

Treshnish Isles Auk Ringing Group Report 2023



24th June – 30th June 2023

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Contents

Introduction	1
Survey methods	1
Annual breeding seabird census	5
Systematic species lists	15
<i>Birds</i>	<i>15</i>
<i>Mammals</i>	<i>21</i>
<i>Butterflies and moths</i>	<i>22</i>
<i>Bees</i>	<i>22</i>
<i>Other notable records</i>	<i>22</i>
Highly Pathogenic Avian Influenza	23
References	25
Appendix 1. Ring recoveries since the previous TIARG report	27
Appendix 2. Ring series used on the Treshnish Isles since 1927	28

Introduction

Since 1971, Treshnish Isles Auk Ringing Group (TIARG) has monitored the breeding seabird populations of the Treshnish Isles, Argyll (Figure 1), through ringing and census work. A summary of the early expeditions is given in *Birds on the Treshnish Isles 1971–1995* (Walker & Cooper 1996). Annual reports have been produced since 1996 (<http://tiarg.org>). This report summarises the results of the Group's 47th expedition to the Treshnish Isles, during 24th–30th June 2023.

The Treshnish Isles are designated as Site of Special Scientific Interest (SSSI) for the colony of breeding seabirds; as a Special Protection Area (SPA) for internationally important populations of breeding Storm Petrel *Hydrobates pelagicus* and wintering Greenland Barnacle Geese *Branta leucopsis* and as a Special Area of Conservation (SAC) for breeding Atlantic Grey Seal *Halichoerus grypus* and reefs. The Treshnish Isles also lie within the Inner Hebrides and the Minches SAC, designated for Harbour Porpoise *Phocoena phocoena* and the Sea of the Hebrides Marine Protected Area (MPA), designated for oceanic fronts, Northern Minke Whale *Balaenoptera acutorostrata*, and Basking Shark *Cetorhinus maximus*.

Survey methods

The 2023 expedition took place from the 24th June–30th June. Our time on Lunga was reduced to six days, rather than the planned seven, owing to the rough weather that was forecast for our intended day of departure (1st July). As usual, our fieldwork focussed on Lunga and Sgeir a' Chaisteil and was conducted from a basecamp situated in the ruined village at the northern end of Lunga. We completed the full annual seabird census of Lunga and Sgeir a' Chaisteil, ringed a sample of seabirds to maintain long-term monitoring of survival, and made boat-based counts of seabirds breeding on some of the other islands of the Treshnish Isles with the help of Turus Mara.

TIARG census and ringing data are submitted to the Seabird Monitoring Programme (JNCC) and the National Ringing Database (BTO), respectively. The data supplied are currently the sole means of monitoring the seabirds that breed on the Treshnish Isles, and offer a long-term indication of local population change ranging back to 1998. Methods for the annual seabird census on Lunga and Sgeir a' Chaisteil followed those from Seabirds Count (JNCC 2023) and Walsh *et al.* (1995). Counts were summed for each area of Lunga and Sgeir a' Chaisteil (Figure 2). It should be noted that our survey timings do not overlap with the preferred survey periods stated in Seabirds Count for all species, since TIARG only visit the islands for one week per year. Storm Petrel and Manx Shearwater *Puffinus puffinus* are not surveyed as part of our annual census.

Beyond Lunga and Sgeir a' Chaisteil, counts of some breeding seabirds were made from a boat on the 28th June. Because these islands were not landed upon, the counts are likely to under-represent species nesting inland particularly, for instance, the gull colonies on Fladda and Sgeir an Eirionnaich. During 2023, boat-based counts were made of Sgeir an Eirionnaich, Sgeir na h-Iolaire, Sgeir an Fheòir, the Cairn na Burghs and the 'back' of Harp Rock which cannot be surveyed from Lunga. Bac Mòr and Bac Beag were not visited, and counts of terns and gulls on Sgeirean na Giusaich were made from Lunga.

Following the UK outbreak of highly pathogenic avian influenza (HPAI) in early 2022, TIARG followed the British Trust for Ornithology (BTO) guidance for ringers as of 16 June 2023 (https://www.bto.org/sites/default/files/bto_hpai_guidance_to_ringers_v05.pdf). During our trip, we did not encounter high numbers of dead birds, or obvious symptoms of HPAI in live birds (although see page 23 for more details). We were therefore able to add another year to our Retrapping Adults for Survival (RAS) studies on Shags *Gulosus aristotelis* and Storm Petrels. Our Shag RAS involves colour-ringing adults and has run since 2006. It is one of four studies (two currently active) that provide valuable data on shag survival and demography by generating a long-term resighting dataset (BTO 2023). Our two Storm Petrel RAS studies involve metal-ringing only and take place

on Lunga: one around the village ruins, the other on the boulder beach at the northern end of Lunga (Figure 2). Strong winds and continual risk of overnight rainfall meant that ringing could only be conducted at the village site in 2023. Our two Storm Petrel RAS studies are the only two currently active studies, with in addition, three historical projects contributing to the valuable data on the species survival and demography (BTO 2023).

Since 2018, TIARG have deployed tracking devices on various seabird species, in collaboration with other research projects. During 2018 and 2019, TIARG deployed geolocation-immersion loggers ('geolocators') on Guillemots *Uria aalge* and Razorbills *Alca torda*, along with time-depth recorders (TDRs) on Guillemots during 2019, which were provided as part of Lila Buckingham's PhD studies. During 2019, we also deployed geolocators on Puffins *Fratercula arctica*, which were provided by SEATRACK (<https://seapop.no/en/>). During 2023, we deployed further SEATRACK geolocators on Guillemots and Razorbills, and were included in a trial of non-breeding season GPS device deployments on Shags. All of these deployments were made under licence by the BTO. Tracking devices are mounted on visible coloured rings, and each year a concerted effort is made to resight deployed tags and recatch the bird if possible. These data have already been extremely useful in improving our understanding of the non-breeding season movements, behaviour and energetics of Guillemots and Razorbills that breed at the Treshnish Isles (Buckingham *et al.* 2022a; Buckingham 2022; Buckingham *et al.* 2023).

Other sightings of birds, mammals and invertebrates were recorded incidentally.

Acknowledgements

Thank you to TIARG members, past and present, for the time and effort they have spent collecting data over the last 50+ years. We are extremely grateful for the financial support, access permissions and boat usage for visiting the smaller islands, provided by the Hebridean Trust (www.hebrideantrust.org). We thank Iain Morrison, Colin Morrison, Fergus Reade, and everyone else at Turus Mara (<http://www.turusmara.com/>) for providing transportation between Mull and Lunga, between the islands of the Treshnish Isles and their continued advice and assistance.



