Akpetky lakes, Sarykamysh lake, Ayakaghytma lake, and their desert surrounds: three new Important Bird Areas in Uzbekistan

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The first steps of the Important Bird Areas (IBAs) programme in Uzbekistan date back to 1996. However, the real inventory of IBAs began in 2005 within the framework of the "Central Asian IBA project". In 2005, the Uzbekistan investigators compiled a list of more than 60 potential IBAs and a programme of field studies was initiated. As a result, 48 IBAs in Uzbekistan were confirmed by the BirdLife International secretariat in 2008. Currently, the Uzbekistan Society for the Protection of Birds (UzSPB) is the main executive agency of the IBA programme in Uzbekistan (Kashkarov *et al* 2008).

Not all potential IBAs were covered by the 2005–2008 studies. Therefore, the main focus of the present project was aimed at filling these gaps. The project was implemented 2010–2011 as part of the conservation leadership programme (CLP, www. conservationleadershipprogramme.org) and save our species programme (SOS, www. sospecies.org). This project was also supported by UzSPB. Field studies in Karakalpakstan were partially supported by the agency of the International Fund for Saving the Aral Sea of Uzbekistan (IFAS). The main goal of the project was to collect sufficient data to confirm three potential sites as IBAs.

The second important goal of the project was to increase the capacity of students and raise awareness of local communities of the importance of their region. Twentythree students from five Uzbekistan universities—National University of Uzbekistan, Samarkand, Bukhara and Karakalpak State Universities, Kokand Pedagogical Institute were involved in training and survey work.

The principle investigators in this project were Anna Ten, UzSPB IBA programme assistant; Oleg Kashkarov, UzSPB public relations assistant; and Nodir Azimov, a member of the *Phasianus* birdwatcher's club and UzSPB member.

The three sites surveyed during 2010-2011 were:

- Akpetky lake system (southern Aral sea region, Karakalpakstan), 15 October–4 November 2010.
- Sarykamysh lake (Ustyurt plateau, Karakalpakstan), 15 October-4 November 2010.
- Ayakaghytma lake (southern part of the Kyzylkum desert, Bukhara province), 9–28 April 2011.

Justification for IBA status was prepared based on the results of the surveys and published data. In September 2011 the BirdLife secretariat confirmed the status of the three sites: UZ049 "Akpetky lakes and surrounding Aralkum desert", UZ050 "Sarykamysh Lake and surrounding Ustyurt Plateau" and UZ051 "Ayakaghytma Lake and surrounding desert" (Figure 1). Detailed information on each site is presented below.

METHODOLOGY

Data collection and processing

The surveys were conducted according to standard methodologies using point and route counts. The collection and analysis of additional data for completing the IBA data sheets

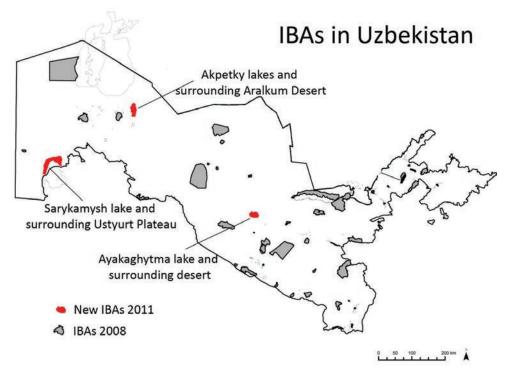


Figure 1. Location of the three new IBAs in Uzbekistan, in red. Existing IBAs are shown in grey.

were carried out by the authors according to the Central Asian IBA project guidelines (Welch & Sklyarenko 2006). The data were then entered into the global IBA-World Bird/ Biodiversity Database (www.globalconservation.info).

