

REPORT

A NATIONAL SURVEY OF THE EURASIAN OTTER (*Lutra lutra* L., 1758) IN MONGOLIA

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ABSTRACT: A survey for otters across Mongolia was conducted in 2012 to document the status and distribution range of the Eurasian otter (*Lutra lutra* Linnaeus, 1758), and to propose the scientific basis for government policies to protect the species. We report results from the first survey of otter since the late 1980s (Stubbe et al., 1989), with new records emerged after 2012. The species is very rarely reported in the country, but in addition to an actual sighting of this species, the survey team observed a limited number of otter sign, including tracks, scat, ice diving holes, snow diving marks, snow wallows, territorial marks, and prey remains at widely distributed sites. We recommend a set of strategies to expand conservation for the Eurasian otter in Mongolia.

Key words: Eurasian otter, *Lutra lutra*, Mongolia, Khalkh-Numrug Rivers, Tengis-Shishged Rivers, Onon-Balj Rivers

INTRODUCTION

The Eurasian otter (*Lutra lutra* Linnaeus, 1758) has been classified as a very rare species in the Mongolian Red Book since 1987 (Shagdarsuren et al., 1987; Shiirevdamba et al., 1997, 2013), and hunting of otters has been forbidden by Mongolian law since 1930. Currently, it is protected as a Very Rare species under part 7.1 of the 2012 Mongolian Law on Fauna. Eurasian otters are listed on Appendix 1 of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES 1973) and classified globally as Near Threatened on the IUCN Red List, although Asian populations are declining rapidly due to human pressures. Despite efforts to protect otters in Mongolia, the species is thought to be extremely rare with a limited range. Information on otters in Mongolia is scanty, leading to the regional evaluation of this species as “data deficient” by the IUCN, with an estimated 12% of the species’ range in Mongolia occurring within protected areas (Clark et al., 2006).

The earliest scientific report on Mongolian otters comes from Bannikov (1954), who reported a direct observation of an otter at the mouth of Khalkh Gol (‘Gol’ is the Mongolian word for river) in the easternmost corner of Mongolia. He suggested that they were rare in the Onon, Eroo, and Minj Rivers, while noting that otters have been reported at the mouths of the Zavkhan River and the Khunguin River from Khangai Mountains, and the Shishged River and the Tengis River in Hövsgöl Province. He also speculated that in the Altai Mountains, only the Bulgan River might have otters (Bannikov, 1954).

In 1968-1972, Tsagaan, a researcher at the Natural History Museum of Mongolia, initiated a campaign to study Mongolian otters, and reported his results in a series of scientific and popular publications (Tsagaan, 1975, 1977, 1981). Tsagaan

surveyed widely in Mongolia for otters and collected a specimen from the mouth of Shishged River (now in the exhibit of the Natural History Museum in Mongolia) and captured a young otter from the Khalkh Gol. In his earlier report, Tsagaan (1975) effectively dismissed the otter occurrence in Bulgan River south of Altai Mountains, while confirming the low numbers of otters in the Khalkh River, Shishged River and isolated small parts of Delgermurun watershed. In the same paper (Tsagaan, 1975), he reported that there was an informal record that two otters from the Erchis River to the Khukh Togoo and Sagsai River of Altai Soum of Bayan-Ulgii Province were killed by locals. Based on this, it seems that Tsagaan (1975) could not confirm otter occurrence in the Mongol Altai with hard evidence.

Tsagaan estimated a population of 50 ± 10 otters in the Shishged River in the Darkhad Basin, 20 ± 5 animals in the Khalkh Gol, and another 10 ± 5 animals in areas (~ 200 sq km) surrounding Lake Dayan of Bayan-Ulgii Province in western Mongolia, in the Mongol Altai Mountains (Tsagaan, 1981). Overall, the otter range in Mongolia was estimated to be about 2000 sq km, with a total population size, in 1981, of 80 ± 20 animals (Tsagaan, 1981).

Researchers from the Institute of Biology, Mongolian Academy of Sciences, studied and mapped the distribution of mustelids, including otters, and collected information about distribution and habits of otters, covering Khentii Mountains from 1966 to 1970, the Khalkh, Numrug and Degee Rivers in 1976 and the western side of Altai Mountains in 1979 (Stubbe et al., 1989). They documented otters in small rivers in the Yenisei Basin in the north, the Khalkh Gol Basin in eastern Mongolia, as well as headwaters of the Khovd River in the Mongolian Altai, a result of combination of field work and compilation of information on otters in Mongolia collected since 1930s (Stubbe et al., 1989).

