

Treshnish Isles Auk Ringing Group
Report
22nd – 29th June 2019



First-summer plumaged Kittiwake (Andrew Carter)

Compiled by
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Expedition dates:
22nd – 29th June 2019

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Introduction

Since 1971, the Treshnish Isles Auk Ringing Group (TIARG) has monitored, through ringing and census work, the breeding seabird populations of the Treshnish Isles, Argyll. 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 (see <http://tiarg.org>). This report summarises the results of the Group's 43rd expedition to the Treshnish Isles, during 22nd – 29th June 2019.

As in previous years, the expedition was based around the village ruins at the northern end of Lunga. The majority of the week's fieldwork was centred upon Lunga and Sgeir a' Chaisteil where the annual full seabird census and ringing of specific seabird colonies was carried out. Use of the inflatable boat kindly loaned by the Hebridean Trust, enabled seabird census coverage of the islands between Lunga and Fladda.

This year was the fourteenth year of a Shag Retrap Adult Survival study (RAS); this entails ringing each adult with its own uniquely engraved colour-ring so that it can be re-identified in the field in future years. This is part of the British Trust for Ornithology's (BTO) Integrated Population Monitoring Programme, funded by the UK Government. The Group's activities were dictated as always by the prevailing weather conditions. Favourable wind conditions and absence of precipitation allowed the mist netting of Storm Petrels at three localities on Lunga needed as part of the Group's two Storm Petrel RAS studies.

All TIARG census and ringing data are submitted to two national monitoring programmes, the Seabird Monitoring Programme (JNCC) and National Ringing Database (BTO), respectively. The data supplied are of great conservation value, being the sole means of monitoring the seabird colonies of the Treshnish Isles. The conservation importance of these islands is recognised by their designation by the UK Government as a Special Protection Area for internationally important populations of breeding Storm Petrel *Hydrobates pelagicus* and wintering Barnacle Geese *Branta leucopsis*. The islands have also been designated a Site of Special Scientific Interest (SSSI), *inter alia* for seabird breeding colonies of national importance. Financial support for the monitoring work TIARG undertook in 2019 was provided by the Hebridean Trust (www.hebrideantrust.org), owners of the islands.

In addition to the systematic and targeted census and ringing efforts conducted as an annual commitment, TIARG in July 2019 undertook an expedition (44th) dedicated to estimating the breeding populations of Storm Petrel on Bac Mór, Bac Beag, Cairn na Burgh More and Cairn na Burgh Beg. Unsuitable sea conditions for landing on these islands occurred throughout the week. The surveyors were only able to survey the larger of the two islands, Bac Mór and Cairn na Burgh More, by remaining an extra day when sea conditions had improved to allow landings. It was not possible within the time available to survey the two smaller islands, Bac Beag and Cairn na Burgh Beg. The survey funded by Scottish Natural Heritage, had otherwise completed with last year's survey of Lunga, Sgeir a Chaisteil and Fladda, coverage of all islands within the Treshnish Isles where RSPB had during the previous national seabird census reported the presence of breeding Storm Petrels (Gilbert & Helmsley 1996). The full results of the survey will be reported on separately via the website tiarg.org. This is the second ever attempt at making a comprehensive survey of the islands for this species, the previous in 1996 (Gilbert & Helmsley 1996).