Expedition participants (left to right): Andrew Carter, Robin Ward, Tim Frayling, Luke Nelson, Lila Buckingham, Tim Dixon, Chris Heward, Molly Brown (Andrew Carter)

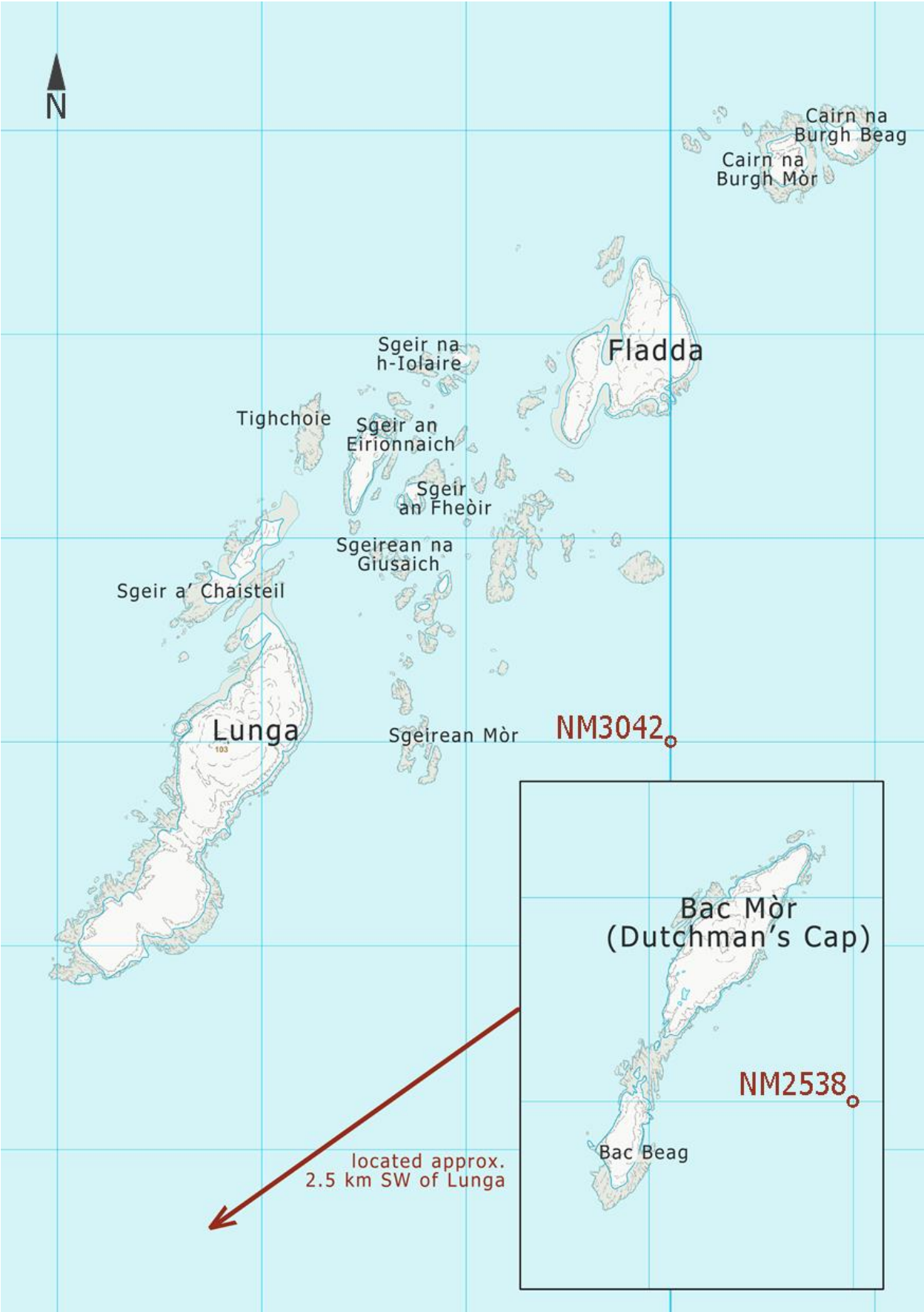


Figure 1. Map of the Treshnish Isles. (Grid squares = 1 km).

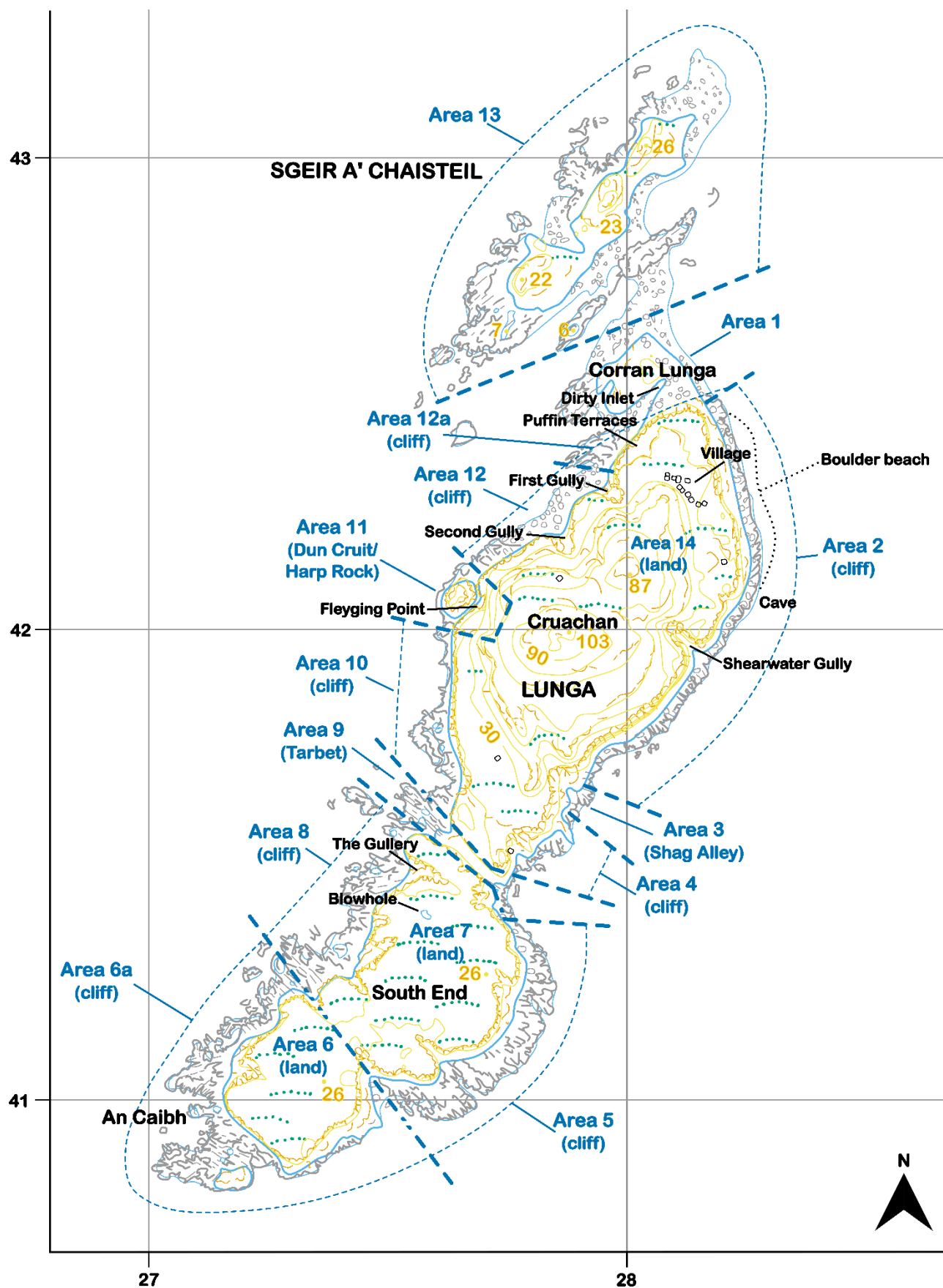


Figure 2. Map of census zones and locations referred to in the text on Lunga and Sgeir a' Chaisteil. Axes denote grid cells of 1 km according to the Ordnance Survey National Grid and are located within the NM grid cell (see Figure 1).

Annual breeding seabird census

This section presents the results of the annual breeding seabird census. Summarised census data are provided in Tables 1 and 2, with recent abundance trends for Lunga provided in Figure 3. Other seabirds, such as Storm Petrel and Manx Shearwater, which are not comprehensively surveyed as part of the annual census, feature in the systematic species list from page 15.