There have been several more recent reports. Roy Dennis of the Scottish Ornithologists' Club reported sighting an otter 30 km downstream of Bulgan Soum of Bayan-Ulgii province in September, 1991. Researchers also reported on the distribution of otters in the Khalkh and Numrug Rivers in eastern Mongolia and the Shishged and Tengis Rivers in the north (Samjaa et al., 1998). In their field work, the researchers located and mapped 8 locations for otter sign along the Khalkh and Numrug Rivers in the east and 5 locations in Darkhad Basin, while collecting information on winter habits of otters (Samjaa et al., 1998). In May 2004, an otter was killed by a domestic dog on the Khuitnii Gol in Darkhan-Uul Province in northern Mongolia (Tsendjav, 2005). All these reports have been summarized by Shar and Samiya (2011), in addition to their report on their field work of 2007 focusing on some lakes and rivers in Mongol Altai region. More recently, a skin was located in 2013 near the Tes River, in western Mongolia, and a live otter was sighted in the same river in 2013 (pers. comm., Ts. Dansran), suggesting a Tes River population.

These findings, along with faunistic and conservation literature that alluded to otter status (Dulamtsuren, 1970; Sokolov and Orlov, 1980; Mallon, 1985; Shagdarsuren et al., 1987; Shiirevdamba et al., 1997, 2013; Clark et al., 2006) basically define our knowledge of Eurasian otters in Mongolia. This survey updates our knowledge of the status and distribution range of the Eurasian otter and serves as the scientific basis for government policies to protect this globally threatened species in Mongolia.

STUDY AREA

Based on the reported occurrences and published distribution records, we divided Mongolia into five geographical regions for the purpose of this otter survey.

(a) *Numrug Strictly Protected Area in Khalkh Gol Soum of Dornod Province in eastern Mongolia*: The Numrug River downstream of Three-River Delta (Gurvan Goliin Belchir), around the area called the German Bay, along the Khyasaat and Degee Rivers, along the Khalkh River, near the Border Patrol Outpost at Ers Mountain, near the Kheree Mountain, and the Bay of Yeren Baatar downstream from Khalkh Gol Soum.

(b) *Tengis and Shishged Rivers in Ulaan-Uul Soum of Hövsgöl Province in northern Mongolia*: The delta of Shishged and Tengis Rivers.

(c) *Onon and Balj Rivers in northeastern Mongolia*: The Onon, Balj and Khyarkhan Rivers in Onon-Balj National Park.

(d) *Khuitnii Gol area in Darkhan-Uul Province in northern Mongolia*: Areas along the Khuitnii Gol.

(e) *Lake Dayan Basin in Mongol Altai in western Mongolia*: This region was not surveyed in 2012, because it had recently been surveyed and reported Shar & Samiya (2011), which we simply incorporated that data in our analysis.

Altogether, we surveyed 10 rivers in 2012 where otters had been reported, in addition to published results of 2007 survey (Shar and Samiya, 2011), which included reports for five rivers and several small lakes in Lake Dayan Basin in western Mongolia.

SURVEY METHODS

Field surveys were done in November and December of 2012 by four teams of researchers, each headed by an experienced zoologist. The winter season was chosen so that it was relatively easy to document signs of presence of this secretive species. Experience was important because in northern Mongolia there is another species of mustelids, the American mink (*Neovison vison* Schreber, 1977), some signs of which (including the scat and tracks) may be difficult to distinguish from those of the otter to a non-trained person.

The field survey followed Rukovskii (1986) methodology for indirect signs, which in this case included scat, tracks, ice holes, and prey remains, to document otter presence. We walked continuously along the length of rivers on ice, with walking distances varying from half a kilometer up to five kilometers, searching for typical sign of otters, specifically focusing on areas with tall vegetation, roots and hollow trees near river stretches that may have unfrozen pools.

We recorded otter scat (fresh and old), tracks (fresh and old), ice holes, traces of snow diving, rolling or wallowing places in the snow, and apparent prey remains. All recorded signs were photographed, and mapped using GPS coordinates, which were used to develop a digital distribution map.

RESULTS

As a result of these surveys, otter presence was documented by indirect sign at fifty sites ('site' is defined as the location of an otter sign). Detailed information of these records is summarized in Table 1. Results from the current survey were used to develop a GIS-based map, at the scale of 1:500,000, of otter distribution in Mongolia (Fig. 1).