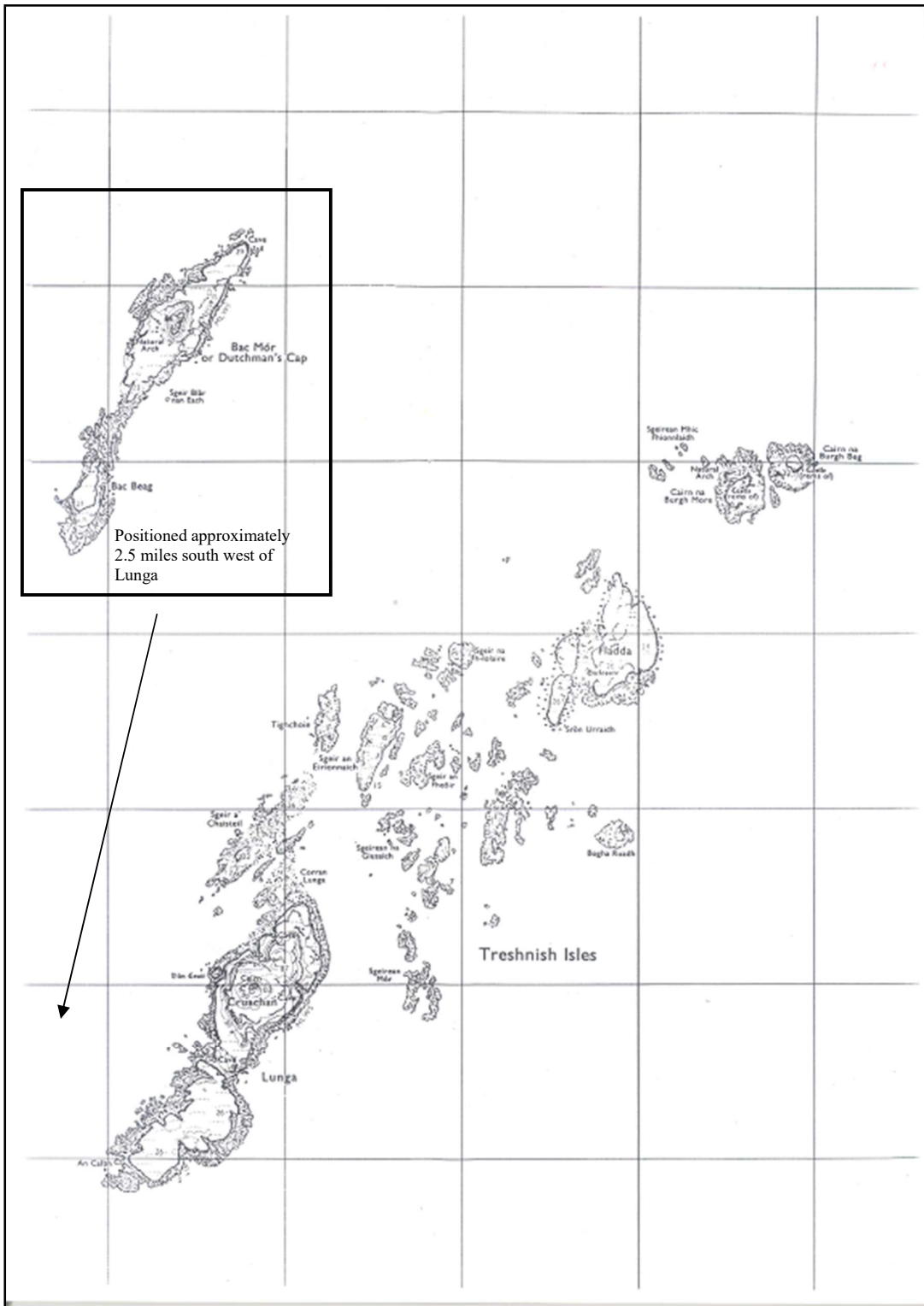


Expedition participants June 2019: (left to right back row) Chris Heward, Lila Buckingham, Jurjen Annan, Tim Dixon, Claire Dovey, Andrew Carter, (left to right front row) Robin Ward & Shaun Micklewright (*Andrew Carter*)



The Bothy on Lunga with Sgeir a' Chaisteil in the background (*Andrew Carter*)

Map of the Treshnish Isles



Weather

Meteorological data tabulated below was recorded on Lunga during the period 22nd to 29th June 2019.

DATE	TIME	TEMP ¹ (°C)	WIND FORCE (Beaufort scale)	WIND DIRECTION	CLOUD (Oktas)	PRECIPITATION	VISIBILITY (distance)
22/06/2019	19:00	16	1	E	1	none	Red Cuillins (85 km)
23/06/2019	09:00	21	3	E	8	none	Red Cuillins
23/06/2019	19:00		3	E	8	heavy showers	Rum (55 km)
24/06/2019	08:00	17	4	E	8	none	Red Cuillins
24/06/2019	13:45		1	N	8	none	Rum
24/06/2019	19:00		2	NW	7	none	Black Cuillins (80 km)
25/06/2019	12:00	16	5	N	1	none	Black Cuillins
25/06/2019	17:00		5	N	1	none	Black Cuillins
26/06/2019	08:00	15	5	N	1	none	Black Cuillins
26/06/2019	19:00		5	N	0	none	Black Cuillins
27/06/2019	08:00	16	1	NE	0	none	Black Cuillins
27/06/2019	18:00		1	NE	0	none	Rum
28/06/2019	12:00	21	4	SE	0	none	Black Cuillins
28/06/2019	19:00		4	SW	0	none	Black Cuillins
29/06/2019	08:00	19	2	S	1	none	Black Cuillins

¹ Daily maximum temperature at Tiree Airport

Chris Heward

Systematic list of birds for 2019

The following systematic list describes those bird species seen during the Treshnish Isles Auk Ringing Group's (TIARG) presence on the Treshnish Isles, 22nd – 29th June 2019. The introductory comments (first paragraph) refer to the species' status during the breeding season as recorded by previous expeditions.

A detailed breakdown of breeding seabird numbers on the Treshnish Isles in 2019 is provided on page 18.

Canada Goose *Branta canadensis*

Rare visitor.

Two adult birds were seen on Sgeir an Eirionnaich on 22nd and later Fladda on 25th June.

Greylag Goose *Anser anser*

Breeding noted in some years, with a moulting flock present during late summer.

The moult flock centred north of Lunga had built up to at least 200 birds by 22nd June, typically most were around the islands of Sgeir an Eirionnaich, Fladda, Sgeir an Fheòir and Sgeir na h-Iolair. Well grown broods were associated with the moult flock. Tabulated below are the annual peak counts of the moult flock centred north of Lunga.

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Peak count	25	160	240	268	79	101	316	90	164	77	80
Year	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Peak count	225	160	140	50	140	196	272	70	98	198	200+

Shelduck *Tadorna tadorna*

Until recently a rare visitor with one pair having bred occasionally since 2003.

A pair of adults were seen in South Haven, Fladda on 22nd June.

Eider *Somateria mollissima*

Breeds regularly in small numbers.

At least three broods were noted around Corran Lunga, with single ducks accompanying one, three and six ducklings respectively. Elsewhere single ducks with two and four ducklings were seen at the south end of Lunga and a duck with two ducklings seen at Sgeir a' Chaisteil. A nest with 3 eggs was noted during a brief visit to Sgeir an Eirionnaich on 27th June. At least four and two females without chicks were seen respectively at the south and north end of Lunga.

The waters between Fladda and Lunga support small numbers of late-summer moulting birds, with a minimum of 6 birds on 23rd June. One of the flightless males was seen to be predated by a Great Skua. Tabulated below are the annual peak counts of the moult flock centred north of Lunga.

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Peak count	23	11	112	26	54	42	80	8	52	13
Year	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Peak count	80	35	14	7	11	9	6	2	21	6

Storm Petrel *Hydrobates pelagicus*

A common breeding species. The Treshnish Isles supported 20% of the Great Britain population and between 0.7 – 1.7% of the Atlantic (north-eastern) population as estimated by *Seabird 2000*.

In July, a complete census of Bac Mór and Cairn na Burgh More estimated a breeding population of 374 and 1,223 apparently occupied nest sites. When combined with the estimated breeding population of Lunga (3,262 apparently occupied nest sites), Sgeir a' Chaisteil (262) and Fladda (5,151) surveyed in 2018, this represents over a 113% increase in the species' estimated breeding population of the Treshnish Isles from the only complete census of the islands in 1996 (Gilbert & Helmsley 1996), which estimated 5,040 apparently occupied nest sites. The only other islands where RSPB had reported the presence of breeding Storm Petrels, Bac Beag and Cairn na Burgh Beg, were in 1996 estimated to support in total 1.5% (75

apparently occupied nest sites) of the total population for the Treshnish Isles. If a similarly small proportion is assumed to be represented by these two islands that were not surveyed in 2018/2019, the numbers of apparently occupied nest sites that this represents may be expected to lie within the range of error for the total population estimate for the five islands that were surveyed. A full account of this survey by TIARG will be reported elsewhere (tiarg.org).