IBA criteria

IBA identification is based on quantitative ornithological criteria (Welch & Sklyarenko 2006). These criteria confirm that a site is of real importance for the conservation of bird populations at the international level. Criteria at the 'A' (global) level were applied during the implementation of the Central Asian IBA programme, namely:

- A1 Globally threatened species. The site regularly holds significant numbers of globally threatened species, or other species of global conservation concern.
- A3 Biome-restricted assemblages. The site is known or thought to hold a significant component of the group of species whose distributions are largely or wholly confined to one biome.
- A4 Globally important congregations:
 - A4i. The site is known or thought to hold, on a regular basis, >1% of a biogeographic population of a congregatory waterbird species.
 - A4ii. The site is known or thought to hold, on a regular basis, >1% of global population of a congregatory seabird or terrestrial species.
 - A4iii. The site is known or thought to hold, on a regular basis, >20 000 waterbirds or >10 000 pairs of seabirds of one or more species.
 - A4iv. The site is known or thought to exceed thresholds set for migratory species at bottleneck sites.

RESULTS

Akpetky lakes and surrounding Aralkum desert (Figure 2, Plates 1 & 2) IBA ID: 29349, National ID: UZ049 Muynak district, Republic of Karakalpakstan Coordinates: 43° 39.22' N, 60° 22.41' E Area: 39 146 ha Conservation status: unprotected



Plate 1. Lakeside reeds and other vegetation, Akpetky lakes, Uzbekistan, October 2010. © Anna Ten

Site description. This lake system was formed on the exposed bed of the southeastern part of the Aral sea, in the vicinity of the former Akpetky archipelago. Now it is surrounded by the Aralkum desert. The Akpetky lake system represents a number of inter-related lakes of which the largest are Ashshykul, Akshoky, Orda, Soraly, Akpetky and Karabes. The lakes are fringed by thick reedbeds up to three m in height. Large thickets of tamarisk Tamarix sp and sparse saxaul Haloxylon sp woodland grow in the surrounding areas. The waterbodies are of significant importance in terms of fisheries for the region and have been rented out to commercial fishermen. The nearest village, Birdam, is 40 km to the southwest of the lakes.

Birds. The lakes of the Akpetky system and the surrounding Aralkum desert are of great



Plate 2. Aralkum desert, Akpetky lakes, Uzbekistan, October 2010. © Anna Ten



Figure 2. Akpetky lakes and surrounding Aralkum desert IBA, Uzbekistan. Red line denotes boundary.

importance for migrating and nesting birds. The main survey period was 16–28 October 2010. Additional data were obtained as a result of short-term field trips conducted by UzSPB 9–17 June 2008 and by Gulara Matekova in 2007 and 2008. In total, 156 bird species were recorded, of which 21 are classified as rare (Table 1)–10 from the IUCN Red List (www.iucnredlist.org) and 14 included in the Uzbekistan Red Data Book (2009).

 Table I. IBA criteria and relevant bird species of the Akpetky lake system and surrounding Aralkum desert,

 Uzbekistan. Range of numbers eg 60–685 is the minimum and maximum daily count during the survey period.

