



## **Breeding Ecology and Conservation Needs of the Vulnerable Relict Gull in Western Mongolia**

Progress Report to The Rufford Foundation



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## Study Site

Uvs Lake is located at an elevation of 759 meters above sea level and is situated in the northern part of the Great Lakes Depression. Covering over 3,500 km<sup>2</sup>, it is Mongolia's largest saltwater lake and ranks 42nd worldwide by surface area. The surrounding landscape features desert environments, with large dune systems larger than 4,000 square kilometers that extend along the eastern and southeastern shores of the lake. Other areas of the lake are composed of rocky plains, gravelly channels, and wide fluvial terraces. (Orkhonselenge et al., 2022; Tsegmid, 1966).

The Uvs Lake Basin was designated as part of the UNESCO Man and the Biosphere (MAB) Programme's World Network of Biosphere Reserves in 1997. It was later inscribed as a UNESCO World Heritage Site in 2003, designated as a Ramsar Wetland of International Importance in 2004, and recognized as an Important Bird Area (IBA) in 2009, highlighting its exceptional ecological value and global significance for biodiversity conservation.

Mongolia supports more than 520 bird species, of which 367 species have been recorded in the Uvs Lake basin, underscoring the lake's exceptional importance for national avian biodiversity. (Gombobaatar S et al., 2020). As one of Mongolia's most significant wetland ecosystems, Uvs Lake provides critical breeding habitat for a wide range of bird species of national and global importance.

Notable breeding species documented in the area include Swan Goose, Great Bustard, Common Pochard, Relict Gull, White-headed Duck, Horned Grebe, Macqueen's Bustard, and White-throated Bushchat. The coexistence of wetland-dependent waterbirds and steppe-associated species highlights the ecological diversity and high conservation value of the Uvs Lake basin, emphasizing its importance for long-term bird conservation in Mongolia. (S.Gombobaatar, 2020).

In 2014, a Russian ornithologist documented a Relict Gull (*Ichthyaetus relictus*) breeding colony with 10 nests at Uvs Lake. This record was the only confirmed breeding observation of the species at Uvs Lake to date. No subsequent targeted surveys or published studies have been conducted at the site since then, resulting in a significant knowledge gap regarding the current breeding status, population size, and long-term persistence of Relict Gulls in the Uvs Lake basin.

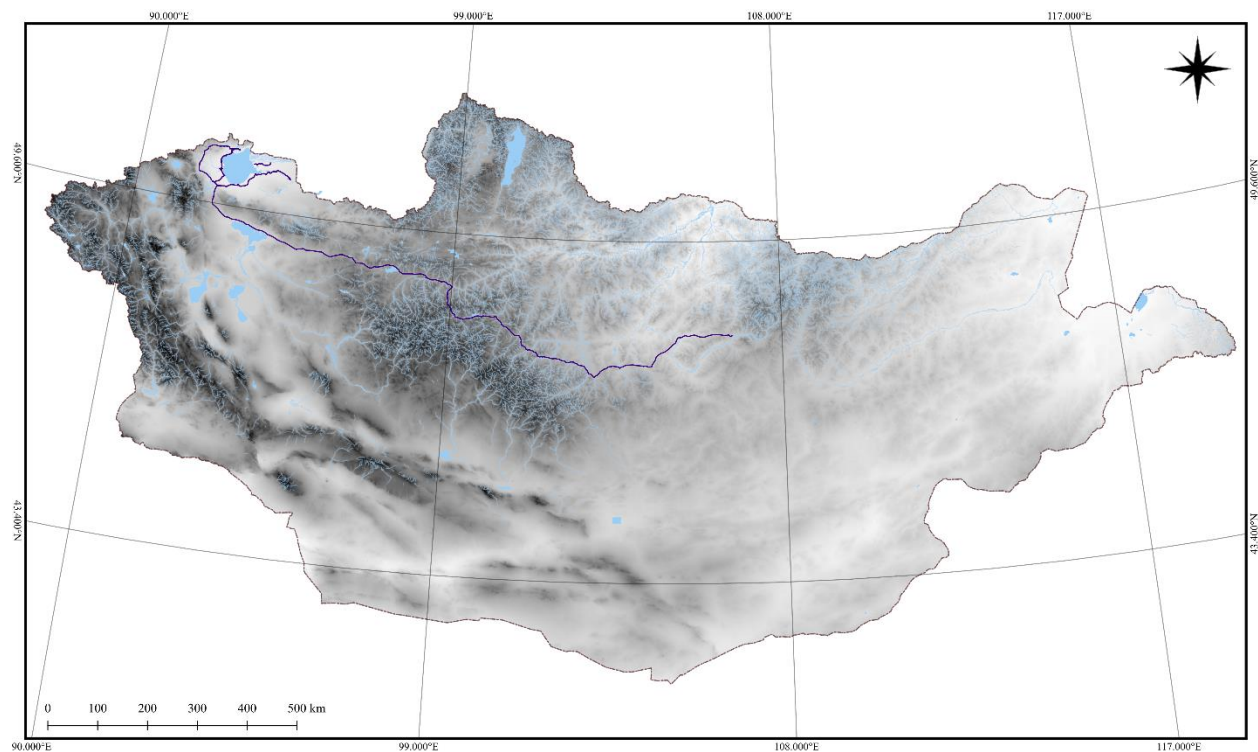
To supplement the limited field data, we examined eBird records. These data show sporadic sightings of Relict Gulls at Uvs Lake, including 10 individuals recorded on May 17, 2024, indicating a seasonal presence during the breeding period. Additionally, four individuals (two adults and two juveniles) were documented on July 15, 2018, providing evidence of local recruitment or post-breeding activity in the area.