Four nights of light winds and no rain gave the opportunity in late June to mist net for Storm Petrels on Lunga at the Village and the Boulder Beach. On the Boulder Beach, traditionally ringed localities near the Well and below the Village on single nights, provided catches of 200 and 222 birds using two 12 m (for 2 hours), and one 18 m net (2 hours) respectively. At the Village, 180 birds were caught using three 18 m nets over two nights (for 3 hours 50 mins period in total).

Fulmar *Fulmarus glacialis*

A common breeding species. The Treshnish Isles supported 0.2% of the Great Britain population as estimated by *Seabird 2000*.

Breeding was confirmed on Lunga and Sgeir a' Chaisteil. The breeding population for Lunga and Sgeir a' Chaisteil was estimated at 273 pairs based upon apparently occupied sites (AOS). This represents an encouraging 11% increase in the number of breeding birds from the previous year. Over the longer term, 1994-2019, the population has shown an overall decline. This is consistent with a decline nationally which may be due to declines in offal from trawlers, representing a 're-adjustment' to more natural levels following a period of artificially elevated population size (JNCC 2016).

The estimated breeding population on the Treshnish Isles in 2018 was 335 AOSs, a 69% reduction from the 1,078 AOSs counted by *Seabird 2000* in 1999.

Manx Shearwater *Puffinus puffinus*

A common breeding species. The Treshnish Isles supported 0.4% of the Great Britain population as estimated by *Seabird 2000* (1998 – 2002).

Presumed breeding birds were seen and heard at night on Lunga by the expedition in late June. Small numbers of birds were seen daily, feeding or passing offshore of Lunga. During the week in the evenings up to 100 birds were noted rafting off the west coast of Lunga.

Shag *Phalacrocorax aristotelis*

A common breeding species. The Treshnish Isles supported 2.1% of the Great Britain population and between 0.8 – 0.9% of the Atlantic (north-eastern) population as estimated by *Seabird 2000* (1998 – 2002).

Breeding was confirmed on Lunga, Sgeir a' Chaisteil and Sgeir an Eirionnaich. The breeding populations on Lunga and Sgeir a' Chaisteil were 250 and 11 pairs respectively, based on nest counts. Following a marked decline in the numbers of active nests in 2005 and 2006, numbers have since gradually increased with some fluctuation, with a further increase noted in 2019. A major difficulty associated with a breeding census of this species is its prolonged and variable breeding season (eggs have been laid in every month of the year except September and October in the U.K.). Overall breeding appeared was not as advanced as an average year, with most nests containing eggs or young chicks. Brood sizes were mostly small, typically only two or three young; brood size at fledging is normally two, rarely three (Ogilvie 1997). Recorded clutch size for the species is 1-8 eggs with the larger clutches reported as probably due to more than 1 female (Ogilvie 1997). Indeed, this would appear to have been the case at one nest visited on Lunga when three adults and 6 eggs were present, with a distinct difference in colouration of two eggs from the remaining four.

2019 was the fourteenth year of a Retrap Adult Survival study (RAS) that entails ringing each adult with its own uniquely engraved colour-ring so that it can be identified in the field in future years. This is part of the BTO's Integrated Population Monitoring Programme funded by the UK Government (<http://www.bto.org/ringing/ringinfo/ras/index.htm>). In 2019, of the birds marked from 2006 to 2018 on Lunga, 55 out of a possible 384 individuals were re-sighted and/or recaptured by TIARG in June. A further 49 breeding adults were colour-ringed on Lunga in 2019. In July (20th – 28th), an additional 44 birds colour-ringed prior to 2019 were re-sighted by TIARG on Lunga.

Gannet *Morus bassanus*

Regularly seen offshore

Small numbers of mostly adult birds, were seen daily, feeding or passing offshore of Lunga. The largest count was of 37 adults with a single 1st summer bird foraging off the west coast of Lunga.

White-tailed Eagle *Haliaeetus albicilla*

Rare visitor

There were no records of this species during the expedition.

Buzzard *Buteo buteo*

Until recently, one pair bred in most years.

Single birds, when aged adults, were seen on several occasions over Lunga and Sgeir a' Chaisteil. The nest site used in recent years, was considered not to have been occupied during the current year.

Water Rail *Rallus aquaticus*

Rare visitor.

One bird was heard calling on 22nd June from a bracken covered cliff top area immediately east of the Village. This was in the same locality as single birds have been recorded in the previous five years, prior to which the species had not been recorded by TIARG.

Corncrake *Crex crex*

Recorded almost annually and probably a regular breeder in small numbers.

Single males were regularly seen and heard calling from the vicinity of the Village, immediately west of the Village and on Corran Lunga, Lunga. A female was heard calling from the vicinity of the Village, Lunga, on 24th June. A brood of young chicks were seen on one occasion in the vicinity of the Village, Lunga, on 27th June.

Oystercatcher *Haematopus ostralegus*

Breeds regularly in small numbers.

On Lunga's beaches and rocky outcrops, eight pairs (two pairs at Corran Lunga and area 6a, and single pairs in areas 2, 3, 8 and 9) were behaving as though on breeding territory, alarming at human intruders and performing displays on the appearance of other Oystercatchers. Confirmed breeding records were of single pairs with chicks at Corran Lunga. Away from Lunga, breeding pairs held territories on Sgeir an Eirionnaich (three pairs), Sgeir a' Chaisteil (two pairs), Sgeir an Fheòir (one pair) and Sgeirean na Giusaich (two pairs).