Key species	Notes Breeding spp	Passage/wintering			
A1 Globally threatened species					
Dalmatian Pelican Pelecanus crispus ^{1,2} White-headed Duck Oxyura leucocephala ^{1,2}		60–685 (2010) 1–10 (2010)			
A3 Biome-restricted species of Eurasian deserts and	A3 Biome-restricted species of Eurasian deserts and semi-deserts				
Egyptian Nightjar Caprimulgus aegyptius White-winged Woodpecker Dendrocopos leucopterus Brown-necked Raven Corvus ruficollis Sykes's Warbler Iduna rama Asian Desert Warbler Sylvia nana Pander's Ground Jay Podoces panderi Saxaul Sparrow Passer ammodendri Desert Finch Rhodospiza obsoleta Red-headed Bunting Emberiza bruniceps	I (2007) 3 (2007); common uncommon (2007) I (2007) common (2007) uncommon (2007) rare nesting 2 (2007, 2008)	1 (2010) 2–13 (2010) 212 (2010)			
A4i >1% of a biogeographic population of a congrega	tory waterbird species				
Red-crested Pochard Netta rufina Great Crested Grebe Podiceps cristatus Great White Pelican Pelecanus onocrotalus ² Dalmatian Pelican Pelecanus crispus ^{1,2}	3 (2008)	15 000 (2010) 37–360 (2010) 2–410 (2010) 60–685 (2010)			
A4iii >20 000 waterbirds of one or more species					
waterbirds		26 000 (2010)			
Rare species					
Lesser White-fronted Goose Anser erythropus ^{1,2} Mute Swan Cygnus olor ² Ferruginous Duck Aythya nyroca ^{1,2} Greater Flamingo Phoenicopterus roseus ² Glossy Ibis Plegadis falcinellus ² Little Egret Egretta garzetta ²	36 (2008) 10 (2008) 4 (2008) 17 (2008) 12 (2008)	2 (2010); rare 6–80 (2010); common 1–6 (2010); not numerous			
Pygmy Cormorant Microcarbo pygmeus ² Short-toed Snake Eagle Circaetus gallicus ² Pallid Harrier Circus macrourus ^{1,2} White-tailed Eagle Haliaeetus albicilla ² Pallas's Fish Eagle Haliaeetus leucoryphus ^{1,2} Steppe Eagle Aquila nipalensis ² Eastern Imperial Eagle Aquila heliaca ^{1,2} Golden Eagle Aquila chrysaetos ² Little Bustard Tetrax tetrax ^{1,2} Eurasian Curlew Numenius arquata ¹ Pin-tailed Sandgrouse Pterocles alchata ² European Roller Coracias garrulus ¹	nesting	I-2 (2010); rare rare I (October 2010); rare I-4 (October 2010); rare rare 2 encounters (2010); rare 2 encounters (2010); rare I-2 (2010) rare I (2010); rare 65-7454 (2010); numerous			

¹Species listed in the IUCN Red List but not present in numbers to qualify under IBA criterion A1. ²Species listed in the UZ RDB.

The Akpetky lake system lies on the migratory route of both waterfowl and terrestrial bird species and is especially important for the migration of pelicans, ducks, geese and sandgrouse. During two weeks of observation in October 2010 more than 21 000 Pin-tailed Sandgrouse *Pterocles alchata*, a Red Data Book of Uzbekistan species, were recorded. Additionally, there were records of Saxaul Sparrow *Passer ammodendri*, at the northernmost boundary of its distribution in Uzbekistan (Plate 3), and the second Uzbek record of Long-tailed Tit *Aegithalos caudatus*.



Plate 3. Saxaul Sparrow Passer ammodendri, Akpetky lakes, Uzbekistan, October 2010. © Valentin Soldatov

Other animals. Eight fish, one amphibian,

four reptile and 17 mammal species are also known from the site. IUCN Red List species are: Central Asian Tortoise *Agrionemys horsfieldii* (globally Vulnerable VU), Goitered Gazelle *Gazella subgutturosa* (VU) and Marbled Polecat *Vormela peregusna* (VU).

Main threats and problems of conservation. There are no human settlements in the immediate vicinity of Akpetky and the site is only visited seasonally by teams of fishermen. Extensive encroachment of the waterbodies by reeds was noted. Due to its remoteness the site is not used for grazing but every year the site attracts an increasing number of hunters. The biodiversity of the lake system depends completely on water supplied through the Kokdarya and KS-4 canals. Due to its significance for fishing, the optimal solution for the conservation of this IBA is the establishment of an ornithological reserve in which fishing is permitted and hunting prohibited during the main migration periods.

Sarykamysh lake and surrounding Ustyurt plateau (Figure 3, Plates 4 & 5)

IBA ID: 29791, National ID Uz050 Kungrad district, Republic of Karakalpakstan Coordinates: 42° 12.26' N, 57° 20.85' E Area: 95 974 ha Conservation status: unprotected



Plate 4. Sarykamysh lake, Uzbekistan, November 2010. © Anna Ten



Plate 5. Sarykamysh lake, Uzbekistan, November 2010. © Anna Ten

Site description. This IBA is situated 130 km to the southwest of Kungrad and includes a 2 km wide strip of the Uzbekistan part of lake Sarykamysh, the cliffs of the eastern escarpment of the Ustyurt plateau and part of the plateau including the Sarja depression. Lake Sarykamysh is one of the largest lakes in Central Asia (Middle Asia) formed in the 1960s as the result of the discharge of collector-drainage waters from the lower reaches of the Amudarya river into the Sarykamysh depression. The current area of the lake is $c4000 \text{ km}^2$; the depth is up to 50 m. The northern deep part of the lake (c1000 km²) is situated in Uzbekistan, while the central and southern parts (c3000 km²) are in Turkmenistan. The cliffs of the southeastern Ustyurt stretch along the western and northeastern shores of the lake (Sanin 1991).



