

Re-establishment of an extinct breeding colony of Brünnich's Guillemot *Uria lomvia* in West Greenland

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The breeding population of Brünnich's Guillemot *Uria lomvia* in South and West Greenland has been decreasing for decades and some colonies have even disappeared (Merkel *et al.* 2014). Among these was one of the largest colonies, Salleg in Uummanaq Fjord (70°96'N 52°25'W; Figure 1), which was estimated at half a million birds in c. 1920 (Bertelsen 1921) and 150,000 birds in 1949 (Salomonsen 1950). These figures are most likely overestimations (Falk & Kampp 1997), but there is no doubt that the colony was among the largest in West Greenland. The colony then drastically decreased in size until 1975, when only 4,500 birds were counted (Falk & Kampp 1997). In 1984, there were only 150 individuals present and all were observed on the water below the cliff. In 1987, 50 birds were observed on the cliff without evidence of breeding, and the site was completely deserted by 1990 (Evans & Kampp 1991).

The same fate was recorded for Black-legged Kittiwakes *Rissa tridactyla* (hereafter 'Kittiwakes') and Razorbills *Alca torda*. The former declined from around 10,000 pairs in 1949, to 800 nests in 1975 and to zero in 1994 (F. Salomonsen unpublished; Boertmann *et al.* 1996). Razorbills declined from a few pairs in 1949 and 1975 to zero in 1994 (Boertmann *et al.* 1996). However, no population changes have been recorded for the Northern Fulmars *Fulmarus glacialis* which breed in huge numbers on the cliff.

The decline and extinction of the Salleg Brünnich's Guillemot colony in the decades after the Second World War was primarily caused by excessive hunting during spring. Fleischer (1994), the former editor of a Greenlandic newspaper, described how in the 1930s it was common in spring, when sea ice still covered the waters, to camp below the Salleg cliff and hunt hundreds of Brünnich's Guillemots in a day. This occurred every spring, and people would travel from afar to participate in this hunt. This high hunting pressure was reflected in a higher recovery rate of ringed birds from Salleg in comparison to colonies in other parts of West Greenland (Kampp 1991). Naturally, the colony could not sustain such hunting pressure across multiple decades, and eventually disappeared. Another factor impacting

the Brünnich's Guillemot populations in West Greenland was bycatch by an extensive offshore drift net fishery for Atlantic Salmon *Salmo salar*, which peaked around 1970 and stopped in 1976 (Falk & Durinck 1991).

It was therefore encouraging when in the summer of 2022 a local skipper, Paaluk Kreutzmann, reported sightings of Brünnich's Guillemots on the water below the seabird cliff at Salleq. This observation was confirmed on 10 August 2022 (Figure 1), during regional environmental baseline studies performed by boat in the area (D. Boertmann & P. Kreutzmann pers. obs.).



Figure 1. The Salleq colony seen from the north on 10 August 2022. The arrow indicates the location of the nesting Brünnich's Guillemots *Uria lomvia*. The pale cliff faces – still coloured by the guano – show where the Brünnich's Guillemots nested in the hey day of the colony in the 1930s and 1940s. The green ledges (almost to the top of the cliff) are where Northern Fulmars *Fulmarus glacialis* nest and Black-legged Kittiwakes *Rissa tridactyla* are widespread between the black vertical crevice and the cleft/outcrop further to the right. © David Boertmann.

Adult Brünnich's Guillemots (c. 30) and at least two large chicks were observed on five ledges in a discrete area of the Salleq cliff, surrounded by at least 1,000 Kittiwake nests (Figure 2). Around 15 Razorbills were also seen flying around the boat. Not only had Brünnich's Guillemots re-established a breeding site on this cliff after 40 years, but Kittiwakes and Razorbills had also returned.



Figure 2. The part of the cliff with breeding Brünnich's Guillemots *Uria lomvia* on 10 August 2022. 30 adults and two chicks (red circles) are visible among the many Black-legged Kittiwakes *Rissa tridactyla*. © Paaluk Kreutzmann.

It is unclear where these Brünnich's Guillemots came from. The nearest Brünnich's Guillemot colonies in West Greenland are Innaq in Disko Bay (270 km south of Salleq, at sea distance), and Kingittoq near Upernavik (275 km north of Salleq, at sea distance). Both colonies are declining (Merkel *et al.* 2014, 2016), and it is questionable whether they are producing enough offspring to be capable of establishing a new breeding site, despite the breeding success at Innaq being high (Merkel *et al.* 2016).

The nearest thriving colonies in Greenland are 150 km further north in the Upernavik district. The status of the nearest colonies on the Canadian side of Baffin Bay (> 600 km West of Salleq) is less clear. However, Gaston *et al.* (2017) reported that the colonies on Bylot Island were stable, and there is evidence that Brünnich's Guillemots hatched in Canada, even as far away as Coats Island, can settle in Northwest Greenland (Kampp & Falk 1998). Frederiksen *et al.* (2014) observed three Brünnich's Guillemots ringed as chicks on Coats Island (Canada) in West Greenland, although all were non-breeders. Therefore, a Canadian origin for the Brünnich's Guillemots recolonising Salleq cannot be excluded.

The re-appearance of Kittiwakes and Razorbills can be explained by recent increasing population trends observed in West Greenland (F. Merkel unpublished). Indeed, breeding Kittiwakes were observed at Salleq in 2010 (180 birds) when no Brünnich's Guillemots were present, which suggests that heterospecific attraction may have played a role in the re-establishment of the Brünnich's Guillemot population (Parejo *et al.* 2005).

Several extinct alcid colonies have been re-established, aided by human ingenuity, such as the Common Guillemot *Uria aalge* colony Devil's Slide Rock in California (McChesney *et al.* 2022) and the Atlantic Puffin *Fratercula arctica* colony Eastern Egg Rock in Muscongus Bay, Maine (Kress & Nettleship 1988; Jones & Kress 2012). To the best of my knowledge there is only one previous example of natural re-establishment of an abandoned guillemot colony: Prince Island in the Channel Islands National Park in California where Common Guillemots became re-established in 2011 (Menard 2011).

The future of the re-established Brünnich's Guillemot colony at Salleq is dependent on its protection and the management of external activities near the site. The legal framework is in place, in terms of the regulation of hunting and marine traffic at the site. However, such rules are often neglected, and reinforcement is generally lacking in Greenland. Thus, it is important to inform local communities of the re-established colony, via designated contact points, newspaper articles and social media, to encourage a conservation plan that the local community can also be part of.

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