Small flocks of presumed failed/non-breeders were evident on Lunga, typically at high tide, in the area of Sgeir a' Chaisteil and Corran Lunga where there would generally be up to 17 birds roosting.

Ringed Plover *Charadrius hiaticula*

One or two pairs breed annually.

Typically, the only breeding pair on Lunga was confined to Corran Lunga, where adults behaved as though on breeding territory, alarming at human intruders.

Two pairs alarmed at human intruders during a brief visit to Sgeir a' Chaisteil on 26th June, as did one of those pairs to a Hooded Crow walking the territory. Elsewhere during a brief visit to Sgeir an Eirionnaich, two breeding pairs were noted.

Curlew *Numenius arquatus*

An irregular visitor.

A single bird was heard from the north end of Lunga on the 27th June.

Common Sandpiper *Actitis hypoleucos*

One or two pairs usually breed.

No evidence of breeding was noted on Lunga, with up to two birds noted on occasions at Corran Lunga. One pair alarmed at human intruders during a brief visit to Sgeir an Fheòir on 27th June. Elsewhere single birds were noted in area 9 on Lunga and during a brief visit to Sgeir a' Chaisteil on 26th June.

Redshank *Tringa totanus*

Irregular visitor

Single birds were heard from the north end of Lunga on 24th, 26th and 28th June.

Snipe *Gallinago gallinago*

Breeds regularly in small numbers.

Up to three birds could be heard drumming/chipping over the Village on most days. Elsewhere on Lunga, two birds could be heard drumming/chipping over Corran Lunga, a single bird drumming over the south end of Lunga and single birds were flushed above Shearwater Gully and Shag Alley, and the reedbed

in Area 7.

Kittiwake *Rissa tridactyla*

A localised breeding species. The Treshnish Isles supported 0.2% of the Great Britain population as estimated by *Seabird 2000* (1998 – 2002).

Breeding was confirmed only on Lunga, where the main colony is around Harp Rock. The number of apparently occupied nests on Lunga was 843. This represents a marked 65% increase in the number of breeding birds from the previous year. This is an unprecedented increase for much larger colonies where a 3% increase per annum over about a ten-year period is exceptional (Coulson 2011). Though the main colony on Lunga is much smaller than the colonies referred to by Coulson (2011), such a marked increase is still considered unlikely to have primarily been attributable to breeding birds. The census unit for Kittiwake is a well-built nest capable of containing eggs with at least one adult present. It is considered likely that a substantial proportion of the increase will have comprised of birds in their latter years of immaturity, building well-constructed nests. This also concurs with the observation of unprecedented numbers of first-year birds. A marked increase in the breeding population of Kittiwake was also noted in 2019 on Colonsay (D. Jarrett pers. comm.).

The breeding season was considered no more or less advanced than average for this species.

Over an estimated 2,000 birds were dispersed between roosts on Sgeir an Eirionnaich and the intertidal rocks off Sgeir a' Chaisteil. This was an exceptionally large number of birds for this traditional gathering that was atypically comprised of a high proportion of first-summer individuals i.e. several hundreds. It is reasonable to assume that the large numbers of first-summer would have been accompanied by a larger proportion of older immatures that are indistinguishable in the field to adults and show greater affinity to visiting breeding colonies; Kittiwakes normally breed for the first time when four or five years old (Coulson 2011).

The estimated breeding population on the Treshnish Isles in 2018 was 522 AONs, a 34% decrease from the 786 AONs counted by *Seabird 2000* in 1999.

Common Gull *Larus canus*

A regular breeding species in small numbers.

Breeding was suggested by the presence of three adults on territory on Fladda, recorded by TIARG from a boat when passing on 29th June. These presumed three pairs were on the low-lying basalt rock outcrop on Fladda's south-east coast. Single adult birds were seen on two occasions flying over the Village, Lunga.

The estimated breeding population on the Treshnish Isles in 2018 was five pairs, a 38% decrease from the eight pairs counted by *Seabird 2000* in 1999.

Great Black-backed Gull *Larus marinus*

A regular breeding species. The Treshnish Isles supported 2.0% of the Great Britain population as estimated by *Seabird 2000* (1998 – 2002).

From colony visits, breeding was confirmed on Lunga (eight pairs), Sgeir an Eirionnaich (an estimated minimum of 10 apparently occupied territories; up to 80 adults counted when flushed), Sgeir an Fheòir (one pair) and Sgeirean na Guisaich (five pairs). No birds were occupying territories on Sgeir na h-lolaire or Sgeir a' Chaisteil. The breeding season was considered no more or less advanced than average for this species.

The small numbers of birds now breeding on Lunga follows a marked decline in population during the early 2000's (see section "*Population changes for a selection of breeding species on Lunga, 1994 – 2014*"). The estimated breeding population on the Treshnish Isles in 2018 was 53 pairs, a 85% reduction from the 342 pairs counted by *Seabird 2000* in 1999.

Herring Gull *Larus argentatus*

A regular breeding species. The Treshnish Isles supported 0.2% of the Great Britain population as estimated by *Seabird 2000* (1998 – 2002).

Breeding was confirmed on Lunga (estimated five pairs, ten adults counted when flushed; two chicks) within gullery at the south end of Lunga, in area 8. Breeding was suggested on Sgeir an Fheòir (an estimated 3 apparently occupied territories; 6 adults counted when flushed). No birds were found to be occupying territories elsewhere on Sgeir a' Chaisteil, Sgeir an Eirionnaich, Sgeirean na Guisaich or Sgeir na h-lolaire.

The small number of birds now breeding on Lunga follows a marked decline in population during the late 1990s / early 2000s (see section "*Population changes for a selection of breeding species on Lunga, 1994 – 2016*"). The estimated breeding population on the Treshnish Isles in 2018 was 19 pairs, a 92%

reduction from the 225 pairs counted by *Seabird 2000* in 1999.

Lesser Black-backed Gull *Larus fuscus*

Regular breeding species in small numbers.