Together, historical records and recent observational data indicate that Uvs Lake still hosts Relict Gulls, but the lack of systematic monitoring since 2014 has limited understanding of their breeding consistency, reproductive success, and threats. These information gaps emphasize the urgent need for renewed field surveys and long-term monitoring to determine the conservation status of Relict Gulls at Uvs Lake.

## Field surveys

Field surveys at Uvs Lake began in April to assess the breeding status and habitat conditions of the Relict Gull. Over 14 days, the research team traveled more than 3,400 km to systematically evaluate breeding habitats and key wetlands throughout the Uvs Lake region (Figure 1). Comprehensive surveys covered all potential breeding islands and suitable shoreline areas, with a focus on habitat suitability, water levels, and disturbance factors.

The fieldwork was conducted in close collaboration with the Mongolian Bird Conservation Center and the Uvs Lake Basin National Strictly Protected Area Administration, ensuring coordination with local conservation authorities and alignment with ongoing site management and protection efforts.



**Figure 1.** Field survey track

## Education and Awareness Activities

Special interactive lessons for schoolchildren were organized in the Uvs Lake area to introduce them to local birds and wetland habitats in a simple, engaging way. A total of 43 schoolchildren and teachers participated in these activities (Figure 2).

During the lessons, children learned to recognize birds, understand why birds are important, and identify the Relict Gull as a unique and rare bird of Mongolia. Basic topics such as bird shapes, colors, behavior, and habitats were explained through pictures, stories, and outdoor observations.



**Figure 2.** Education and Awareness Activities

For Uvs Lake Basin National Strictly Protected Area's rangers, the training sessions included practical guidance on bird identification, with a focus on distinguishing Relict Gulls from similar gull species and recognizing key field marks and behaviors. Rangers were also trained in basic bird-monitoring techniques, including recording species presence and abundance (Figure 3).