Figure 3. Sarykamysh lake and surrounding Ustyurt plateau IBA, Uzbekistan. Boundary shown as red line.

Table 2. IBA criteria and relevant bird species of Sarykamysh lake and surrounding Ustyurt plateau, Uzbekistan.
Range of numbers eg 95–595 is the minimum and maximum daily count during the survey period.

Key species	Notes	Notes		
	Breeding spp	Passage/wintering		
AI Globally threatened species				
White-headed Duck Oxyura leucocephala Egyptian Vulture Neophron percnopterus	2 pairs (2010)	2 (2010)		
A4i >1% of a biogeographic population of a congregatory waterbird species				
Common Goldeneye Bucephala clangula		95–595 (2010)		
Rare species				
Mute Swan Cygnus olor ² Whooper Swan Cygnus cygnus ² Ferruginous Duck Aythya nyroca ^{1,2} Greater Flamingo Phoenicopterus roseus ² Eurasian Spoonbill Platalea leucorodia ² Great White Pelican Pelecanus onocrotalus ² Dalmatian Pelican Pelecanus crispus ^{1,2}	4 (2010) 1 (2010) 1 (2010) 1–3(2010)	6–73 (2010); common 2–18 (2010); common 2 (2010); rare		
White-tailed Eagle Haliaeetus albicilla ² Saker Falcon Falco cherrug ^{1,2} Macqueen's Bustard Chlamydotis macqueenii ^{1,2}	2 nests (2010) I (2007)	2–5 (2010); common		
Little Bustard Tetrax tetrax ^{1,2} Eurasian Curlew Numenius arquata ¹ Great Black-headed Gull Larus ichthyaetus ² Pin-tailed Sandgrouse Pterocles alchata ²	4-5 (2010)	l (2010); rare l (2010); rare l (2010); rare 2–17 (2010)		

¹Species listed in the IUCN Red List.

²Species listed in the UZ RDB.



Plate 6. Egyptian Vulture Neophron percnopterus, Ayakaghytma, April 2011. © Valentin Soldatov

The shore vegetation in the northern part of the lake is poorly developed due to a rise in water level. Narrow patches of reeds *Phragmites* sp and reed mace *Typha* sp are found in the shallow parts of the northern and northwestern shore. The eastern shores are completely devoid of vegetation due to the high water level. Saxaul and tamarisk are found along the shore separating the lake from the Ustyurt plateau. The Ustyurt plateau is an elevated flatland ending in escarpments 150–370 m in height. The main vegetation is boyalich *Salsola arbuscula*, biurgun *Anabasis salsa* and in places saxaul. The eastern escarpment of the Ustyurt in the vicinity of the lake is an almost vertical cliff *c*100 m in height, which descends to the lake from the west and northeast. On Ustyurt, vegetation is very scarce and consists of glasswort *Salicornia* sp, wormwood *Artemesia* sp and sparse saxaul.

The only use of the lake is for fishing and there are seven fish farms leasing nine sites with a total area of 4510 ha. The lake is one of the principle water bodies in Karakalpakstan: its share in the total fish catch of Karakalpakstan constituted 25% and 50% in 2009 and 2010 respectively. The Sarykamysh lakeshore refuge (Nature Reserves of Central Asia and Kazakhstan 2006) was established in the Turkmenistan part of the lake in 1980. In 2008 this part was designated as an IBA (Rustamov *et al* in press).