No birds were found to be occupying territories on Lunga, Sgeir a' Chaisteil and the small islands between Lunga and Fladda. One adult was seen over Sgeir an Fheòir. Elsewhere, three adults appeared to be on territory along Fladda's south-east coast, recorded by TIARG from a boat when passing on 29th June.

The estimated breeding population on the Treshnish Isles in 2018 was seven pairs, an 83% reduction from the 40 pairs counted by *Seabird 2000* in 1999.

Common Tern *Sterna hirundo*

Irregular breeding species. The Treshnish Isles supported 0.6% of the Great Britain population as estimated by *Seabird 2000* (1998 – 2002).

There were no records of this species during the expedition.

Arctic Tern *Sterna paradisaea*

Regular breeding species.

No birds were found to be breeding on the Treshnish Isles. Two adults were seen from Sgeir an Eirionnaich on 27th June.

Great Skua *Stercorarius skua*

A small but regular breeding population has become established since the first confirmed breeding by a pair in 1998.

Breeding was confirmed on Lunga (one nest containing two eggs) and Sgeir a' Chaisteil (one nest containing two eggs). This is the first record of the species breeding on Sgeir a' Chaisteil. On Lunga up to five birds were noted daily. Sightings from Lunga would suggest the presence on Fladda of a minimum of two apparently occupied territories with up to five adults being noted.

Arctic Skua *Stercorarius parasiticus*

Small numbers seen daily, presumably from the breeding grounds on Coll.

Single dark phase birds were seen off Lunga's south east corner and west coast on respectively 23rd and 24th June.

Guillemot *Uria aalge*

Common breeding species. The Treshnish Isles supported 0.7% of the Great Britain population as estimated by *Seabird 2000* (1998 – 2002).

Breeding was confirmed on Lunga and Sgeir a' Chaisteil, with the main concentration as usual within the vicinity of Harp Rock where 10,073 adults were estimated. The total for Lunga and Sgeir a' Chaisteil combined was 10,667. The mean count for the past five years is 9,149 birds (range 7,360-10,667). The breeding season was considered no more or less advanced than average for this species.

The estimated breeding population on the Treshnish Isles in 2018 was 10,495 individuals, a 10% increase from the 9,566 individuals counted by *Seabird 2000* in 1999.

Twenty adult birds known to be brooding chicks were caught at the colony in 2018 and fitted with a geolocator (GLS) attached to a ring that was put onto one of the birds' legs¹. The aim was to catch the same individuals again one or two years later to recover the GLS and download data on their daily locations between breeding seasons. TIARG were successful in 2019 in the recapture and retrieval of GLS from 12 of the 20 birds. A further 30 GLS were deployed on adult birds known to be brooding chicks. This included nine of the individuals from which a GLS deployed in 2018 was retrieved. In addition, Time Depth Recorders (TDRs) were deployed to 15 of the 30 birds deployed with GLS. From the GLS data, a PhD student (TIARG member Lila Buckingham) will analyse the migration routes and wintering areas used by birds together with those from different breeding colonies around Scotland and north-east England. In addition, the TDR data will record diving behaviour from which it will be possible to estimate how hard the tagged birds are working throughout the year in order to meet their energetic requirements. This study (managed by MacArthur Green, funded by Vattenfall) aims to provide detailed and accurate data on the year-round movements of

¹ Tag deployment was licenced by the British Trust for Ornithology (BTO) and tagging was further licenced by Scottish Natural Heritage (SNH) where deployment was at colonies designated as Special Protection Areas (SPA) for these species and so requiring an Appropriate Assessment to ensure that there would be no adverse effect of the fieldwork on the integrity of these protected features.

adult guillemots, with particular reference to populations likely to interact at some stage of the year with offshore wind farms in the North Sea.

Razorbill *Alca torda*

Common breeding species. The Treshnish Isles supported 0.8% of the Great Britain population as estimated by *Seabird 2000* (1998 – 2002).

Breeding was confirmed on Lunga and Sgeir a' Chaisteil. The main concentration was typically located within the vicinity of Harp Rock. A total of 734 birds was counted on Lunga and Sgeir a' Chaisteil, in addition to the birds associated with 27 chicks located amongst accessible boulder colonies. The breeding season was considered no more or less advanced than average for this species.

The estimated breeding population on the Treshnish Isles in 2018 was 673 individuals, a 45% reduction from the 1,232 individuals counted by *Seabird 2000* in 1999. Counts of apparently occupied nests were converted into an approximate estimate of the number of individuals to be seen at a colony at any one time by dividing by a correction factor 0.67 to allow for the presence of non-breeders and the attendance of breeding birds. This correction factor has been shown to be generally representative in Britain (Harris *et al.* 2015).

Twenty adult birds known to be brooding chicks, where caught at the colonies at Harp Rock and the Boulder Beach, Lunga, in 2018 and were fitted with a geolocator attached to a ring that was put onto one of the birds' legs (see Guillemot for further details). TIARG were successful in 2019 in the recapture and retrieval of GLS from 12 of the 20 birds.

Black Guillemot *Cephus grylle*

Regular breeding species in small numbers. The Treshnish Isles supported 0.4% of the Great Britain population as estimated by *Seabird 2000* (1998 – 2002).

Adults were seen around Sgeir an Eirionnaich (six birds), Fladda (one) and Lunga (four).

The estimated breeding population on the Treshnish Isles in 2018 was 54 individuals, a 33% reduction from the 70 individuals counted by *Seabird 2000* in 1999 (when a correction factor was used by TIARG of one bird counted equated to one breeding pair).

Puffin *Fratercula arctica*

Common breeding species. The Treshnish Isles supported 0.3% of the Great Britain population as estimated by *Seabird 2000* (1998 – 2002).

Breeding adults occupied burrows on Lunga and Sgeir a' Chaisteil. Adults were also seen when passing in a boat in suitable breeding habitat on Fladda. The estimated breeding population on Lunga and Sgeir a' Chaisteil was 3,135 apparently occupied burrows (AOBs). For counts of birds, one bird is taken to represent one AOB (Mitchell *et al.* 2004). Numbers have since 2004 fluctuated between 2,423 and 3,349 AOBs with the exception of the comparatively low estimates of the two years 2010-2011; 1,705 and 1,611 AOBs respectively.

