



Plate 277. Foula's north coast showing the North Bank, 220 m, rising to the Kame, far right, 376 m. August 2014. © S. Gear

# A photographic resurvey of seabird colonies on Foula, Shetland

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In 1974, the Nature Conservancy Council commissioned the Institute of Terrestrial Ecology (ITE) to design a monitoring scheme suitable for detecting changes in seabird colonies in Shetland. As part of this work MPH and others made extensive counts at different seabird colonies in June and July 1974, while MPH also took hundreds of black-and-white images using a Mamiya Press Camera fitted with a 150 mm lens, with the intention of establishing a reference baseline (Harris 1976). The island of Foula was visited on 1–3 July and MPH and Laughton Johnston counted the seabirds and took an extensive set of photographs mainly along the west and north coasts, from land and during a circumnavigation on 3 July.

The 2½ inch square negatives and 9 x 12 cm prints from 1974 were subsequently stored in Shetland by MH, who in May 2014 sent the Foula prints to SG to see if the photographs could be replicated, 40 years later. This was achieved on 21 June (from the sea) and 1 July 2014 (from land) using a Nikon Coolpix P600. Here we discuss some of the changes that are evident for those species visible in the photographs (Gannet *Morus bassanus*, Shag *Phalacrocorax aristotelis*, Kittiwake *Rissa tridactyla*, Guillemot *Uria aalge* and Razorbill *Alca torda*) in the context of the four censuses of Foula's cliff-nesting seabirds that have been made since 1974 (Table 1): in 1976 and 1987 (Furness 1981, 1987), and by Scottish Natural Heritage in 2000 and 2007 (Harvey *et al.* 2000, SNH unpubl.)

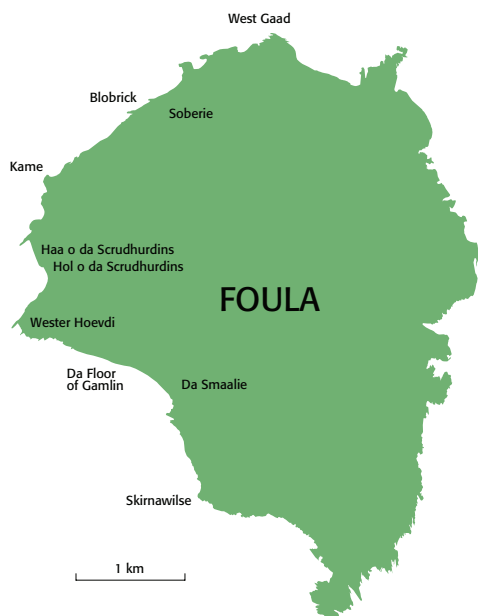


Figure 1. Map of Foula, Shetland, showing locations mentioned in the text and captions.



**Plate 278.** Guillemots at Skirnawise, Foula, Shetland, showing occupation of both the open ledge and boulders, July 2012. © S. Gear

Gannets were first recorded settling on the cliffs of Foula in 1970, nest building began in 1975, breeding was confirmed in 1980 on a large rock shelf at the foot of the Kame, and Furness (1981a) commented that there was room for expansion to several hundred pairs in this area, but at the expense of nesting Fulmars *Fulmarus glacialis* and Guillemots. Breeding numbers increased to 1,370 apparently occupied nests (AON) by 2007, and while it is clear that many of the ledges Gannets now nest on were occupied by Guillemots in 1974, many other former Guillemot ledges nearby were bare in 2014 (Plate 279). So, while Gannets may have evicted Guillemots from certain ledges, their role in any decline of the latter has probably been minimal.

**Table 1.** Census counts of five species of cliff-nesting seabirds on Foula, 1974–2007. AON = apparently occupied nest. **1974:** 1–3 July, two persons, single count from cliff-tops, one circumnavigation (Harris 1976). **1976:** 15 June to 5 July, mainly one person, all accessible boulder beaches visited, three circumnavigations (Furness 1981b). **1987:** 26 May to 3 July, seven persons, all accessible boulder beaches visited, one circumnavigation (Furness 1987). **2000:** mainly 3–10 June, eight persons, all accessible boulder beaches visited, one circumnavigation (Harvey *et al.* 2000). **2007:** 1–7 June, eight persons, some accessible boulders beaches visited, one circumnavigation (SNH unpublished). \*Coverage excluded some boulders fields where 1,171 Shag AON and 896 Guillemot and 495 Razorbill individuals were counted/estimated in 2000.