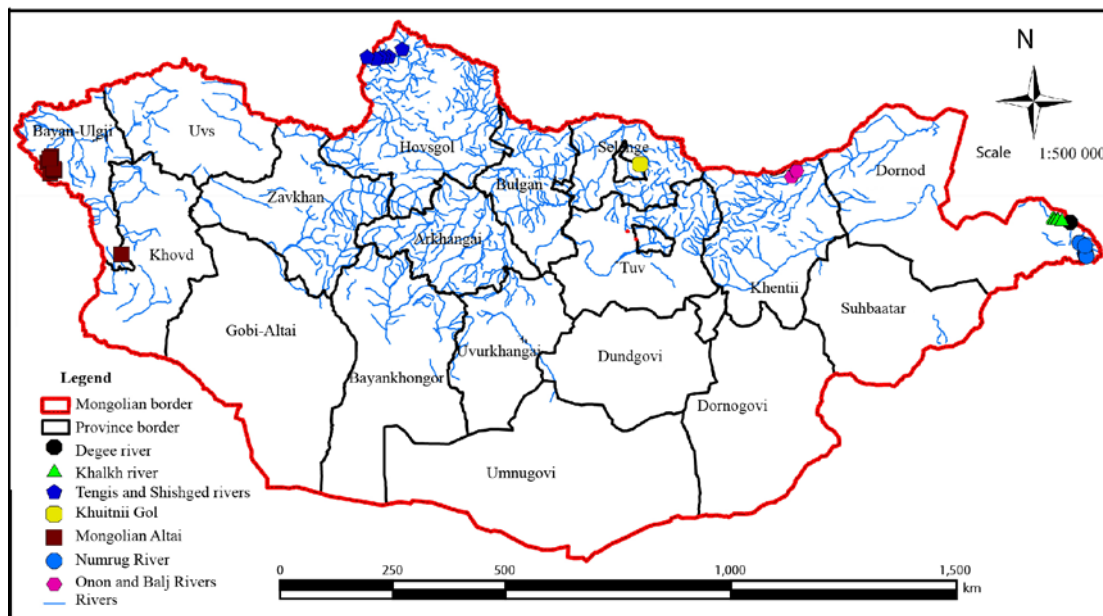


Figure 1. Locations of indirect sign observed in survey for otters in Mongolia. Each symbol represents one observation of otter sign ($n = 50$).

Eastern Mongolia

Of the rivers surveyed, Numrug River yielded the largest number of sign (Table 1) and resulted in actual sighting of one adult otter (Figure 3). We found otter sign at 13 sites, including 8 fresh tracks and 5 old tracks, 4 fresh scat, 2 fresh traces of wallowing in snow, 3 ice holes used by otters for feeding, 2 fresh and one old traces of snow diving, and 1 fresh pile of prey remains. Fresh otter sign was present downstream from the Three-River Delta (Gurvan Goliin Belchir Rivers), and near and downstream from the Numrug Border Patrol Outpost. A local citizen observed an otter near an area called Sumberiin zuun tokhoi, upstream from Khalkh Gol Soum (M. Sharkhuu, pers. comm. November, 2012), near where the survey identified fresh otter scat.

In addition, one fresh set of tracks and one fresh scat, together with what appears to be an ice hole and wallow were found on the Degee River, a tributary to Khalkh River. The survey in the Khalkh River in eastern Mongolia resulted in 16 sites of otter sign, including 3 fresh tracks, 11 old tracks, and 2 fresh scat. Additionally, two holes in the ice were found with otter tracks between them (Fig 2). There is also an anecdotal report that an otter was killed by a dog in 2009 at the Bay of Yeren Baatar, 10 km downstream from Khalkh Gol Soum.

Northern Mongolia

At the delta of Shishged and Tenges Rivers in northern Mongolia, our team found 4 fresh otter tracks, and 2 old tracks, together with a fresh scat, an ice hole, and a wallow (Table 1). This is an area that had been reported by locals to be inhabited by the otters, although sign was relatively scarce. At Khuitnii Gol in north central Mongolia, where there was the latest record (Tsendjav 2005), our team did not find any sign, although we found a fresh carcass of an otter along the river. In northeastern Mongolia at the Onon-Balj River Basin, our team found 2 fresh tracks and 2 fresh scat, along with one fresh ice hole and one wallow mark.

Western Mongolia

Our previous work (Shar and Samiya, 2011) documented two dead animals and sightings at 4 locations in Lake Dayan Basin in western Mongolia.

Table 1. Otter sign detected during the survey, fresh and old: tracks, scat, ice holes, trace of snow diving, snow wallow, and prey remains ($n = 50$); live and dead otters.