Kittiwake *Rissa tridactyla*

A regular breeding species. Seabirds Count (2015–2021) estimated the Treshnish Isles supported 0.4% of Britain's population.

During 2023, 521 apparently occupied nests were counted on Lunga, where the main colony is located at Harp Rock. Recent trends indicate that the number of Kittiwakes breeding on Lunga declined between 2000–2013 (Figure 3a). Between 2013–2022, numbers increased again to approximately the same level as counted in 2000 (Figure 3a). However, numbers appear to have taken a sharp decrease between 2022–2023. In addition to breeding birds, 380 adults were observed resting on Sgeir an Eirionnaich on the 26th June.



Kittiwake adults and chicks (Andrew Carter)

Common Gull *Larus canus*

Regularly breeding on Fladda in small numbers.

As in previous years, there were no records of breeding on Lunga or Sgeir a' Chaisteil in 2023. Up to five Common Gulls were seen most days at Harp Rock and on the Puffin Terraces (Figure 2), and were observed kleptoparasiting Puffins. A pair of Common Gulls were seen on the southern coast of Fladda (24th June), where the species has been recorded breeding in the past. Breeding was not confirmed in 2023.

Great Black-backed Gull *Larus marinus*

A regular breeding species. Seabirds Count (2015–2021) estimated the Treshnish Isles supported 1.0% of Britain's population.

Nine apparently occupied Great Black-backed Gull territories were counted on Lunga and Sgeir a' Chaisteil in 2023 (Table 1). The low numbers of Great Black-backed Gulls observed breeding on Lunga follows a marked decline in population since the early 2000s (Figure 3b). Elsewhere, breeding was recorded on Sgeir an Eirionnaich (30 individuals and chicks seen), Sgeir na h-Iolaire (one pair) and Sgeir an Fheòir (five pairs; Table 2). These smaller islands were not landed on, but vantage point counts of the latter two islands, were made from Lunga to assess the number of apparently occupied territories of Great Black-backed Gulls. The estimate of breeding birds on Sgeir an Eirionnaich is likely to be conservative as it was made during passage of the island.

Herring Gull *Larus argentatus*

A regular breeding species. Seabirds Count (2015–2021) estimated the Treshnish Isles supported 0.01% of Britain's population.

Four apparently occupied Herring Gull territories were counted on Lunga and four on Sgeir a' Chaisteil (Table 1). The low numbers of Herring Gulls now breeding on Lunga follows a marked decline in population since the early 2000s (Figure 3c). In addition, during the boat-based survey, 13 apparently breeding adults were seen on Fladda, nine on Cairn na Burgh Beag, and five on Sgeir an Eirionnaich (Table 2).

Lesser Black-backed Gull *Larus fuscus*

Previously a regular breeding species.

No breeding records on Lunga or Sgeir a' Chaisteil, but visiting individuals recorded on the 24th, 25th, 26th and 27th June. Three adults were seen on Fladda (Table 2).

Common Tern *Sterna hirundo*

Irregular breeding species. Seabirds Count (2015–2021) estimated the Treshnish Isles supported 0.3% of Britain's population.

No records in 2023.

Arctic Tern *Sterna paradisaea*

A regular breeding species, but intermittently absent. Seabirds Count (2015–2021) estimated the Treshnish Isles supported 1.2% of Britain's population.

Approximately 200 breeding adults were counted over Sgeirean na Guisaich in 2023, during a land-based count using a telescope (Table 2).

Great Skua *Stercorarius skua*

Regularly breeding since 1998.

Only one apparently occupied territory was noted on Lunga during 2023 (Table 1), within Area 4 (Figure 2), although three separate individuals were regularly seen on the island. Two apparently occupied territories were recorded on Fladda. On the 29th June, a pair of Great Skua were seen drowning and eating an Eider duckling off the cliffs of Area 12a (Figure 2).

Guillemot *Uria aalge*

Seabirds Count (2015–2021) estimated the Treshnish Isles supported 1.1% of Britain's population.

A total of 14,762 adult Guillemots were counted on Lunga and Sgeir a' Chaisteil in 2023 (Table 2). This figure is slightly less than in 2022, but overall recent trends indicate that the number of Guillemots breeding on Lunga has been increasing since around 2015 (Figure 3d).

Razorbill *Alca torda*

Common breeding species. Seabirds Count (2015–2021) estimated the Treshnish Isles supported 0.4% of Britain's population.

A total of 914 adult Razorbills were counted on Lunga and Sgeir a' Chaisteil in 2023 (Table 1). Recent trends indicate that Razorbill numbers decreased suddenly between 2008 and 2009, but have been increasing relatively steadily since then (Figure 3e).

Black Guillemot *Cephus grylle*

Regular breeding species in small numbers. Seabirds Count (2015–2021) estimated the Treshnish Isles supported 0.2% of Britain's population.

Five adults were observed on the water surrounding Lunga and Sgeir a' Chaisteil in 2023 (Table 1). A pair were seen in South Haven, Fladda (28th June) and another pair close to Cairn na Burgh Mòr.

Puffin *Fratercula arctica*

Common breeding species. Seabirds Count (2015–2021) estimated the Treshnish Isles supported 1.1% of Britain's population.

A total of 5,057 apparently occupied burrows were counted on Lunga and Sgeir a' Chaisteil in 2023 (Table 1). Recent trends indicate that this species has been increasing since the early 2000s, and is now almost five times greater than the lowest count recorded in 2003 (Figure 3f).



Immature Puffin (Andrew Carter)

Fulmar *Fulmarus glacialis*

A regular breeding species. Seabirds Count (2015–2021) estimated the Treshnish Isles supported 0.1% of Britain's population.

A total of 190 apparently occupied sites were counted on Lunga and Sgeir a' Chaisteil. Recent trends indicate that the numbers of Fulmars breeding on the Treshnish Isles have been declining

since the early 1990s (Figure 3g) in line with the UK trend. There was a minimum of five Fulmar apparently occupied sites on Fladda, and one on Cairn na Burgh Mòr.

Shag *Gulosus aristotelis*

A regular breeding species. Seabirds Count (2015–2021) estimated the Treshnish Isles supported 6.8% of Britain's population.

A total of 490 apparently occupied nests were counted on Lunga and Sgeir a' Chaisteil in 2023. This figure is greatly up from 2022, thus it appears that our assumption that 2022 was an underestimate of the true breeding population (due to a late visit and early breeding season) was correct. Other than this dip during 2022, the Shag population on the Treshnish Isles appears to have been increasing since 2006 (Figure 3h). Breeding was also confirmed on Sgeir an Eirionnaich and Fladda, but the population on Fladda was not counted during 2023. In addition, 46 colour-ringed individuals were re-sighted, contributing to our long-term RAS dataset (Table 3).



Shag (Andrew Carter)

Table 1. Breeding seabird numbers for each census area of Lunga and Sgeir a' Chaisteil. Key to count units: AON/AOT/AOB/AOS = apparently occupied nest/territory/burrow/site, ind. = individuals. For the locations of census areas refer to Figure 2.