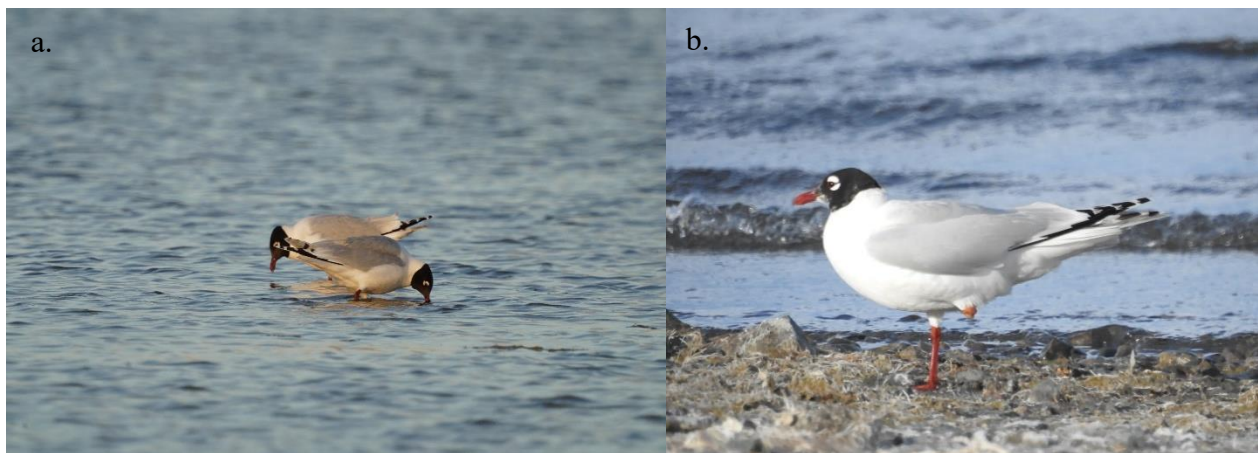
**Figure 3.** Uvs lake field survey team

As part of these sessions, joint bird recording activities were conducted at Uvs Lake, during which rangers and project staff collectively observed and documented bird species occurring in the area. This hands-on approach strengthened rangers' field skills and enhanced local capacity for ongoing bird monitoring and conservation in the Uvs Lake basin.