Tracks		Scat		Ice Holes		Snow Diving		Snow Wallows		Prey remains	
Fresh	Old	Fresh	Old	Fresh	Old	Fresh	Old	Fresh	Old	Fresh	Old
EASTERN MONGOLIA											
Numrug River: 13 sites: one live otter											
8	5	4	-	3	-	2	1	2	-	1	-
Degee River: 1 site											
1	-	1	-	1	-	-	-	1	-	-	-
Khalkh River: 16 sites											
3	11	2	-	2	-	-	-	-	-	-	-
NORTHERN MONGOLIA											
Tengis and Shishged River: 6 sites											
4	2	1	-	1	-	-	-	1	-	-	-
Khuitnii Gol: 1 site; skin remains from one otter											
Onon and Balj Rivers: 5 sites											
2	-	2	-	1	-	-	-	2	-	-	-
WESTERN MONGOLIA											
Lake Dayan Basin: 8 sites; two otter carcasses											
-	1	-	1	-	-	-	-	-	-	-	1



Figure 2. Otter tracks between two ice holes, Numrug River, November 29, 2012.

DISCUSSION

Otter sign was found at 50 sites in Mongolia in this survey: 16 sites on the Khalkh River, 13 sites on the Numrug River and one site in the delta of the Degee River and the Khalkh River in Eastern Mongolia; 5 sites on the Onon and Balj Rivers, 6 sites on Shishged and Tengis Rivers, one site on the Khuitnii Gol in Northern

Mongolia; and 8 sites in the Lake Dayan Basin in the Mongol Altai Mountain in Western Mongolia. Our survey suggests that eastern Mongolian rivers, namely the Numrug and Khalkh Rivers, have the most abundant otter population, although within the region, the Khalkh River appears to have a smaller otter population than the Numrug River area, which in fact yielded the only actual sighting of an otter during the survey (Figure 3). The Khalkh River could potentially support more otters but for a well-developed road network and higher levels of disturbance from domestic animals.

In northern Mongolia, informal interviews with local residents of the Shishged and Tengis River Basins suggest that otters currently inhabit a 40-km stretch of the Shishged River, downstream from Khadan Khyasaa to the border, as well as the main tributaries of the Shishged River, such as Byaran, Jamsai, Bus and Tengis Rivers. The distributional range of otters seems not to have changed significantly since the 1995-1996 winter survey (Samjaa et al., 1998). The exception seems to be that otter distribution below the delta of Tengis and Shishged Rivers has shrunk towards the border with the Russian Federation.

In western Mongolia, otters have probably inhabited Lake Dayan and its basin in Mongol Altai Mountains at least since 1970. The Local History Museum in Bayan-Ulgii Province has a taxidermy specimen of an otter collected in 1975 by Erikbay Ansabai of Sagsai Soum of Bayan-Ulgii Province. In recent years, however, habitat and prey resources of otters have been shrinking in this area due to increased human and domestic animal populations. Based on the finding of two dead otters from the River Arkhalag and west side of Lake Dayan, two otter sightings in the Songinot River, and other anecdotal information, we conclude that there are still otter populations in the Lake Dayan Basin. The Yamaat and Songinot Rivers merge and flow across the border between the People's Republic of China and Mongolia, and otters may cross into Mongolia from China along these rivers, but thus far, traces of otters are rare on the Mongolian portions of these rivers. Research on *L. lutra* in the rivers of the enormous areas of southern Siberia, or northern and eastern China which border on Mongolia, however, has been insufficient to characterize the status of the species in those regions (Conroy et al., 1998). Of the rivers surveyed in Mongolia, the most suitable habitat appears to be found along the Songinot, Yamaat and Tumbaa Rivers. The remains of dead otters from Arkhalag River and Chuluut Nuur on the west side of Lake Dayan suggests that these water bodies are inhabited by otters. These otters may seasonally follow the fish spawning run upstream in the spring, and downstream in the fall.

Except for some lakes in the western part of the country, our survey suggests that otters are mostly found in Mongolia in rivers that cross international political boundaries. This could represent a potential threat to otter populations if they are not managed across boundaries in coordination with the responsible agencies.



