

Conservation news

First biodiversity survey of Zorkul reserve, Pamir Mountains, Tajikistan

In July–August 2011 a team of local and international scientists performed the first detailed biodiversity survey of the remote Zorkul Zapovednik (nature reserve) in south-eastern Tajikistan, on the border with Afghanistan. There had been previous surveys of the bird fauna of Lake Zorkul but the surrounding mountains, particularly the southern Wakhan range, were largely unknown. The area was initially listed as a zakaznik (sanctuary) in 1972 and in 2000 was upgraded to a zapovednik (Strict Nature Reserve, IUCN Category I) and expanded to 87,700 ha, including both the main Lake Zorkul, nearby lakes and wetland systems, and the surrounding mountains. The Reserve was included as a Ramsar wetland site in 2001, is an Important Bird Area, and is currently on the tentative list for World Heritage listing. This is a high-altitude, treeless landscape; the lake is at 4,150 m and the surrounding mountains rise to over 6,000 m. Lake Zorkul lies in the Great Pamir, a wide valley between the southern Alichur and Wakhan mountain ranges. The 3,900 ha Lake Zorkul (also known as Siri-kul and Lake Victoria) and the associated wetlands are an important area for migrating birds. The reserve also hosts the breeding of a range of species, including nine IBA trigger species; the bar-headed goose *Anser indicus* is a flagship species for the reserve.

Zorkul is also of historical interest. The lake is a key source of the Amy-Darya river, known in antiquity as the Oxus. There is speculation that Marco Polo passed through the valley on his way to China; he later gave the first account of the large wild sheep *Ovis ammon polii* that now bears his name. The lake was also the target for several early Victorian explorers, including Lieutenant John Wood of the Indian Navy whose 1841 account *Journey to the Source of the River Oxus* was widely read. The region became famous for its part in the Great Game between the British and Russian Empires. In 1895 the Pamir Boundary Commission erected its first pillar at the eastern end of Lake Zorkul, to define the border between Afghanistan and the Russian empire. The pillars, and the border, survive to this day.

Over 45 species of birds were sighted, including three new records for the reserve. This brings the total number of bird species identified in the reserve to 119. New records were made of upland buzzard *Buteo hemilasius*, white-capped river-chat *Chaimarrornis leucocephalus* and black stork *Ciconia nigra*. A local botanist identified 56 species of plants in the lake area. A further 20 alpine species were identified in the Wakhan range, including a dwarf willow *Salix shugnanica*, recorded in the reserve for the first time, Snowdon lily *Lloydia serotina* and large-flowered primula *Primula macrophylla*, which occurred up to 4,900

m. The team identified at least 12 species of butterflies, many in some abundance, including Apollos *Parnassius* spp.. Some 1,589 Marco Polo sheep, a focal species for the reserve, were counted. Grey wolf *Canis lupus* was observed twice, including a group with young, and field signs widely noted. Brown bear *Ursus arctos* signs were found at several points, including once above 5,000 m. Long-tailed marmots *Marmota caudata* were frequent and large-eared pikas *Ochotona macrotis* were seen on rocky slopes.

In conjunction with the NGO Panthera 11 camera traps were placed at seven locations in the Wakhan range where snow leopard *Panthera uncia* sign was found. Over an 8-week period three cameras took 252 photographs of at least four individual snow leopards. One camera was lost and the photograph from the paired camera showed two snow leopard cubs playfully removing the other camera. A further 6,039 photographs showed a range of animals, including Marco Polo sheep, Siberian ibex *Capra sibirica*, abundant pika, mountain weasel *Mustela altaica*, tolai hare *Lepus tolai* and red fox *Vulpes vulpes*. Camera traps also confirmed sympatric Himalayan and Tibetan snowcocks *Tetraogallus himalayensis* and *Tetraogallus tibetanus*.

Hydrobiological research identified four species of zooplankton and 32 species of freshwater invertebrates, including eight molluscs and 11 species of chironomid flies. A small reptile was sighted on two separate occasions, although its identity was not confirmed, and no specimen or photograph was obtained. This is the first time reptiles have been reported from the reserve; a few agamid species are present at similar altitudes in the Himalaya.

This protected area has suffered from a lack of management since designation. The remoteness of the area and the lack of resources available to the administration have led to the reserve being largely a 'paper park'. Fauna & Flora International will be working over the coming years to build the capacity of the reserve to function effectively. This will include building scientific knowledge about the reserve, enhancing management capacity, zonation and management planning, developing active and effective ranger patrolling, and raising the profile of the reserve while helping to identify diversified sources of finance, including ecotourism. The objective is to develop the core competency and capacity of the Zorkul reserve team to enable it to effectively manage the ecosystem, habitats and species that it was designated to protect.

ALEX DIMENT and PAUL HOTHAM *Fauna & Flora International, Cambridge, UK. E-mail alex.diment@fauna-flora.org*

DAVID MALLON *Division of Biology and Conservation Ecology, Manchester Metropolitan University, Manchester, UK*