Species (count unit)	1974	1976	1987	2000	2007
Gannet (AON)	0	3	124	723	1,370
Shag (AON)	abundant	3,357	2,396	2,277	258*
Kittiwake (AON)	3,853+	5,570	4,331	1,982	911
Guillemot (individuals)	33–37,000	60,021	34,472	41,435	24,799*
Razorbill (individuals)	1,720	10,373	6,170	2,121	559*



In the Seabird Colony Register and Seabird 2000 censuses, Foula held the largest Shag colony in Britain and Ireland (Wanless & Harris 2004). In 1995, the island was declared a Special Protection Area under the EU Birds Directive, with Shag being a qualifying species, and with Foula holding at least 1.9% of the breeding North European population in 1987 (<http://jncc.defra.gov.uk/page-1896>). In 1976, it was estimated that 94% of nests were in boulder fields (mostly along the west coast), 5% were on broad ledges, and 1% on tops of stacks (Furness 1981b). The 1987 census count was 29% lower than in 1976 (Table 1), with a 17% reduction in numbers in the four recording areas holding the main west coast boulder field colonies (2,360 AON in 1976) and a 56% reduction in the other six recording areas in which the species bred elsewhere around the island (997 AON in 1976). The 2000 census total was only 119 nests lower than in 1987. In 2004, Shags largely deserted Foula during the breeding season (Mavor *et al.* 2005), very few adults were present in 2005, and the 2007 nest count was 80–90% lower than in 2000 (Table 1). There has been no whole-island census since 2007, but numbers in breeding success plots on the east coast remain low (Heubeck *et al.* in prep.), only 284 adult Shags were counted from the sea around the island on 19 May 2014 (37 on the west coast, 247 on the east coast), and the photographs confirm the virtual absence of Shags from the west coast boulder fields in late June 2014. The photographs also show remarkable physical changes in the habitat, with the height above sea level of some boulder beaches having been reduced since 1974, presumably by wave action and rendering the habitat more vulnerable to inundation during summer storms (Plate 280). Other boulder fields have been considerably rearranged, whether by the sea or by rock falls from above (Plate 281), while some have remained unchanged (Plate 282; 604 Shag AON were counted among boulders and 261 AON on grassy slopes in this general area in June 2000).

The decline in Kittiwake numbers on Foula has been well documented, both by the census counts (Table 1) and by annual counts from the sea made by SG since 2002 (latest count: 361 AON on 7 June 2014). Although the 2014 photographs reveal some rock falls that have occurred since 1974, they mostly show deserted, unaltered cliff faces (Plates 280 & 283).