Species	Count unit	Census area													Total
		2	3	4	5	6	6a	7	8	10	11	12	12a	13	
Kittiwake	AON	-	-	-	-	-	-	-	-	7	456	58	-	-	521
Great Black-backed Gull	AOT	-	1	-	-	2	-	3	-	-	-	-	-	3	9
Herring Gull	AOT	-	1	-	-	-	-	-	3	-	-	-	-	-	4
	ind.	-	-	-	-	-	-	-	-	-	-	-	-	4	4
Great Skua	AOT	-	-	1	-	-	-	-	-	-	-	-	-	-	1
Guillemot	ind.	-	-	-	58	-	-	-	1	106	13776	652	31	138	14762
Black Guillemot	ind.	-	-	-	-	-	5	-	-	-	-	-	-	-	5
Razorbill	ind.	133	63	-	134	-	-	-	13	74	174	287	20	16	914
Puffin	AOB	257	91	-	-	-	-	-	-	155	262	2584	1364	344	5057
Fulmar	AOS	33	6	-	23	-	2	-	17	3	7	65	5	29	190
Shag	AON	86	114	-	64	-	2	-	63	46	17	80	6	12	490

Table 2. Breeding seabird census data for the Lunga, Sgeir a' Chaisteil and islets. Key to count units: AON/AOT/AOB/AOS = apparently occupied nest/territory/burrow/site, ind. = individuals. In 2023, only Lunga and Sgeir a' Chaisteil were landed on, with counts for other islands conducted from sea or Lunga.

Species	Count unit	Island									Total
		Lunga	Sgeir a' Chaisteil	Sgeirean na Guisaich	Sgeir an Fheòir	Sgeir an Eirionnaich	Sgeir na h-Iolaire	Cairn na Burgh Mòr	Cairn na Burgh Beag	Fladda	
Kittiwake	AON	521	-	-	-	-	-	-	-	-	521
Great Black-backed Gull	AOT	6	3	-	5	-	1	-	-	-	23
	ind.	-	-	-	-	30	-	1	4	6	41
Herring Gull	AOT	4	-	-	-	-	-	-	-	-	4
	ind.	-	4	-	-	5	-	-	9	13	31
Lesser Black-backed Gull	ind.	-	-	-	-	-	-	-	-	3	3
Arctic Tern	ind.	-	-	200	-	-	-	-	-	-	200
Great Skua	AOT	1	-	-	-	-	-	-	-	-	1
Guillemot	ind.	14624	138	-	-	-	-	-	-	-	14762
Razorbill	ind.	898	16	-	-	-	-	-	-	-	914
Black Guillemot	ind.	5	-	-	-	-	-	-	-	-	5
Puffin	AOB	4713	344	-	-	-	-	-	-	-	5057
Fulmar	AOS	161	29	-	-	-	-	-	-	-	190
Shag	AON	478	12	-	-	1	-	-	-	-	491

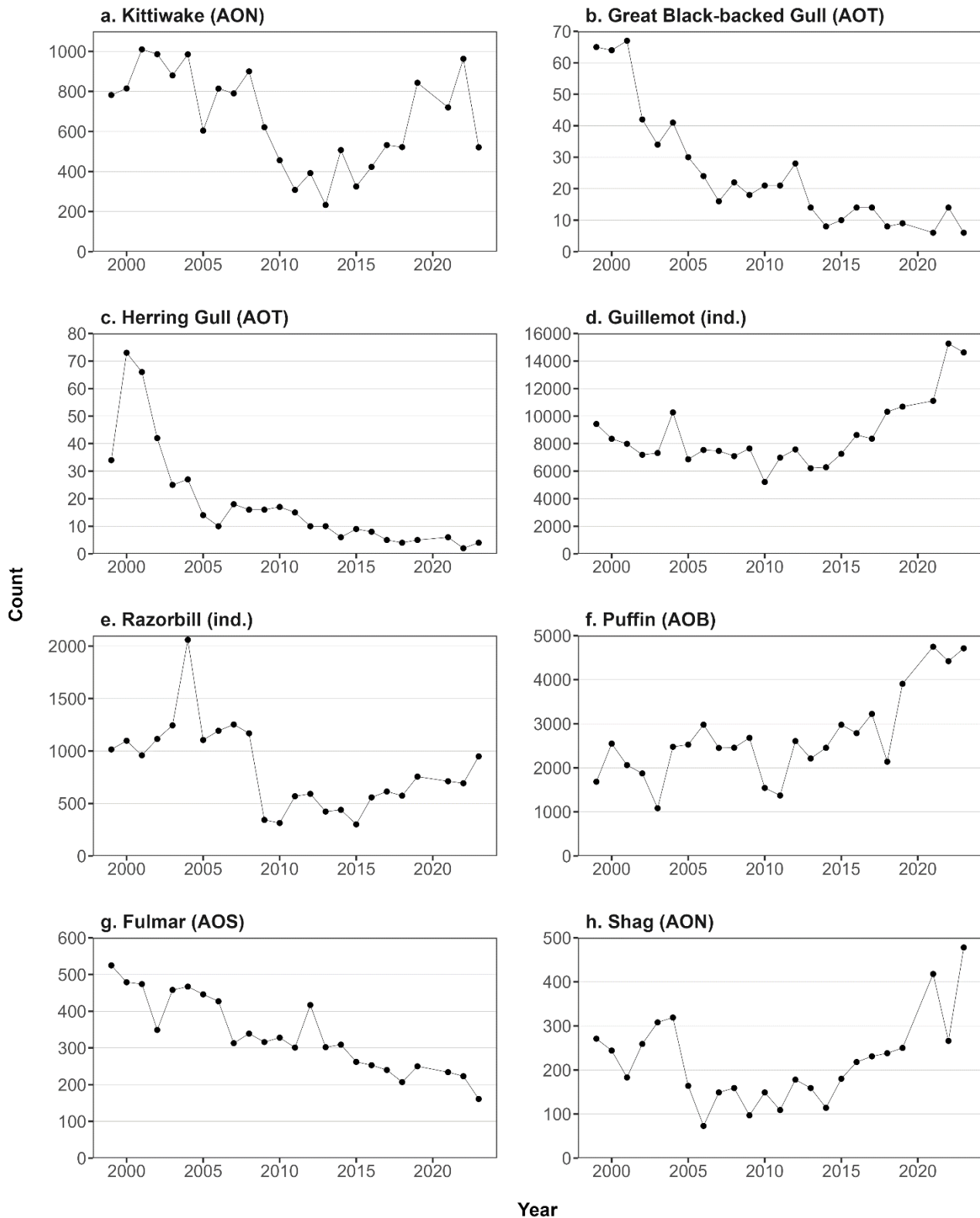


Figure 3. Counts for seabird species breeding on Lunga 1999–2023. Key to count units: AON/AOT/AOB/AOS = apparently occupied nest/territory/burrow/site; ind. = individual.

Table 3. Annual total number of Shag re-sightings/retraps since the start of the RAS in 2006.

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014
No. of re-encounters		32	12	80	14	56	54	81	59
Year	2015	2016	2017	2018	2019	2020	2021	2022	2023
No. of re-encounters	62	92	103	80	85	32	84	26	46

Table 4. Treshnish ringing totals for 24th–30th June 2023.

Site	Species	New birds			Recaptures		Total
		Adult	Juvenile	Pulli	Retraps	Controls	
Lunga	Manx Shearwater	9			7		18
	Storm Petrel	114**			10		124
	Shag	41		94	92*		227
	Kittiwake	11			12		23
	Guillemot	60			23		83
	Razorbill	19					19
	Puffin	57			3		60
	Meadow Pipit		3				3
	Wren	2	5				7
	Twite		2				2
Sgeir a' Chaisteil	Ringed Plover			1			1
Treshnish Isles	Grand total for 2023	313	10	95	147	0	567

*62 of 92 Shag 'retraps' were colour-ringed birds of which the majority (57) were sighted only and not captured.

**An additional 57 adults were ringed and 27 adults retrapped by RSPB on Lunga between 29th May and 2nd June, and between 31st July and 17th August as part of tracking studies carried out on behalf of the Scottish Government's Marine Directorate. Note: All rings used in 2023 were registered to Treshnish Auk Ringing Group.