Birds. Being deep, waterfowl are mainly restricted to the shoreline. The cliffs of the eastern escarpment provide nesting sites for predatory birds, particularly Egyptian Vulture *Neophron percnopterus* (Plate 6) and Saker Falcon *Falco cherrug*. Additionally, Common Swift *Apus apus* and Alpine Swift *Tachymarptis melba* also nest. This is the only known nesting site in lowland Uzbekistan for the latter species (Kashkarov 2010). The Ustyurt plateau is the nesting area for many desert species including Macqueen's Bustard *Chlamydotis macqueenii*, Pin-tailed Sandgrouse *Pterocles alchata* and Pallas's Sandgrouse *Syrrhaptes paradoxus*. The surveys recorded the first Long-tailed Rosefinch *Uragus sibiricus* and Little Bustard *Tetrax tetrax* for the Ustyurt area. In addition to the CLP-SOS survey in 2010, the authors surveyed this site in spring 2007 and summer 2010. In total 108 bird species were recorded of which 16 are classified as rare (Table 2)—eight in IUCN Red List and 14 in the Red Data Book of Uzbekistan.

Other animals. Of 15 fish species found in Sarykamysh lake two species are included in the Uzbekistan Red Data Book: Aral Stickleback *Pungitius platygaster aralensis* and Turkestan Barbel *Barbus capito conocephalus* (Zholdasova *et al* 2009). Ten mammal species have been recorded including Brandt's Hedgehog *Hemiechinus hypomelas* (UZ RDB) and Goitered Gazelle *Gazella subgutturosa* (VU; UZ RDB).

Main threats and problems of conservation. A serious threat is the change in the water level of Sarykamysh lake in the last ten years, which has resulted in the loss of nesting sites of waterbirds, especially Dalmatian Pelicans *Pelecanus crispus.* A new threat has also emerged recently—the diversion of water from the collectors feeding Sarykamysh lake to fill an artificial lake in Turkmenistan, Altyn Asyr (Turkmen Lake 'Altyn Asyr' 2009). This may lead to an increase in salinity and a decline of the fisheries importance of the lake. Monofilament gill nets, which are concentrated in the littoral zone, may cause the death of diving ducks and coots. As there are only fishing teams using the site, they should be considered as the major target group for the development of protection measures for the IBA.

Ayakaghytma lake and surrounding desert (Figure 4, Plate 7)

IBA ID: 29789, National ID UZ051 Gizhduvan district, Bukhara province Coordinates: 40° 36.86' N, 64° 32.12' E Area: 32 854 ha Conservation status: unprotected

Site description. The Ayakaghytma depression is situated in the southern part of the Kyzylkum to the southeast of the Kuldjuktau ridge. It is surrounded by cliffs up to 60 m in height. A significant part of the site consists of saline marshlands (solonchak). The natural borders of the depression are included in the IBA. Ayakaghytma lake formed in the late 1980s as a result of the discharge of collector-drainage waters into the depression. The lake currently covers *c*11 000 ha. The water level of the lake is unstable and depends on the volume of inflowing water.

The shoreline vegetation is poorly developed and consists mainly of reeds and tamarisk thickets but most of the shoreline is devoid of vegetation. The western and southern parts of the site consist of vast saline marshlands and sandy desert with fixed dunes; the eastern part is clayey-rubble desert. Isolated groups of saxaul and sandy acacia *Ammodendron conollyi* occur throughout. There is a small village, Ayakaghytma, with fifty households, on the shore of the lake. The local population is involved mainly in cattle husbandry and fishing. The lands surrounding the lake are used for grazing. There are seven teams of fishermen on the lake.

Birds. As the lake does not freeze and provides rich feeding, it is very important for passage and wintering waterbirds. The aerial inventory by IWC 10 January 2000 recorded 23 231



Plate 7. Ayakaghytma lake and surrounding cliffs, Uzbekistan, April 2011. © Anna Ten



Figure 4. Ayakaghytma lake and surrounding desert IBA, Uzbekistan. Red line denotes boundary.



