additional diversion of water increases the adverse impacts on the hydrology of the lake, particularly in dry years when no water may reach the lake, especially from the Ghazni River. In the past, a few days of water flow were reserved

for the lake during the dry summer months, but this practice is no longer in operation.

CONCLUSIONS AND RECOMMENDATIONS

There are very few wetlands in Afghanistan's arid landscape that provide habitat for large numbers of waterbirds in addition to functioning as a source of water for drinking, irrigation and other human needs. Band-i-Amir, Dasht-i-Nawar, Kol-e-Hashmat Khan and Ab-i-Estada are the most important wetland habitats in Afghanistan for migratory waterbirds and must be protected. There were good rains and heavy snowfalls in the watersheds of these wetlands in 2002 and 2003, and as a result, Kol-e-Hashmat Khan and Dasht-i-Nawar have been restored. Ab-i-Estada has received some water and here the wetland habitats have recovered to a considerable extent (officials of the Save the Environment-Afghanistan pers. comm.). The Government of Afghanistan must now consider re-designation of these wetlands as protected areas with appropriate legal status.

There is a need to develop comprehensive management plans for these wetlands based on a preliminary management plan for Ab-i-Estada and Dasht-i-Nawar prepared in 1977 (Shank & Rodenburg 1977) and guidelines developed by the University of Wisconsin at Madison (Khan 2004). The management plans should emphasize the following objectives:

- Strengthening institutional structures for a "watch and ward" system for the wetlands, with provision for the participation of local communities;

- Protecting migratory birds visiting the wetlands for breeding, feeding, resting and staging;
- Maintaining the essential hydrological inputs and hydrodynamics of the lakes;
- Encouraging, facilitating and supporting research on various aspects of the wetlands and rural life in surrounding areas;
- Creating awareness amongst the local communities through various approaches;
- Integrating development issues with conservation of the wetlands and their resources;
- Developing cross-boundary co-operation and networks for the conservation of wetlands important for migratory waterbirds.

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Pair of Siberian Cranes *Grus leucogeranus* at Fereydoon Kenar, Iran. Abi-i-Estada in Afghanistan was formerly an important staging area for this species. Photo: Crawford Prentice.