The estimated breeding population on the Treshnish Isles in 2018 was 2,583 AOBs, a 45% increase from the 1,788 AOBs counted by *Seabird 2000* in 1999.

Eight adult birds known to be occupying breeding burrows were caught at the colony and fitted with a geolocator attached to a ring that was put onto one of the birds' legs². The aim is to catch the same individuals again one or two years later to recover the tag and download data on their daily locations between breeding seasons. From the data, SeaTrack (<http://www.seapop.no/en/seatrack/>) will analyse the non-breeding distribution of these individuals together with those individuals tracked from breeding in colonies encircling the Barents, Norwegian and North Seas, which includes colonies in Russia, Norway incl. Svalbard and Jan Mayen, Iceland, the Faroe Islands and Great Britain. Full details of this project's organisation and funding can be found at <http://www.seapop.no/en/seatrack/about/>.

Rock Dove *Columba livia*

Regular breeding species in very small numbers.

Birds were seen daily on Lunga, principally along the east coast.

Swift *Apus apus*

Irregular visitor

Between two and eleven birds were seen or heard on three dates over Lunga. On one of these dates, a further two birds were observed overhead when TIARG were surveying on Sgeir an Eirionnaich.

² See previous footnote

Peregrine *Falco peregrinus*

Seen most years with breeding known to occur on adjacent coasts.

A single male bird was seen over the Village, Lunga, on 23rd June.

Hooded Crow *Corvus cornix*

A regular breeding bird in small numbers.

The species was seen daily either on or flying between Lunga and Sgeir a' Chaisteil, with no more than three birds noted at any one time. Sightings would suggest the presence of no more than single pairs on Sgeir a' Chaisteil and Lunga.

Elsewhere during brief visits to or passage by adjacent islands, one bird was seen on Fladda and 2 birds on Sgeir an Eirionnaich.

Raven *Corvus corax*

At least one pair breed in most years.

Up to six individuals were seen on occasions frequenting Lunga. At least two birds were moulting adults that were accompanied at times by what were thought to be four juveniles due to the absence of wing moult or abraded flight feathers.

Skylark *Alauda arvensis*

A regular breeding species in small numbers.

Up to four singing males were on Lunga. Single singing males were present below the southern slope of Cruachan, at the Village and south of Tarbet in Areas 7 and 6.

Sedge Warbler *Acrocephalus schoenobaenus*

A scarce but almost annual visitor.

One bird was seen in the reedbed at the south end of Lunga on 24th June.

Whitethroat *Sylvia communis*

Rare visitor.

One singing male held territory at the Village, Lunga. A second male was seen at Shag Alley on 26th June.

Wren *Troglodytes troglodytes*

A regular breeding species, quite common where habitat is suitable.

As in previous years, the vast majority of records were confined to the northern half of Lunga, predominantly amongst the boulder scree and bracken-covered slopes from Cruachan down to the sea and on Corran Lunga. Food carrying, alarms, a nest and recently fledged young confirmed breeding on Lunga. There was a minimum of 7 territories recorded between the Village and Harp Rock.

Elsewhere one singing male was recorded during a brief visit to Sgeir a' Chaisteil.

Starling *Sturnus vulgaris*

A regular breeding species in small numbers.

Small flocks of up to 75 birds were noted daily on Lunga, comprising mostly of juveniles. Breeding was confirmed with adults noted carrying food at the Village.

Elsewhere during brief visits to the other islands, the species was recorded on Sgeir a' Chaisteil (25 birds) and Sgeir an Eirionnaich (37).

Song Thrush *Turdus philomelos*

Rare visitor

One bird was seen on three dates to the east of the Village, Lunga.

Wheatear *Oenanthe oenanthe*

A regular breeding species in small numbers.

Widespread breeding species on Lunga with adults and fledged young observed across all count areas.

Elsewhere 3 juveniles were recorded during a brief visit to Sgeir a' Chaisteil.

Dunnoek *Prunella modularis*

Irregular breeding species.

A singing male was heard on 23rd and 24th June at the Village, Lunga.

Pied Wagtail *Motacilla alba yarrelli*

A regular breeding species in very small numbers.

One pair of adults were regularly seen in the vicinity of the Village, Lunga. Single record occurrences elsewhere on Lunga included an adult male carrying food at the gully north of Harp Rock, an adult male at Shag Alley, adult female at Tarbet, adult female in Area 6 and a single bird on the south east of the Village.

Elsewhere one female were recorded during a brief visit to Sgeir a' Chaisteil.

Meadow Pipit *Anthus pratensis*

A regular breeding species in small numbers.

Widespread breeding species on Lunga with no estimate of territories made, though less numerous than Rock Pipit *Anthus petrosus*. Food carrying, alarms, recently fledged young and a nest with 4 eggs in area 9 confirmed breeding on Lunga.

Rock Pipit *Anthus petrosus*

A regular breeding species in small numbers.

Breeding birds were common along the coast of Lunga and on Sgeir a' Chaisteil. One nest with eggs (Shag Alley), food carrying, alarms and recently fledged young confirmed breeding on Lunga and Sgeir a' Chaisteil.

Twite *Linaria flavirostris*

Regular breeding species in small numbers

Small parties of up to nine birds, including adults with juveniles, were noted daily around the northern half of Lunga.



Adult male Wheatear (Andrew Carter)

Systematic list of mammals for 2019

Otter *Lutra lutra*

Evidence of presence regularly noted.

One male was observed swimming south through the channel between Corran Lunga and Sgeir a' Chaisteil. Nearby, fresh tracks of one animal was found in the cave at gully south of the Village, Lunga.

American Mink *Neovison vison*

No known occurrences.

No evidence of this species was noted on Lunga or during brief visits to any of the other Treshnish Isles during the expedition.

House Mouse *Mus musculus*

Resident, apparently in small numbers.