Table 5. TIARG Ringing totals.

	1971 -79	1980 -89	1990- 99	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Eider								1					
Rock Dove													
Corncrake									1				
Oyster -catcher	1	7	2		1						4		
Ringed Plover									1		1		
Common Sandpiper			1							1	1	1	
Kittiwake		7	135	13	11	3	2	21	15	14	16	3	4
Common Gull			4	5	11	11	6		16	8			
L. Black-b Gull												1	
Herring Gull	21	145	215	15	11	11	8	11	8	1	11	7	20
Gt. Black-b. Gull	25	93	145	2	27	5	21	18	12	3	4	13	12
Common Tern										1			
Arctic Tern													
Great Skua			1			1	1		1			2	4
Guillemot	132	1433	2744	892	312	425	261	800	141	172	123	1	51
Razorbill	342	974	663	133	31	110	56	147	37	33	34	5	6
Black Guillemot			1		1								
Puffin	742	924	1948	389	214	351	244	226	151	272	195	327	32
Storm Petrel	277	1697	4934	414	1030	15	360	83	491	962	21	118	403
Fulmar	35	81	138	12	25	22	25	47	14	15	8		
Manx Shearwater	19	13	17	4			2		1	1	2		4
Shag	201	330	524	59	37	97	99	200	77	35	141	124	53
Buzzard		3											
Hooded Crow											1		
Willow Warbler			1										
Whitethroat													
Sedge Warbler													
Wren			3		1			2	4	2		2	1
Starling											3		
Song Thrush													
Stonechat										2		1	
Wheatear	12	4	88	50	24	2	2	2	7	1	2	4	2
Dunnock													
Pied Wagtail			6								4		
Meadow Pipit			5	12	1	4	1	3	5	1		4	
Rock Pipit		6	14	1	2	2	2	2		3	21	10	1
Twite			2			1					1	1	1
TOTAL	1807	5717	11591	2001	1739	1060	1090	1563	982	1527	593	624	594

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2021	2023	Total
Eider													1
Rock Dove									3				3
Corncrake		2											3
Oyster-catcher		2	2	1	2	1	4		1		2		30
Ringed Plover									1			1	3
Common Sandpiper								1					5
Kittiwake	3	8			16	12	14	22	13	25	22	11	390
Common Gull					4	1	1						67
L. Black-b Gull	2	2				4	1						10
Herring Gull	11	8	7	3	4	3	8	4	2		12		546
Gt. Black-b. Gull	15	10	4	1	2	15	11	16	2	17	8		481
Common Tern													1
Arctic Tern					44	104	16		11				175
Great Skua		2			2			2	1		1		18
Guillemot	53	169	46	8	145	154	161	230	329	375	395	60	9612
Razorbill	7	8	2	2	32	23	17	40	76	40	40	19	2877
Black Guillemot													2
Puffin	38	68	301	71	128	239	260	214	337	96	69	57	7893
Storm Petrel	293	202	212	191	448	978	258	289	476	486	614	114	15366
Fulmar				1		1		1	9	1			435
Manx Shearwater	9	3	18	3	13	13	5	8	2	6	9	9	161
Shag	116	67	120	115	90	148	165	200	236	99	199	135	3532
Buzzard													3
Hooded Crow													1
Willow Warbler		1							1				3
Whitethroat		1									1		2
Sedge Warbler		2											2
Wren	1	2	6		2	1	3		16		3	7	56
Starling						1							4
Song Thrush											4		4
Stonechat													3
Wheatear	4	5	10	4	7	11	3	3	5				252
Dunnock		1		1	1		2						5
Pied Wagtail		3	1			4							18
Meadow Pipit	1	2	15	3	1	5		1	3		4	3	74
Rock Pipit	2	4	3	1	2	11	1	4	7		1		100
Twite		3	1						16		3	2	29
TOTAL	555	575	748	405	943	1729	930	1035	1547	1145	1387	418	42167

Systematic species lists

Birds

The following systematic list describes all other bird species not counted as part of the annual seabird census, incidental sightings of which were recorded throughout the period 24th–30th June 2023. Species' statuses are based on the number of breeding records/sightings recorded in the last 25 years. Based on the Rare Birds Breeding Panel definitions, regularly breeding species are those for which breeding was confirmed or strongly suspected in any five consecutive years since 1999. For non-breeders, species are considered a regular visitor if recorded in 15 or more years since 1999, and an occasional visitor if recorded in five or more. If fewer than five records, a species is considered a rare visitor and the years of previous records are stated.

Canada Goose *Branta canadensis*

An occasional visitor with one previous breeding record in 2018. No sightings between 1999–2016. Canada Geese were confirmed to have bred on the Treshnish Isles in 2023. A pair with a single gosling was seen on Fladda on 28th June, shortly followed by what is presumed to be a second pair, also with a gosling, on Sgeir a' Chaisteil. This species is increasing rapidly on the Isle of Mull.

Greylag Goose *Anser anser*

A regularly occurring species, with occasional breeding records. Confirmed breeding records in 12 years between 1999–2023.

A maximum count of approximately 135 moulting individuals was recorded on 28th June, on Sgeir an Eirionnaich, Sgeir an Fheadair and the surrounding water. Tabulated below are the annual peak counts of the moult flock occurring on the Treshnish Isles.

Table 5. Greylag Goose counts on the Treshnish Isles 1998–2023.

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Peak count	25	160	240	268	79	101	316	90	164	77	80	225	160
Year	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Peak count	140	50	140	196	272	70	98	198	200+	no count	202	50	135

Shelduck *Tadorna tadorna*

An occasional breeding species.

No records in 2023.

Eider *Somateria mollissima*

A regularly breeding species.

At least seven breeding females with ducklings were seen at various locations around Lunga, including up to four females frequenting Dirty Inlet and Corran Lunga (Figure 2), two on the west coast of the South End (Areas 6 and 8) and one on the east coast (Area 2). Brood sizes varied from five to one. On the 29th June, a pair of Great Skuas was observed eating an Eider duckling off Lunga's north-west coast. At least 12 non-breeding moulting individuals were seen between Sgeir a' Chaisteil, Fladda and Sgeirean na Giusaich on the 29th June.

Table 6. Eider counts on the Treshnish Isles 1998–2023.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
Peak count	23	11	112	26	54	42	80	8	52	13	80	35
Year	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Peak count	14	7	11	9	6	2	21	6	no count	17	16	19

Swift *Apus apus*

An occasional visitor.

One Swift was seen over Harp Rock on 29th June.

Rock Dove *Columba livia*

A regular breeding species.

Present across Lunga, with a flock of 15 on the 27th June providing the maximum count. Breeding was confirmed by two occupied nests in First Gully and one in Shag Alley. A pair were seen on Cairn na Burgh Beag on the 28th June.

Water Rail *Rallus aquaticus*

Regularly occurring since 2014, no records before this.

At least two, but possibly three, males were heard calling around the village every day. On the 25th and 29th June, Water Rail chick calls confirmed that the species had bred. In addition to these birds, males were heard calling between First and Second Gully on the west coast, and at the reedbed in Area 7.

Corncrake *Crex crex*

A regularly occurring species (absent in only two of the last 25 years). Probably a regular breeder but difficult to confirm.

Corncrakes were scarcely heard in 2023, with no records of males calling during the week. On the 29th June, however, the female 'wheezing' call was heard close to the village.

Oystercatcher *Haematopus ostralegus*

A regular breeding species.