Figure 3. Otter observed at the Numrug River in Eastern Mongolia, November 28, 2012

MANAGEMENT RECOMMENDATIONS

1. Approaches must be developed to stop the poaching of otters in Mongolia. Local communities should be involved through agreements that recompense local families for information about poachers, while at the same time protecting informant identity. Economic incentives are badly needed to bring otter poachers to justice.
2. In the cases of dead otters that we examined, the cause of death was always a dog attack. We recommend that local rangers and environmental officers prohibit families with dogs to reside in areas of otter distribution during the times of high vulnerability, including the mating and pupping seasons.
3. We recommend creating programs that increase the involvement of local communities in protecting otter habitats, that raise public awareness about legal consequences of poaching endangered otters, and that provide educational workshops and materials.
4. We recommend that local government agencies develop agreements with anglers and fishing tour companies that specifically prohibit illegal activities, such as disturbing or poaching otters.
5. Otters are more visible and vulnerable when rivers are frozen. Winter ice-fishing should be prohibited on rivers with otter populations, especially where there is little open water available.
6. A wildlife ecology monitoring station should be established in an area of otter habitation, for example, the Numrug River stretch in the Numrug Strictly Protected Area. Such a monitoring station could rely for protection on existing infrastructure of the Numrug Border Patrol Outpost. Based on the results from consistent monitoring, strategic plans for otter conservation could be developed.
7. The establishment of the Ulaan Taiga Protected Area in Hövsgöl Province may present a favorable opportunity for long-term monitoring studies of fresh water bodies of Darkhad Basin and the high mountain ecosystems of Baruun Taiga (Western Taiga) and Zuun Taiga (Eastern Taiga). In particular, if the Ulaan Taiga Protected Area Administration, with support from the Ministry of Environment and Green Development, initiates studies of biological diversity in the border areas of Shishged River, Ulaan Taiga and the Bus River Basin in

collaboration with its partners in the Russian Federation, Mongolian research organizations are prepared to support such cooperation.

8. The biodiversity of Darkhad Basin is relatively less-studied compared to other areas in Mongolia, even while it has high conservation value in its unique ecosystems. The headwaters of Delgermurun, which becomes the Selenge River, and the headwaters of Shishged River, a major tributary of Little Yenisei River, are in this basin. It was disheartening to learn from reindeer people that they believe the climate here is drying, and drinking water resources becoming less available. Such claims by local people appear to be well-grounded, judging from our own informal observation in the area. The main reasons of the drying trend are claimed to be decreased snowfall during winter and colder summers with decreased rainfall. The Nature Reserve of Tengis-Shishged Rivers and the Ulaan Taiga Strictly Protected Area were established as a result of a project implemented in the Altai-Sayan Ecoregion. Now it is important to strengthen the capacity of Ulaan Taiga Protected Area Administration and to support the activities of this protected area by conducting detailed studies on biological diversity of the region and establishing a network of monitoring studies.

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RÉSUMÉ

SUIVI NATIONAL DE LA LOUTRE EURASIENNE (*Lutra lutra* L., 1758) EN MONGOLIE

Un suivi des loutres a été réalisé à travers la Mongolie en 2012 afin d'évaluer le statut et la distribution de la loutre eurasienne (*Lutra lutra* Linnaeus, 1758) et de proposer une base scientifique à des règles de gouvernance destinées à protéger l'espèce. Nous avons rapporté les résultats du premier suivi de loutre qui date des années 1980 (Stubbe et al., 1989) ainsi que des nouvelles données postérieures à 2012. L'espèce est très peu signalée dans le pays, et dans le cadre de son observation actuelle, l'équipe du suivi a observé un nombre limité d'indices de présence comprenant des traces de pas, des épreintes, des orifices de plongée dans la glace, des traces de plongée et de ressui dans la neige, des marques territoriales et des restes de proie sur des sites largement dispersés. Nous recommandons un ensemble de stratégies pour étendre la protection de la loutre eurasienne en Mongolie.

RESUMEN

RELEVAMIENTO NACIONAL DE LA NUTRIA EURASIÁTICA (*Lutra lutra* L., 1758) EN MONGOLIA

Condujimos un relevamiento de nutrias en todo Mongolia, en 2012, para documentar el status y distribución de la nutria eurasiática (*Lutra lutra* Linnaeus, 1758), y para proponer bases científicas para políticas gubernamentales de protección de la especie. Informamos los resultados del primer relevamiento de nutrias que se hace desde fines de 1980s (Stubbe et al., 1989), con nuevos registros que han aparecido después de 2012. La especie es muy raramente informada en el país, pero en adición a un avistaje concreto de la especie, el equipo de relevamiento observó un número limitado de signos, incluyendo huellas, fecas, agujeros de buceo en el hielo, marcas de buceo en la nieve, revolcaderos en la nieve, marcas territoriales, y restos de presas, en sitios ampliamente distribuidos. Recomendamos un conjunto de estrategias para expandir la conservación de la nutria eurasiática en Mongolia.