Individual animals were seen on several occasions at the expedition base in the Village, at the north end of Lunga.

Chocolate wax monitoring blocks, "chew sticks", were laid for 3-4 successive days at 30 locations at the following sites on Lunga: the Boulder Beach (Area 1 and 2), the Puffin colony ("lawn") in Area 12A, along the wall immediately below cliff top footpath at the 2nd Gully south of the Village, the southern end of Area 12 and in Area 11 opposite Harp Rock. The chew sticks were then inspected for rodent teeth marks. Teeth marks attributable to mice were detected on one or more of the chew sticks at each site. Full details of the methodology and results are presented in an end paper to this report.

Brown Rat *Rattus norvegicus*

No known occurrences.

No evidence of this species was noted on Lunga or during brief visits to any of the other Treshnish Isles visited during the expedition.

Rabbit *Oryctolagus cuniculus*

Resident, numbers much reduced in recent years.

No systematic monitoring took place. Casual observations on Lunga suggest a continuation in the reduction of animals on Lunga compared with the most recent years. No more than two animals were recorded daily from widespread localities, with several days when no animals were seen.

No evidence was noted of animals on any of the other islands of the Treshnish Isles during the brief visits by TIARG.

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.

A maximum of 98 animals were visible from Lunga hauled out on intertidal reefs to the north and east at low tide.

Minke Whale *Balaenoptera acutorostrata*

Rare visitor.

One animal was seen off the west coast of Lunga towards Tiree on 24th June.

Bottlenose Dolphin *Tursiops truncatus*

Rare visitor

A pod of at least 8 animals were seen from *Turus Mara* off the west coast of Mull, when TIARG were returning from Lunga on 29th June.

Pipistrelle Bat *Pipistrellus pipistrellus* (45 kHz)

Previously regarded a rare visitor. True status uncertain.

Two animals of this species, now recorded annually since 2011, were noted over the Village on one night, 22nd June.

Systematic list of lepidoptera for 2019

Common Blue *Polyommatus icarus*

Regular breeder

Up to eight individuals were recorded daily on Lunga. Elsewhere during a brief visit to Sgeir a' Chaisteil, two individuals were recorded on 26th June.

Red Admiral *Vanessa atalanta*

Migrant

Up to five individuals were recorded on Lunga on three dates.

Painted Lady *Vanessa cardui*

Regular migrant

Up to 13 individuals were recorded on Lunga on four dates.

Small White *Pieris rapae*

Accidental

Singles were recorded on Lunga at the south end on 23rd and 24th June and in Area 3 on 24th June.

Other notable wildlife records

Oyster Plant *Mertensia maritima*

Localised species on Lunga.

At Tarbet (west) the species continues to be well established with no marked difference in abundance and extent to that of recent years.

Red-tailed Bumblebee *Bombus lapidarius*

Singles were recorded on Lunga on 23rd and 24th June.

Elsewhere during brief visits to the other islands, the species was recorded on Sgeir a' Chaisteil (1 individual) and Sgeir an Eirionnaich (2).

White-tailed Bumblebee *Bombus lucorum*

A singles were recorded on 27th June on Lunga and during a brief visit to Sgeir an Eirionnaich.