Plate 8. Eurasian Curlews Numenius arquata, Ayakaghytma, April 2011. © Valentin Soldatov

waterfowl (Atadjanov *et al* 2001). The vast saline marshlands stretching along the shores of the lake attract wading birds, particularly Whimbrel *Numenius phaeopus*, Eurasian Curlew *N. arquata* (Plate 8), Pied Avocet *Recurvirostra avosetta*, Eurasian Oystercatcher *Haematopus ostralegus* and Glossy Ibis *Plegadis falcinellus*. Breeding species include Western Greylag Goose *Anser a. anser*, Western Marsh Harrier *Circus aeruginosus*, Mute Swan *Cygnus olor*, Grey Heron *Ardea cinerea*, Red-crested Pochard *Netta rufina*, Mallard *Anas platyrhynchos*, Northern Pintail *Anas acuta* and several species of terns, gulls and waders. Macqueen's Bustard *Chlamydotis macqueenii*, Greater Sand Plover *Charadrius leschenaultii* and Caspian Plover *C. asiaticus* nest in the desert.

The loess cliffs fringing the Ayakaghytma depression are excellent places for breeding birds of prey, particularly Egyptian Vulture *Neophron percnopterus* (Plate 6), Saker Falcon *Falco cherrug*, Common Kestrel *Falco tinnunculus* and Eagle Owl *Bubo bubo*. During the 2000–2011 studies, 198 bird species were recorded, of which 25 are classified as rare (Table 3): 11 on the IUCN Red List and 23 in the Red Data Book of Uzbekistan.

Other animals. Rare species recorded at the site are Central Asian Tortoise *Agrionemys hors-fieldii* (VU; UZ RDB), Desert Monitor *Varanus griseus* (UZ RDB), Goitered Gazelle *Gazella subgutturosa* (VU; UZ RDB) and Marbled Polecat *Vormela peregusna* (VU).

Main threats and problems of conservation. Fishing is intensive and the adjoining lands are used as pasture. Unsustainable use of these resources has caused a decline of fish stocks and depletion and degradation of pastures and shrubs. The unstable water level adversely affects the state of the entire lake-desert ecosystem. Living standards of the residents of Ayakaghytma village directly depend on the state of water resources in this area. This

Table 3. International IBA criteria and relevant avian species at Ayakaghytma lake and surrounding desert,Uzbekistan. Range of numbers eg 1–130 is the minimum and maximum daily count during the survey period.

V	Nistas	
Key species	Notes Breeding spp	Passage/wintering
A1 Globally threatened species		
Dalmatian Pelican Pelecanus crispus ^{1,2} White-headed Duck Oxyura leucocephala ^{1,2} Egyptian Vulture Neophron percnopterus ¹	3–4 pairs (2011); common	I–130 (2011); common 4 (2009); rare
A3 Biome-restricted species of Eurasian deserts and se	emi-deserts	
Greater Sand Plover Charadrius leschenaultii Asian Short-toed Lark Calandrella (rufescens) cheleensis Sykes's Warbler Iduna rama Asian Desert Warbler Sylvia nana Scrub Warbler Scotocerca inquieta Desert Finch Rhodospiza obsoleta	35 (2006) 14 (2008) 2–14 (2011) 14 (2008); common 1 (2011); rare 3–90 (2011); common	
A4i >1% of a biogeographic population of a congregato	ry waterbird species	
Red-crested Pochard Netta rufina Western Great Egret Ardea alba Pygmy Cormorant Microcarbo pygmeus ² Great White Pelican Pelecanus onocrotalus ² Dalmatian Pelican Pelecanus crispus ^{1,2}	31 (2006)	4016 (2000) 451 (2000) 827 (2000) 28–482 (2011); common 1–130 (2011); common
A4iii >20 000 waterbirds of one or more species		
waterbirds		23 281 (2000)
Rare species		
Mute Swan Cygnus olor ² Whooper Swan Cygnus cygnus ² Ferruginous Duck Aythya nyroca ^{1,2} Greater Flamingo Phoenicopterus roseus ² Black Stork Ciconia nigra ² Glossy Ibis Plegadis falcinellus ² Eurasian Spoonbill Platalea leucorodia ² Little Egret Egretta garzetta ²	36 (2006) 2 (2006) 3 (2006)	8-16 (2008-2011) 1-2 (2008, 2011) 3 (May 2007), 1 (2011) 20-115 (2011) 2 (2008) 30-106 (2007) 2-4 (2008, 2011) 1-13 (2011) bindle (2007, 2011)
Western Osprey Pandion haliaetus ² Eurasian Griffon Vulture Gyps fulvus ² Short-toed Snake Eagle Circaetus gallicus ² Pallid Harrier Circus macrourus ^{1,2} Steppe Eagle Aquila nipalensis ² Saker Falcon Falco cherrug ^{1,2}	l pair (2011); rare	single birds (2007–2011) 1 (2008) 1 (2011) 2 single encounters (2008, 2011) 8 (2008), 6 (2011)
Peregrine Falcon Falco peregrinus ^{1,2} Macqueen's Bustard Chlamydotis macqueenii ^{1,2} Black-tailed Godwit Limosa limosa ¹ Eurasian Curlew Numenius arquata ¹ Black-winged Pratincole Glareola nordmanni ^{1,2} Great Black-headed Gull Larus ichthyaetus ²	l (2008); rare 8 (2006)	I (2008) I7–36 (2011); common I–93 (2011); common 3 (2007) 2 (2011)