Pairs of Oystercatcher were seen on Corran Lunga, Tarbet, Area 2, Area 5, Area 6a, Area 8 and Area 12, totalling a minimum of eight apparently breeding pairs on Lunga, all exhibiting behaviour (e.g., alarm calling) indicative of chicks. An additional pair was seen on Sgeir a' Chaisteil. Chicks were observed on Corran Lunga, at First Gully (Area 12) and Sgeir a' Chaisteil, the latter being close to fledging. Pairs of Oystercatcher were also seen on the Cairn na Burghs (two) and Fladda (at least one). A non-breeding flock of up to 32 individuals were seen on the boulder beach/Corran Lunga throughout the week.

Ringed Plover *Charadrius hiaticula*

A regular breeding species.

Two pairs of Ringed Plover were seen on Sgeir a' Chaisteil. For one pair, breeding was confirmed by the presence of two chicks, for the other it was considered likely given the adult's alarm call. A single bird was repeatedly seen around the northernmost point of Lunga (25th, 26th and 28th June).

Curlew *Numenius arquatus*

A regular visitor, records in 20 of the last 25 years.

A single bird was heard calling over Corran Lunga on the 24th June.

Snipe *Gallinago gallinago*

A regular breeding species.

Up to two birds were heard drumming/chipping over the village, with additional records of drumming/chipping birds over the south end of Lunga (Area 7) and between the first and second gully. Snipe were incidentally flushed across the island including on the east coast, above Area 2, Area 4 and at the blowhole in Area 7.

Common Sandpiper *Actitis hypoleucos*

A regular breeding species.

Several records throughout the week, with one calling on the boulder beach on 25th June, one in Area 8 on the same day, and one on Cairn na Burgh Mòr on the 28th. As in 2022, no clear evidence of breeding was recorded.

Arctic Skua *Stercorarius parasiticus*

Regularly occurring, offshore individuals likely originating from breeding grounds on Coll.

Individual dark phase birds were seen at sea daily between 25th–29th June from Areas 3, 6a, 12, 12a and 13, and occasionally flying over Lunga (at the village and Shag Alley).

Storm Petrel *Hydrobates pelagicus*

A regularly breeding species. The Treshnish Isles supported 27% of Britain's population and between 1.9–2.3% of the Atlantic (north-eastern) H. p. pelagicus population as estimated by Seabirds Count (2015–2021).

As usual, Storm Petrels were present as a breeding species on Lunga, but were not censused during the 2023 expedition. For the most recent assessments of Storm Petrel abundance on the Treshnish Isles, see the results of species-specific storm petrel survey completed in 2018–2019 (Ward 2019), available at: <http://www.tiarg.org/reports.htm>. For Storm Petrel ringing totals, see Table 4. In 2023, ringing efforts were hampered by high winds and rain, meaning mist-netting was only possible at one of the two RAS sites. The total number of retraps encountered was lower than in a typical year, but this follows a 3-year period in which ringing effort was markedly reduced (TIARG did not undertake any ringing during 2020 or 2022 and we were unable to ring on the boulder beach during 2023).

Manx Shearwater *Puffinus puffinus*

A regularly breeding species. The Treshnish Isles supported 0.3% of Britain's population as estimated by Seabirds Count (2015–2021).

Small groups of birds were seen offshore during the day (up to 20 individuals) on the 24th and 26th June. Manx Shearwaters were heard returning to their breeding burrows most nights, with lots of activity observed on the 29th June.

Gannet *Morus bassanus*

A regularly occurring species, offshore.

Gannets were seen offshore on the 26th June (two adults and a first-summer bird), on the 28th June (two adults and three first-summer birds) and the 29th June (two adults over Sgeir a' Chaisteil).

Cormorant *Phalacrocorax carbo*

An occasional visitor, five past records since 1998 (2002, 2006, 2013, 2014, 2022).

On 28th June, a single adult Cormorant was seen on one of the skerries to the north of Fladda. A second sighting on 29th June, was of an adult flying over the sea to the west of Area 12.

Buzzard *Buteo buteo*

An occasionally breeding and regularly occurring species.

An adult Buzzard was seen over Cruachan on Lunga on the 25th June, over the east coast from Area 7 on the 26th, and on Sgeir a' Chaisteil on the 28th. The moult stage and colouration suggest that these sightings relate to a single individual, and there was no indication of breeding on the Treshnish Isles in 2023.

Peregrine *Falco peregrinus*

A regularly occurring species, with three previous records of breeding associated with Bac Mòr, and one on Lunga (2022).

The only Peregrine sighting in 2023 was of a juvenile seen over Shag Alley on the 29th June. The nest site used in 2022 showed no obvious signs of re-use in 2023.

Hooded Crow *Corvus cornix*

A regular breeding species.

A pair of adult Hooded Crows were seen daily from 24th to 28th June, at various locations around Lunga but no juveniles were seen. A single was seen on Cairn na Burgh Mòr on the 28th June.

Raven *Corvus corax*

A regular breeding species

Ravens were seen most days on Lunga. Most often, these sightings were of three juveniles (determined by the absence of wing moult) and a single adult. On the 29th June, following wet weather, two Ravens were seen among the boulders in Area 12, scavenging on dead Shag chicks.

Skylark *Alauda arvensis*

A regular breeding species.

On 25th June, three Skylarks were heard singing simultaneously along the path between the village and the second gully (Area 12) and, later that day, singing males were heard over the southern end of Area 14 and over Area 7. Additional records came from Harp Rock (29th June), Shag Alley (29th June) and Sgeir a' Chaisteal (28th June). Although it is difficult to estimate the exact number of territories, Skylarks were seen and heard in a wider range of locations than on most other recent expeditions.

Sedge Warbler *Acrocephalus schoenobaenus*

An occasionally occurring species, with breeding confirmed/highly likely in 2006, 2010, 2018.

No records in 2023.

Whitethroat *Sylvia communis*

An occasionally occurring species.

A male Whitethroat was seen and heard singing at various locations along the cliff tops of Area 2 and around the village, 24th–29th June. There were no observations that could confirm breeding.

Wren *Troglodytes troglodytes*

A regular breeding species.

Seen and heard across the northern half of Lunga throughout the trip. Breeding was confirmed by family parties with recently fledged young at various points along the west coast.



Blackbird (Andrew Carter)

Starling *Sturnus vulgaris*

A regular breeding species.

Starlings were seen across Lunga, 24th–29th June, up to a maximum count of 20 individuals consisting of both juvenile and adult birds. A group of 20 were also seen on Sgeir a' Chaisteal on the 28th June, and a group of 15 on Cairn na Burgh Beag.

Song Thrush *Turdus philomelos*

An occasionally occurring species, with breeding recorded in 2021.

Several sightings close to the village over the course of the expedition, with a male singing on 24th June. An adult with two recently fledged young were seen on the 24th June and 28th June. On the 29th June, three juvenile Song Thrushes were seen from the cliff top path over Area 2.

Blackbird *Turdus merula*

An occasionally occurring species, with breeding previously recorded in 2008, 2021, 2022.

Blackbirds were seen or heard every day of the expedition, mostly around the village, and along the west coast path as far as Harp Rock. Sightings include at least one adult female, two adult males, and one recently fledged juvenile.

Wheatear *Oenanthe oenanthe*

A regular breeding species.

There were several records from across Lunga during the expedition, particularly around the village. Fledged young were seen at a range of nonadjacent locations ranging from Harp Rock to the path on the east coast, suggesting the presence of multiple successful nesting attempts. A male Wheatear was seen on Sgeir a' Chaisteal on 28th June.

Dunnock *Prunella modularis*

An occasionally breeding species (previous breeding records in five of the last 25 years).

No records in 2023.