## Result

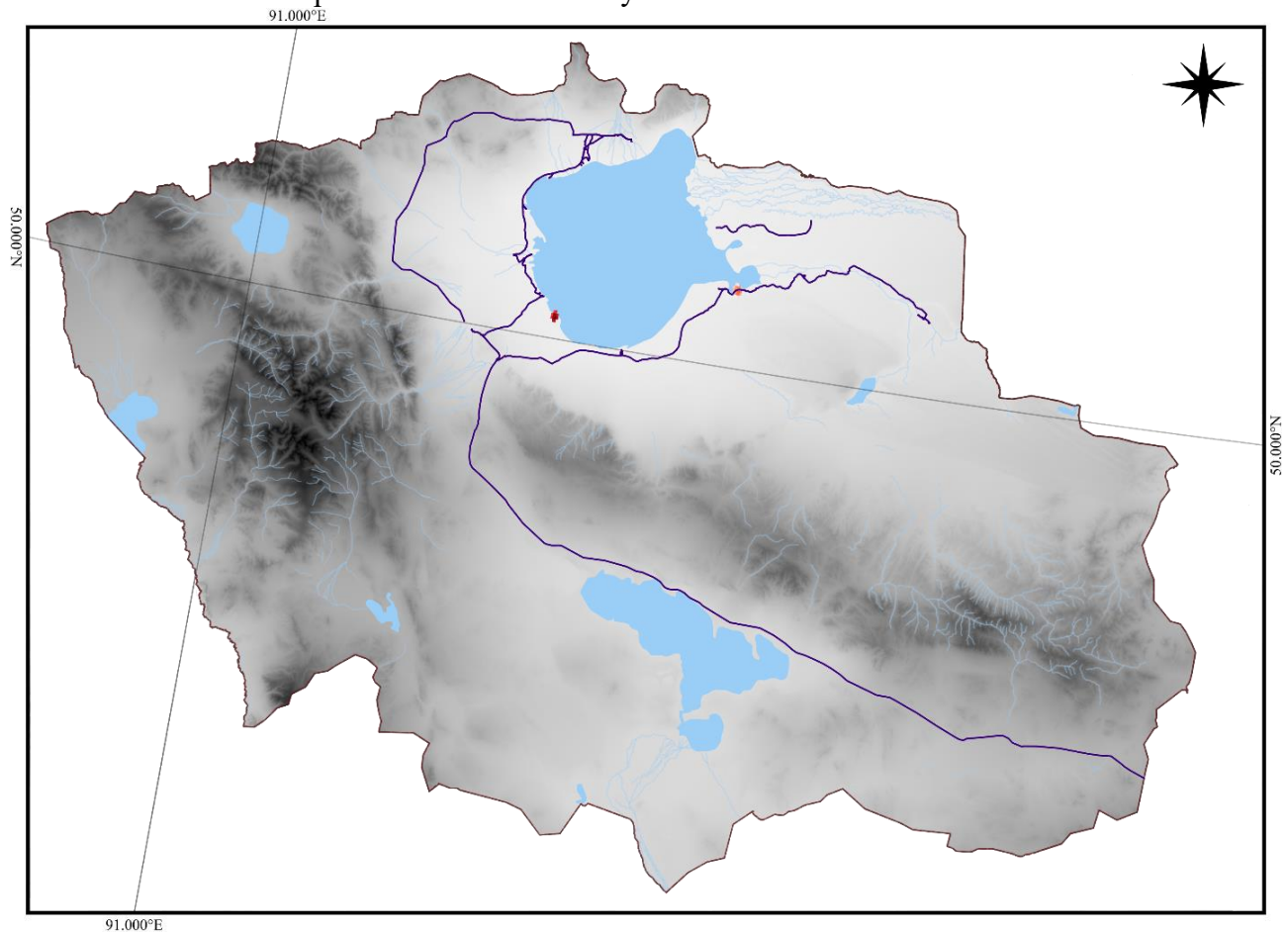
During the initial survey at Uvs Lake, a total of 19 Relict Gulls were recorded. Almost all individuals were identified as adults and observed in pairs (Figure 4a), indicating territorial behavior and early breeding preparation. Most pairs were concentrated near suitable island habitats and relatively undisturbed shoreline sections where nesting has historically occurred. At the time of the survey, several co-occurring colonial waterbird species—including the Mongolian Gull (*Larus mongolicus*), Great Cormorant (*Phalacrocorax carbo*), and Black-Headed Gull (*Chroicocephalus ridibundus*) had already begun laying eggs on most surveyed islands. The presence of active nests and eggs in these species confirms that environmental conditions were suitable for breeding and that the reproductive season was already underway for colonial waterbirds in the area. Despite systematic surveys of most potential breeding islands and previously documented colony locations, no active nests, eggs, or established Relict Gull colonies were found during this early visit. This contrast suggests species-specific differences in breeding timing, with Relict Gulls likely starting nesting later in the season. The survey, therefore, appears to have coincided with the pre-laying or early courtship period for the species.

Additionally, birdwatcher Adiya Ochirbat documented one Relict Gull with a missing left leg at Uvs Lake. The bird was able to fly despite the injury (Figure 4b). Furthermore, a review of publicly available eBird data showed a similar record of a Relict Gull with an injured leg from Guanting Reserve, China, on 8/9/2020 (eBird Basic Dataset). Although the cause of the limb loss remains uncertain, possible explanations include entanglement, predation attempts, frostbite, or other human-related factors. Although such cases seem rare, documenting abnormal individuals may help identify potential threats affecting the species across its breeding and migratory range.



**Figure 4.** a. Relict gull pair, b. one legless individual

All observed individuals were georeferenced, and the spatial locations of each Relict Gull record are presented in (Figure 5). Mapping these observations provides important insights into early-season habitat use and potential areas for colony establishment.



**Figure 5.** Field survey track and Relict Gull record locations

During the initial survey, no nests were detected, the consistent presence of paired adults in suitable habitats strongly indicates that Uvs Lake remains an important breeding site for the Relict Gull. These findings emphasize the importance of repeated seasonal monitoring to accurately determine the timing of colony establishment, reproductive success, and long-term population trends at this internationally significant wetland.

Follow-up observations conducted on 13 May by ranger Dambadorj Tumurkhuyag confirmed the establishment of a small but active breeding colony consisting of 10 nests (Figure 6). The colony was located on a small island approximately 50 m from the lake shoreline, in close proximity to an active camping site, indicating potential exposure to human disturbance.