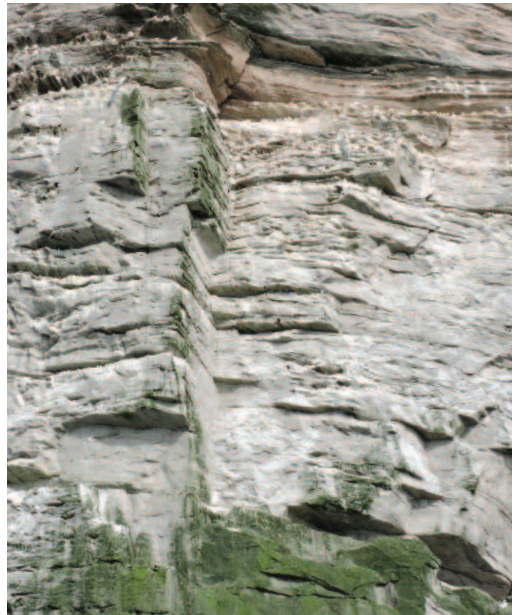
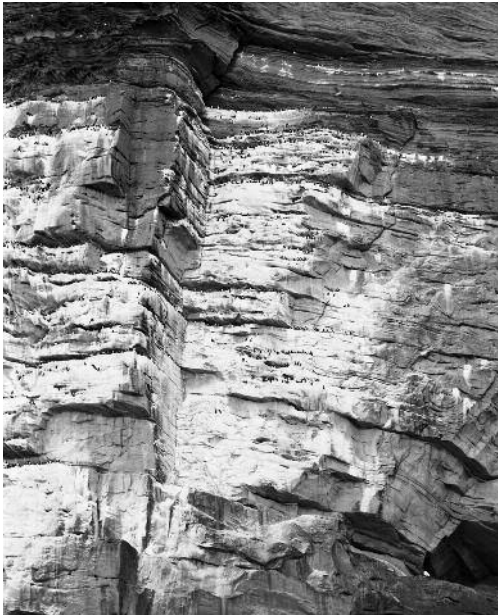
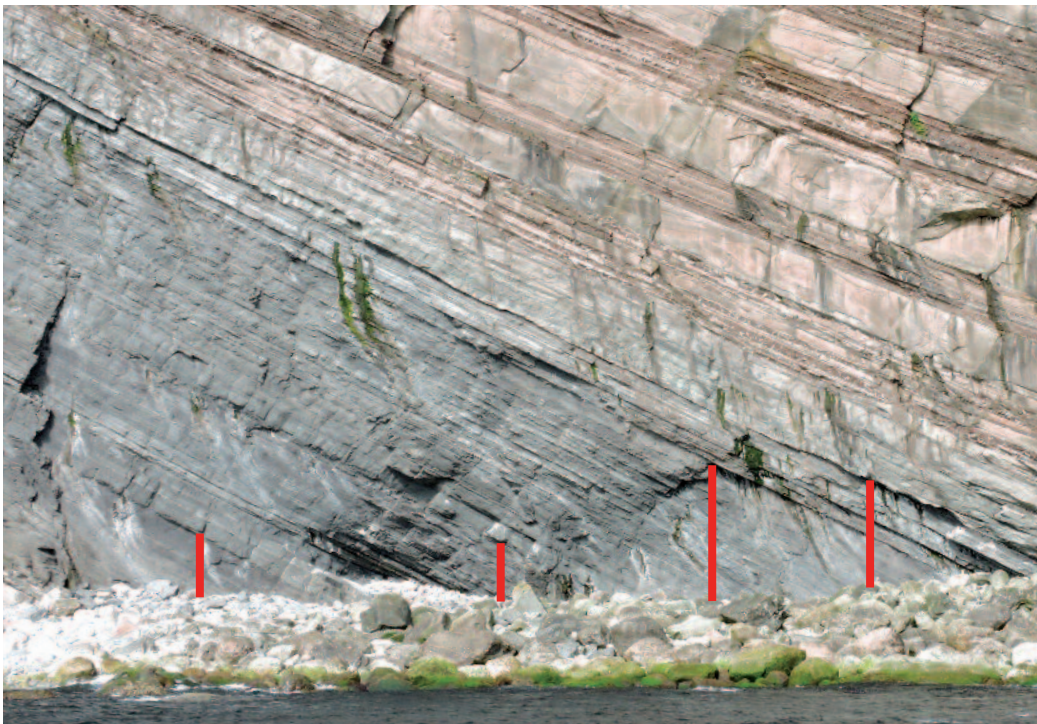
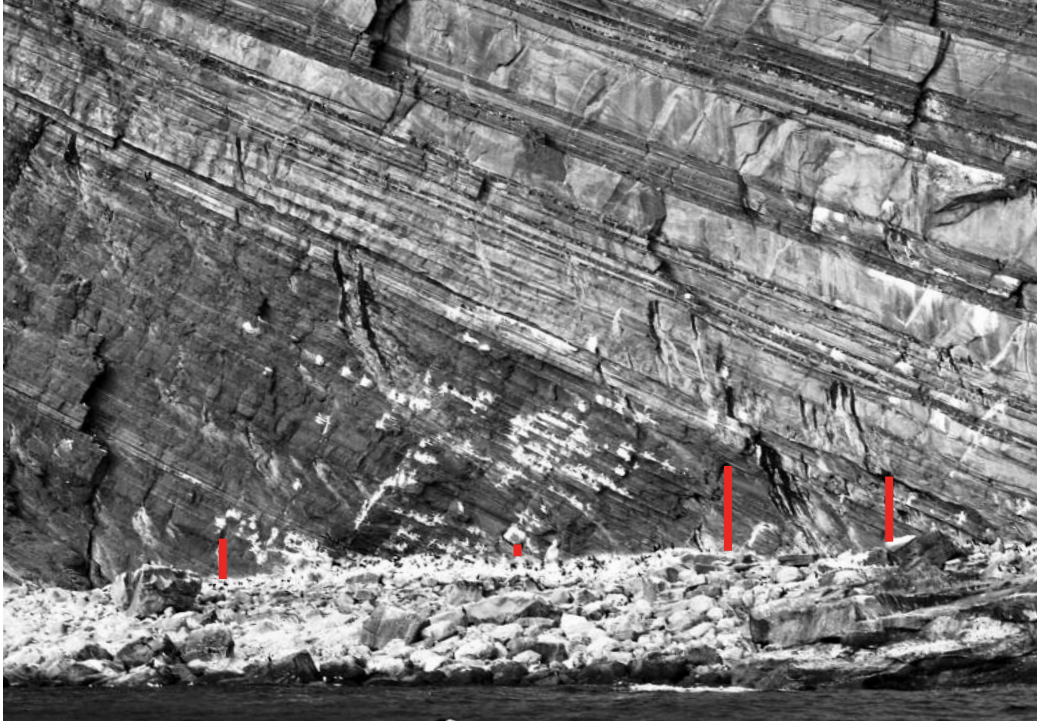