Pied Wagtail *Motacilla alba yarrelli*

A regular breeding species.

Regularly seen during the 2023 expedition, and at least two pairs present in Area 12a. Elsewhere, adults were recorded at the village, on the Puffin Terraces and at Harp Rock, the latter carrying food. Individual adult birds were also seen on Fladda and Sgeir a' Chaisteil on the 28th.



Pied Wagtail (Andrew Carter)

Meadow Pipit *Anthus pratensis*

A regular breeding species.

Widespread breeding species on Lunga with no estimate of territories made. A nest containing three eggs was found close to the village. Elsewhere, pipits carrying food and faecal sacs suggested breeding was widespread.

Rock Pipit *Anthus petrosus*

A regular breeding species.

Breeding birds were common along the coast of Lunga and on Sgeir a' Chaisteil. Food-carrying and recently fledged young confirmed breeding on Lunga.

Twite *Linaria flavirostris*

A regular breeding species.

Seen across Lunga from 24th to the 29th June. A flock of up to 11 individuals was seen in the village, seemingly two family parties of four and five birds, and a pair of adults without young. A group of three birds was seen at Harp Rock, a group of six at First Gully (Area 12) and two singing males in Area 7. A single bird was recorded on Sgeir a' Chaisteil on 28th June.



The village and TIARG team's tents (Andrew Carter)

Mammals

Otter *Lutra lutra*

Evidence of presence regularly noted.

No records in 2023.

American Mink *Neovison vison*

No known occurrences.

No records in 2023.

House Mouse *Mus musculus*

Resident, population size unknown.

Unusually, no animals were seen at the expedition base in the Village, at the north end of Lunga. However, non-invasive monitoring did detect the continued presence of mice in and around the Village.

Chocolate wax monitoring blocks are a method with which to attract and record the distinctive bite marks of different rodent groups e.g. mice and rats (Varnham 2008). Pairs of chocolate wax monitoring blocks, 'chew sticks', were laid for three successive days overnight at twenty locations around all eight dwellings of the Village at Lunga's northern end. The chew sticks were then inspected for rodent teeth marks. The chocolate wax monitoring blocks were made following the method of Varnham (2008).

Teeth marks were found on all chew sticks laid amongst the remaining walls of two houses at the east end of the settlement. They were found to be chewed by mice. The remaining dwelling walls and surrounding area is known to be occupied by breeding Storm Petrel. Whether these presumed House Mice are predating breeding Storm Petrels, their young or eggs, remains to be established. Determining this will be difficult given the nest sites are hidden from view in crevices within walls and under rocks, and the need for monitoring to be non-invasive.

Brown Rat *Rattus norvegicus*

No known occurrences.

No records in 2023.

Rabbit *Oryctolagus cuniculus*

Resident, population size unknown.

A small number of sightings of single individuals reported from the village, Puffin Terraces, Shearwater Gully (Area 2) and below the cliffs of Area 12a (near the boulder beach).

Harbour Seal *Phoca vitulina*

Irregular visitor

An adolescent Harbour Seal was seen loafing on the skerries south of Fladda on 28th June.

Grey Seal *Halichoerus grypus*

A regular breeding species, contributing just under 3% of the annual UK pup production. Numbers are regularly monitored by the Sea Mammal Research Unit (NERC, St Andrews). The conservation importance of these islands as a breeding colony is recognised by their designation by the UK Government as a Special Area of Conservation.

Approximately 120 Grey Seals were observed on 28th June from a boat when travelling along the north coast of Fladda and past Sgeir na h-Iolaire and Sgeir an Eironnaich, including a large congregation in Fladda's North Haven.

Butterflies and moths

Table 7. Butterflies recorded on the Treshnish Isles during the 2023 expedition

Common name	Scientific name	Notes
Meadow Brown	<i>Maniola jurtina</i>	Several adults, across Lunga
Common Blue	<i>Polyommatus icarus</i>	Several adults, across Lunga
Dark Green Fritillary	<i>Speyeria aglaja</i>	Across Lunga, inc. five adults over Shearwater Gully
Red Admiral	<i>Vanessa atalanta</i>	An adult, at the village

Table 8. Moths recorded on the Treshnish Isles during the 2023 expedition

Common name	Scientific name	Decimal code (Agassiz <i>et al.</i> 2013)
Gold Swift	<i>Phymatopus hecta</i>	3.004
Six-spot Burnet	<i>Zygaena filipendulae</i>	54.008
Small Magpie	<i>Anania hortulata</i>	63.025
Common Carpet	<i>Epirrhoe tristata</i>	70.061
Magpie	<i>Abraxas grossulariata</i>	70.205
Garden Tiger	<i>Arctia caja</i>	72.026
Silver Y	<i>Autographa gamma</i>	73.015
Northern Deep-brown Dart	<i>Aporophya lueneburgensis</i>	73.232
Bright-line Brown-eye	<i>Lacanobia oleracea</i>	73.267

Bees

Table 9. Bees recorded on the Treshnish Isles during the 2023 expedition

Common name	Scientific name
Garden Bumblebee	<i>Bombus hortorum</i>
White-tailed Bumblebee	<i>Bombus lucorum</i>
Common Carder Bee	<i>Bombus pascuorum</i>
Moss Carder Bee	<i>Bombus muscorum</i>

Other notable records

Oyster Plant *Mertensia maritima*

Localised species on Lunga.

This red-listed and declining plant continues to be well established at Tarbet (west) with no marked difference in extent to that of recent years.

Highly Pathogenic Avian Influenza

Since 2021, multiple seabird species have tested positive for avian flu (HPAIV strain HN51) in Scotland, including Gannets, Manx Shearwaters, Puffins, Razorbills, Guillemots, Great Skuas, Kittiwakes, Great Black-backed and Herring Gulls, and Arctic Terns (APHA 2022, 2023). High levels of mortality where individuals have tested positive for HPAI have been observed in a range of seabird species across the UK, with Gannets, Great Skuas, Guillemots, Kittiwakes, terns and gulls having been particularly badly impacted (NatureScot 2023).

We did not notice any signs of HPAIV H5N1 (i.e. high numbers of dead seabirds, or any symptoms in live birds) during our visits in either 2022 (Buckingham *et al.* 2022b) or 2023. During our visit in 2023, however, we noticed a previously unobserved condition within the Puffin population on Lunga (Buckingham *et al.* 2023). There were a relatively large proportion of individuals in which feathers around the eyes were missing or apparently matted, and, in some cases, with breeding ornaments missing (see images below). These birds otherwise seemed healthy e.g., exhibited normal behaviour and did not seem lethargic. This condition was observed in up to 12–15% of individuals in some sub-colonies. TIARG have not observed this condition in previous years, although the National Trust for Scotland had observed it within Puffins breeding on Staffa (approximately 8 km south-east of Lunga) during the 2022 breeding season (Emily Wilkins, pers. comm.). Despite communicating widely with other seabird ringers and researchers, no one appears to have observed this condition in Puffins from other breeding colonies in Europe.

It is unknown what caused this condition in puffins attending the breeding colonies of the Treshnish Isles and Staffa. Ticks are prevalent on Puffins on Lunga, and the area affected by this condition coincides with the area around the eye most associated with tick infestation (see images below). There is therefore a possibility that this condition was caused by a previous tick infestation, and if so, most Puffins with the condition were noted to no longer have visible ticks attached in this area. Given that this condition has not been seen in Puffins before and, as it coincides with the emergence of HPAIV H5N1 within UK-breeding seabirds, it is possible that it could be an emerging symptom of this virus strain. It would be informative to sample individuals afflicted with this condition for antibodies of HPAIV during the 2024 breeding season.