**Figure 6.** Relict gull colony

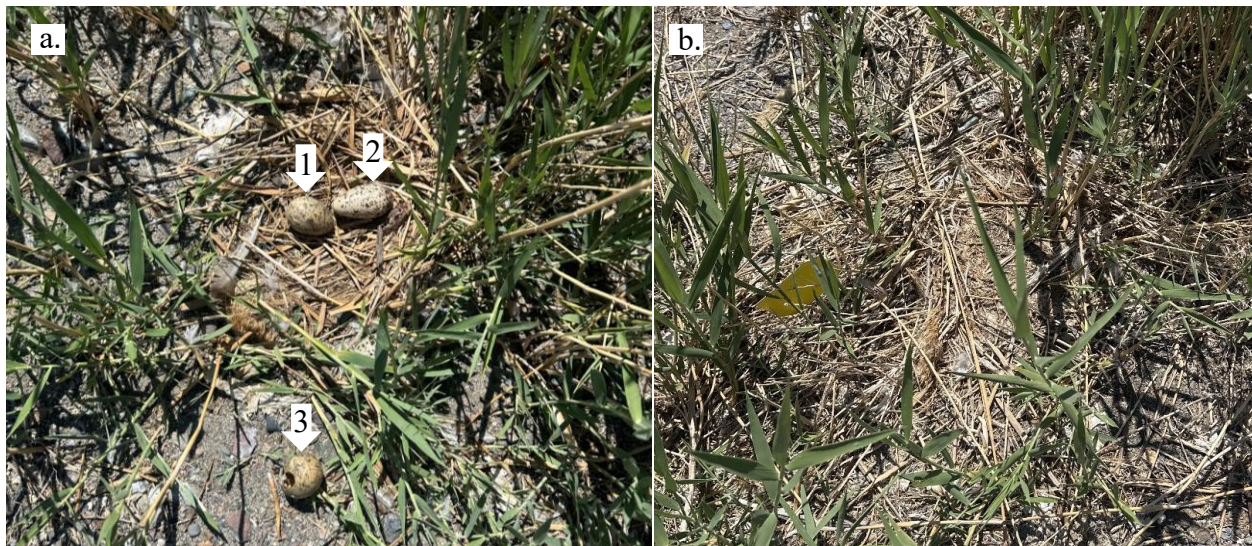
The nest inspection recorded 7 eggs and 11 chicks, confirming that incubation and hatching had already begun at the time of observation. These findings provide definitive evidence of breeding at Uvs Lake during the 2026 season and confirm that colony establishment took place shortly after the early-season observations of paired adults. A detailed nest survey was then conducted to measure clutch size, hatching status, nest spacing, and habitat characteristics of the breeding colony.

The subsequent survey was conducted during the same period as the Naadam Festival, Mongolia's longest national holiday. In addition, 2026 marked the 100th anniversary of Uvs Province, which resulted in a substantial increase in visitor numbers. During this period, more than 2,000 tourists visited Uvs Lake per day. The Relict Gull breeding colony was located in close proximity to a main camping site, exposing the nesting area to intensified human disturbance (Figure 7).

**Figure 7.** Lakeshore camping site near the Relict Gull breeding colony, Uvs Lake

At the time of the third survey, no Relict Gull chicks were detected at the previously confirmed breeding colony. However, 15 adult Relict Gulls were observed near the former colony location along the lakeshore. Field inspection of the nesting area revealed four abandoned nests, with no signs of active breeding activity.

One nest contained three eggs, while another nest contained a broken egg with visible yolk remaining inside the shell, indicating that the egg had failed prior to hatching Figure 8a. The remaining nests contained no eggs or chicks and showed no evidence of ongoing incubation Figure 8b. Based on these observations, all nests at the colony had failed by the time of the third survey.



**Figure 8.** Examples of failed nesting sites of Relict Gull at Uvs Lake: (a) abandoned nest with three eggs; (b) non-active nest.