Plate 279 a–b. Cliff face on the north side of Wester Hoevdi, west coast of Foula, Shetland, 3 July 1974 and 21 June 2014. © M.P. Harris/S. Gear



**Plate 280 a–b.** Boulder beach at Kittiwakes Haa o da Scrudhurdins, west coast of Foula, Shetland, 3 July 1974 and 21 June 2014. The lines on the cliff face indicate the reduction in the height of the boulders. © *M.P. Harris/S. Gear*





Plate 281 a–b. Boulder field on the south side of Da Smaalie, west coast of Foula, Shetland, 3 July 1974 and 21 June 2014. © M.P. Harris/S. Gear





Plate 282 a–b. Boulder field at Da Floor of Gamlin, west coast of Foula, Shetland, 3 July 1974 and 21 June 2014.  
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Plate 283 a–b. Kittiwake and Guillemot colony at West Gaad, north coast of Foula, Shetland, 3 July 1974 and 21 June 2014. © M.P. Harris/S. Gear





Plate 284 a–b. Cliff face at Skirnawilse, west coast of Foula, Shetland, 3 July 1974 and 21 June 2014. © M.P. Harris/S. Gear





Plate 285 a–b. Guillemot colony in Hol o da Scrudhurdins, Foula, Shetland, 2 July 1974 and 1 July 2014. © *M.P. Harris/S. Gear*





**Plate 286 a–b.** Boulder field between Blobrick and Soberlie, north-west coast of Foula, Shetland, 3 July 1974 and 21 June 2014. © *M.P. Harris/S. Gear*



Furness (1981b) estimated that in 1976, 65% of Guillemots on Foula bred in boulder fields and caves, and 35% on cliff and rock ledges. He suggested that at that time there may have been a shortage of optimal nest sites on the island as birds in boulder fields moved awkwardly and had difficulty reaching the sea if disturbed. The nesting habitat breakdown for Razorbills counted in 1976 was 86% in boulder fields, 12% in cliff fissures, 2% on ledges. The census counts suggest a reduction of 60% in Guillemot numbers between 1976 and 2007, and of 95% in Razorbills (Table 1). However, these figures should be treated with caution due to the extreme difficulty of counting both species on the island, especially those among boulders and in caves, and Furness suggested that the Razorbill population in 1976 was best described as between 5,000 and 15,000 birds.

Guillemots and Razorbills cannot be distinguished readily on the photographs, but assuming those on cliff ledges are Guillemots, there has clearly been a considerable reduction in numbers in areas with no alteration of habitat or competition from other species (Plate 284). In boulder/cave habitat, MPH estimated between 1,200 and 1,500 Guillemots in the cave at Hol o da Scrudhurdins in July 1974 (Plate 285), and 2,757 were counted there in June 2000 (Harvey *et al.* 2000). Some were still there in 2014, but a considerable quantity of boulders have been removed by the sea at some time, probably since 2000; how often this occurs is unknown, but would be revealed by photographic monitoring of this apparently unstable habitat. Some boulder fields further above sea level have now been abandoned by auks (Plate 281), while others are still occupied but in much reduced numbers (Plate 286).



Plate 287. The Foula cliffs from the west, August 2014. © S. Gear

The 1974 photographs were taken at a time of fears over oil developments and the effects of any oil pollution on seabird populations. Large changes have indeed taken place in seabird numbers on Foula in the 40 years since, but detailed annual monitoring throughout Shetland since the 1970s by Shetland Oil Terminal Environmental Advisory Group, Scottish Natural Heritage, Fair Isle Bird Observatory and others give no support for the view that these developments have been responsible for these declines (Dunnet & Heubeck 1995, Heubeck 2000, Heubeck 2006, Miles *et al.* 2013, Snell & Adlard 2013). Nevertheless, the 2014 photographs illustrate not only population declines, but that some habitat change (rock falls and boulder field re-arrangements) and some competition between species (Gannets vs Guillemots) have occurred. A new census of the breeding seabirds of Britain and Ireland is required urgently, and plans for this are being discussed. While planning actual fieldwork, it would be worthwhile researching what previous photographs of seabird colonies exist, and attempting to replicate them. Such photographs need to be taken into the field in order to replicate viewing angles, but updating these would provide a useful archive for the future.

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