Four images of Puffins taken on Lunga during 24–30th June 2023, showing bare skin and ‘wetness’ around the eye or (lower right) an individual with heavy tick infestation
(photo credits left to right: Andrew Carter, Andrew Carter, Andrew Carter, Chris Heward)

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Appendix 1. Ring recoveries since the previous TIARG report

Table A1.1. Recoveries between July 2022–June 2023 of birds that were ringed by TIARG on the Treshnish Isles. Ages are coded according to EURING age codes (Redfern & Clark 2001).

Species	Ring number	Ringing date	Age at ringing	Finding date	Finding location	Age at finding	Finding method
Razorbill	M92693	26/06/18	6	26/06/23	Lunga, Treshnish Isles, Argyll and Bute, UK	8	Sighted
Puffin	EX12746	27/06/13	6	10/05/23	Lunga, Treshnish Isles, Argyll and Bute, UK	6	Sighted
Puffin	EL52921	28/06/06	6	19/02/23	Playa de Campiechos, Canelmar, Valdés, Asturias, Spain	6	Dead for more than a Week, Not fresh, Oil Victim
Storm Petrel	2777237	02/07/21	6	28/07/22	Bardsey Island, Gwynedd, UK	4	Recaptured
Shag	1483678	02/07/15	1	19/05/23	Lunga, Treshnish Isles, Argyll and Bute, UK	8	Sighted
Shag	1701544	29/06/17	1	08/09/22	Hynish, Tiree, Argyll and Bute, UK	8	Sighted
Shag	1701807	18/07/18	8	14/04/23	Lunga, Treshnish Isles, Argyll and Bute, UK	8	Sighted
Shag	1712339	03/07/21	8	02/05/23	Lunga, Treshnish Isles, Argyll and Bute, UK	8	Sighted
Shag	1469934	03/07/14	1	29/05/23	Lunga, Treshnish Isles, Argyll and Bute, UK	8	Sighted
Shag	1700129	29/06/17	8	29/05/23	Lunga, Treshnish Isles, Argyll and Bute, UK	8	Sighted
Shag	1421707	24/06/07	1	28/06/23	Lunga, Treshnish Isles, Argyll and Bute, UK	8	Sighted
Shag	1701946	24/06/07	8	28/06/23	Lunga, Treshnish Isles, Argyll and Bute, UK	8	Sighted
Shag	1469937	03/07/14	1	05/07/22	Lunga, Treshnish Isles, Argyll and Bute, UK	8	Sighted
Shag	1414475	29/06/23	8	24/06/23	An Meail Hough, Isle of Tiree, Argyll and Bute, UK	8	Dead for more than a Week, Not fresh Leg & Ring Only Found

Appendix 2. Ring series used on the Treshnish Isles since 1927

Table A2.1. Rings known to have been used on the Treshnish Isles, irrespective of ring ownership.

A2	E	G	K	GUILLEMOT
2010581 – 583	EF75001 – 500	GF10471 – 489	1078761 – 800	R07001 – 100
2101991 – 2000	EG23501 – 700	GH21301 – 350	1080101 – 110	R19401 – 20200
2121401 – 500	EG23721 – 780	GN85301 – 400	1087111 – 120	R24001 – 26350
2167051 – 068	EG23801 – 999	GJ35401 – 500	1105561 – 570	R31601 – 900
2170201 – 203	EG61000 – 500	GJ76001 – 800	1123531 – 540	R51501 – 2000
2238501 – 600	EG88501 – 9000	GJ99081 – 082	1123541 – 550	R65501 – 6000
2261001 – 2350	EH33377 – 380	GK34351 – 354	1123671 – 690	R72501 – 4000
2284001 – 5000	EH54501 – 55000	GK50214 – 220	1123961 – 970	T14001 – 5000
2309901 – 10000	EH89256	GK50551 – 570	1130701 – 800	R73001 – 4000
2311301 – 400	EH89260	GK62985 – 990	1159651 – 700	T82001 – 300
2311501 – 2000	EH98001 – 300	GK90821 – 840	1163701 – 740	X39501 – 40000
2348001 – 500	EK29501 – 900	GK91471 – 490	1168001 – 100	X56501 – 57000
2236801 – 7000	EK72657 – 660	GM78756	1170601 – 700	X63001 – 500
2369301 – 400	EK91471 – 490	GP13416 – 450	1174201 – 300	X67501 – 68000
2405001 – 6000	EL19801 – 276	GP47917	1187901 – 950	X79501 – 80000
2430701 – 900	EL52501 – 3000	GP62201 – 207	1237401 – 450	X99001 – 99500
2436501 – 7000	EN22001 – 500	GP74501 – 75000	1322951 – 960	Y09403 – 09405
2444501 – 5000	EP85608 – 612	GR44201 – 250	1328481 – 490	Y26001 – 26500
2446202 – 233	EP85687 – 700		1350801 – 900	Y32501 – 33000
2455501 – 6000	ER03701 – 800	H	1357901 – 8000	
2480001 – 500	ER48401 – 404	HT03619	1366901 – 7000	MISC
2513501 – 4000	ES64018 – 189	HT09001 – 004	1373751 – 3900	1F4094 – 097
2538001 – 800	ET19501 – 700	HT17871 – 890	1378401 – 8500	C331894 – 900
2542001 – 3000	ET52501 – 3000	HT17931 – 940	1399601 – 700	E196501 – 520
2554001 – 500	ET80001 – 500	HT34021 – 030	1408301 – 500	JB44316
2560001 – 1000	EW18001 – 500	HT68201 – 210	1414301 – 500	K039209 – 230
2579001–80000	EW50001 – 500	HT68221 – 226	1421701 – 800	K419290 – 295
2605001 – 5500	EX12501 – 3000	HT80301 – 400	1417001 – 7100	NA84296 – 299
2624001 – 5000	EY32001 – 500	HW05351 – 360	1445601 – 800	KX83101 – 106
2650101 – 1000	EZ30001 – 1000	HW06951 – 7000	1491001 – 100	KX83116 – 118
2664001 – 5000		HW08994 – 09000	1497001 – 100	RF10011 – 020
2679001 – 80000	F	HW37361	1500201 – 300	LA59201 – 300
2725001 – 6000	FA50601 – 700	HW42996 – 3000	1701501 – 2000	DD90261 – 270
640801 – 640900	FB22601 – 700	HW68101 – 110	1118766 – 789	CBV601 – 700
2627701 – 800	FB23401 – 500	HW68161 – 170	1712301 – 500	V711401 – 500
2777001 – 8000	FC52551 – 558	HW74971 – 990		TJ18901 – 9000
	FC52571	HW87211 – 225	RAZORBILL	BT09481 – 490
	FC74501	HW96181 – 200	K10701 – 1000	NV42851 – 860
	FH36101 – 200	HW94907 – 913	K13001 – 300	SR49601 – 700
	FR13606 – 636	MA12551 – 600	M36341 – 350	A297482 – 500
	FR14401 – 500	MA15801 – 900	M46501 – 800	B229951 – 992
	FR51201 – 300	MA44251 – 900	M55001 – 500	BV70669
	FR56351 – 400		M72451 – 800	SV58551 – 600
	FR76701 = 800		M85501 – 800	BV28661 – 670
	FS21478		M88001 – 300	SV58601 – 616
	FS51016 – 500		M92501 – 700	Z155001 – 100
	FS87001 – 100			EL69255 – 300
	FV10611 – 620			
	FV10646 – 650			
	FV54446 – 460			
	FV62410			
	FV62416 – 226			
	FV96681 – 684			
	SS96101 – 300			