¹Species listed in the IUCN Red List.

 $^2\mbox{Species}$ listed in the UZ RDB.

makes working with the local community a priority in order to increase their awareness of nature and introduce sustainable land use and fishery practices.

DISCUSSION

The implementation of the CLP-SOS project enabled the identification, and confirmation by BirdLife, of another three IBAs in Uzbekistan, with a total area of 167 974 ha. Information was collected on the distribution and numbers of 16 globally threatened bird species. The IBAs described are of significant importance for the conservation of birds and biodiversity in general. This determines the necessity for further development of nature conservation activities aimed at the sustainable use of natural resources.

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REFERENCES

- Atadjanov, A, A Filatov, E Lanovenko, S Zagrebin, E Chernogaev & J Khodjaev. 2001. [Aerial Survey of Wetlands in Uzbekistan (winter 2000). Report of the RSGF project, Protection of Uzbekistan's Wetlands and their Waterfowl. Part 3]. State Biological Control, Tashkent. [in Russian]
- Kashkarov, R. 2010. [Ornithological observations in the southern part of the Karakalpak Ustyurt in summer 2010]. *Selevinia* (The zoological year-book of Kazakhstan, Almaty). [in Russian]
- Kashkarov R, G Welch & M Brombacher (eds). 2008. Important Bird areas in Uzbekistan-priority sites for conservation. UzSPB, Tashkent. 188pp.
- Nature Reserves of Central Asia and Kazakhstan. 2006. Tethys, Almaty. 354pp. [in Russian]
- Rustamov E, G Welch & M Brombacher. In press. *Important Bird Areas in Turkmenistan*. Ministry of Nature Protection Turkmenistan, Ashgabat. 198pp.
- Sanin, M. 1991. [Lake Sarykamysh and other drainage water reservoirs]. Nauka, Moscow. 149pp. [in Russian]

Turkmen Lake 'Altyn Asyr'. 2009. Ashgabat. 100pp. [in Russian]

Uzbekistan Red Data Book. 2009. Vol 2 Animals. Chinor ENK, Tashkent. 215pp.

- Welch G & S Sklyarenko. 2006. Central Asian Important Bird Areas Project Guidelines to Authors & Data Entry Forms. Internal project document.
- Zholdasova IM, DM Soloviev, RO Temirbekov, EA Adenbaev, ZA Mustafayeva, AK Musaev & MM Orel. 2009. [Lake Sarykamysh in a changing hydrological regime. Abstracts of the Republican Scientific-Practical Conference, Science in Karakalpakstan: Yesterday, Today and Tomorrow]. Nukus, Uzbekistan, pp35– 36. [in Russian]

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