These observations indicate that the colony had failed or been abandoned prior to the third survey. The timing of the visit, coinciding with peak tourism activity, suggests that increased human have influenced breeding success, as Mongolian Gulls and terns were actively breeding on nearby

islands, and these species are known to prey on eggs and small chicks of other colonial waterbirds. However, other factors such as environmental conditions cannot be completely excluded.

## **Conclusion**

This study demonstrates that Uvs Lake continues to serve as a significant breeding site for the Vulnerable Relict Gull in western Mongolia. Early-season surveys documented paired adults occupying suitable breeding habitats, and subsequent observations confirmed an active colony comprising 10 nests containing both eggs and chicks. These findings provide clear evidence of successful breeding initiation during the 2026 season. The results indicate that Relict Gulls continue to use Uvs Lake for reproduction, despite limited monitoring since the last confirmed breeding record in 2014.

Despite initial breeding activity, the attempt was ultimately unsuccessful. The final survey revealed no remaining chicks, with only abandoned nests, unhatched eggs, and failed nesting sites observed, indicating complete colony failure by the end of the breeding period. The colony's proximity to an active lakeshore camping site, combined with exceptionally high tourism pressure during the Naadam Festival and the 100th anniversary of Uvs Province, likely contributed to breeding failure. While human disturbance appears to be a significant factor, predation and other environmental variables may also have influenced the outcome.

Overall, the results highlight a summary, these results underscore both the conservation significance and the vulnerability of the Relict Gull breeding habitat at Uvs Lake. Although the site continues to support breeding activity, nesting success appears highly sensitive to disturbance during critical incubation and chick-rearing periods. Ongoing seasonal monitoring, enhanced protection of breeding islands, and improved management of tourism and human access near colony sites are essential for improving breeding outcomes and ensuring the long-term conservation of the species at Uvs Lake.



24	Great Crested Grebe	Podiceps cristatus	LC	LC	+			+						+
25	Mandarin Duck	Aix galericulata	NA	LC										
26	White-winged Scoter	Melanitta deglandi	LC	LC										
27	Eurasian Spoonbill	Platalea leucorodia	LC	LC	245			+		+				+
28	Grey Heron	Ardea cinerea	LC	LC	+			+					+	+
29	Great Egret	Ardea alba	LC	LC										
30	Great Cormorant	Phalacrocorax carbo	LC	LC	+	+	+	+		+	+	+	+	+
31	Bearded Vulture	Gypaetus barbatus	VU	NT	+									
32	Cinereous Vulture	Aegypius monachus	LC	NT		+					+	+	+	
33	Greater Spotted Eagle	Clanga clanga	EN	VU				+						
34	Booted Eagle	Hieraaetus pennatus	LC	LC	1			+			+		+	
35	Steppe Eagle	Aquila nipalensis	LC	EN							+	+		
36	Golden Eagle	Aquila chrysaetos	LC	LC										
37	Eurasian Sparrowhawk	Accipiter nisus	LC	LC	+	+								
38	Western Marsh Harrier	Circus aeruginosus	LC	LC				+						+
39	Hen Harrier	Circus cyaneus	LC	LC				+						
40	Black Kite	Milvus migrans	LC	LC	+	+	+	+	+	+	+	+	+	
41	Pallas's Fish Eagle	Haliaeetus leucoryphus	EN	EN										
42	Upland Buzzard	Buteo hemilasius	LC	LC	+	+	+	+	+					
43	Eastern Buzzard	Buteo japonicus	LC	LC										
44	Long-legged Buzzard	Buteo rufinus	LC	LC	+			+						
45	Lesser Kestrel	Falco naumanni	LC	LC	2	+	+	+		+	+	+	+	+
46	Common Kestrel	Falco tinnunculus	LC	LC	+									
47	Merlin	Falco columbarius	LC	LC				+						
48	Saker Falcon	Falco cherrug	VU	EN	+			+						
49	Great Bustard	Otis tarda	VU	VU	+	+	+	+	+	+	+	+	+	
50	Macqueen's Bustard	Chlamydotis macqueenii	VU	VU	+		+	+	+	+	+			