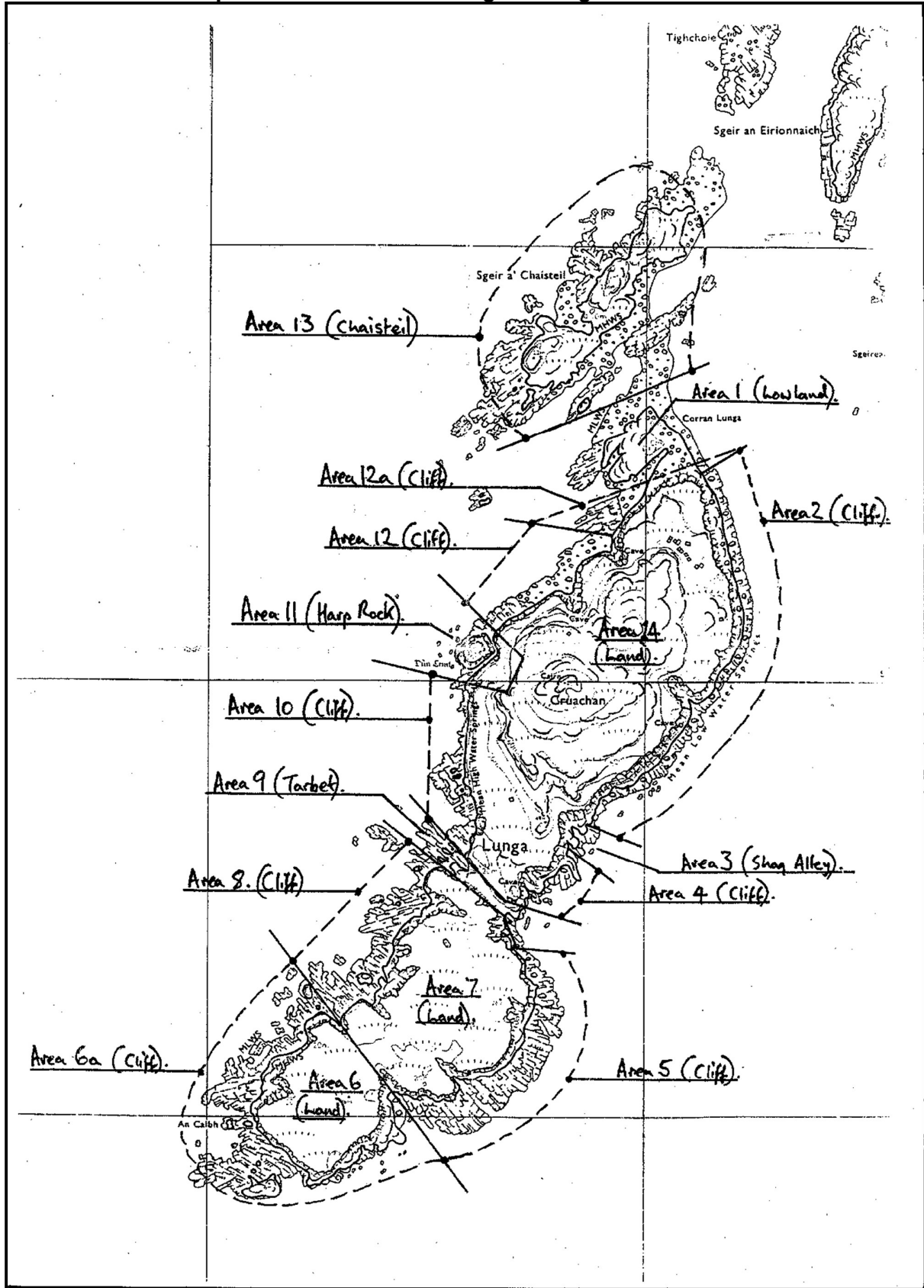
Common Carder Bee *Bombus pascuorum*

Plentiful on Lunga.



Bog Asphodel *Narthecium ossifragum* (Andrew Carter)

Map of census zones – Lunga and Sgeir a' Chaisteil



Breeding seabird census data for the Lunga, Sgeir a' Chaisteil and islets in 2019

Sector	Count unit	Lunga	Sgeir a' Chaisteil	Sgeirean na Giusaich	Sgeir an Fheoir	Sgeir an Eirionnaich	Sgeir na h-Iolaire
Fulmar	AOS	250	23				
Manx Shearwater	No census	+					
Storm Petrel	No census	+					
Shag	AON	250	11			2	
Great Skua	AOT	1	1				
Lesser B-b Gull	AOT						
Herring Gull	AOT	5			3**		
Great B-b Gull	AOT	9		5**	1**	10**	
Kittiwake	AON	843					
Razorbill	IND	716	18				
Razorbill	AON	27					
Guillemot	IND	10,532	135				
Black Guillemot	IND	4				6	
Puffin	SEA	924	35				
Puffin	IND	465					
Puffin	AOB	2,376	294				

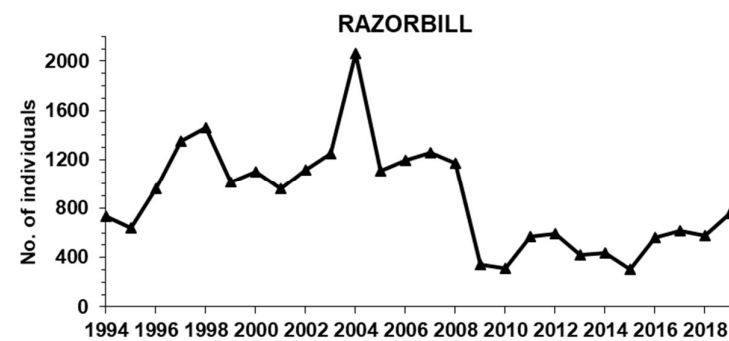
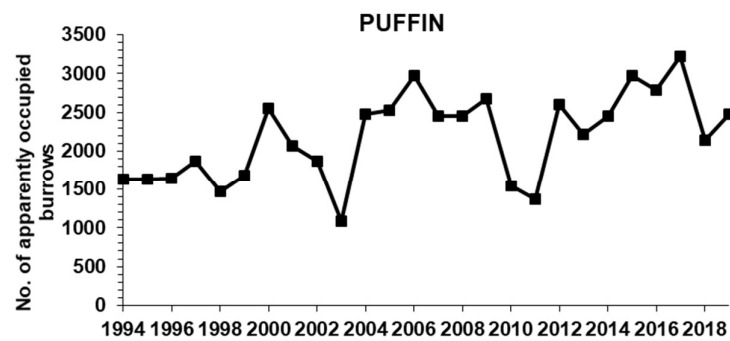
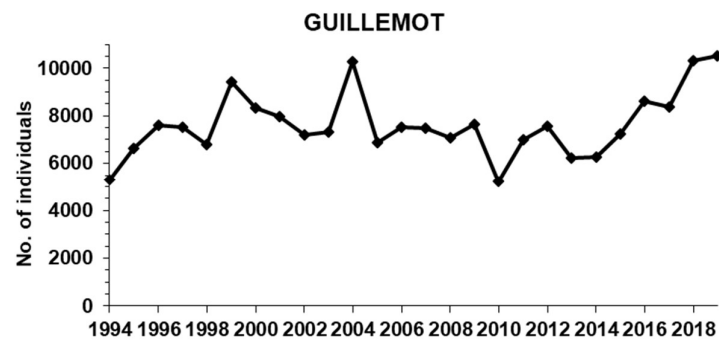
Key to count unit codes: AON/AOT/AOB/AOS = apparently occupied nest/territory/burrow/site IND = Individuals on land
SEA = individuals on sea within 200m of colony PRS = Pairs nc = no count + = breeders present
**Estimated from flush counts with the number of adults divided by two

Breeding seabird numbers for each census zone of Lunga and Sgeir a' Chaisteil in 2019

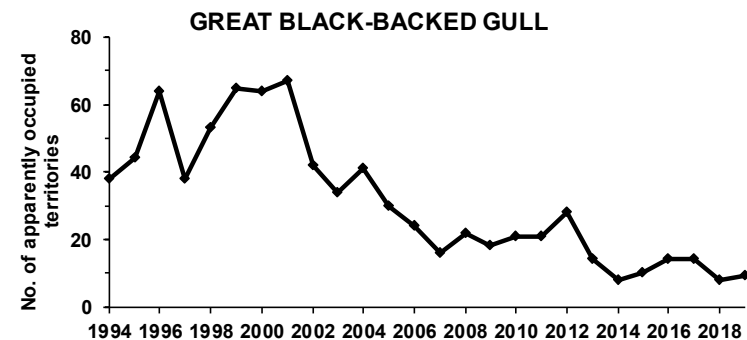
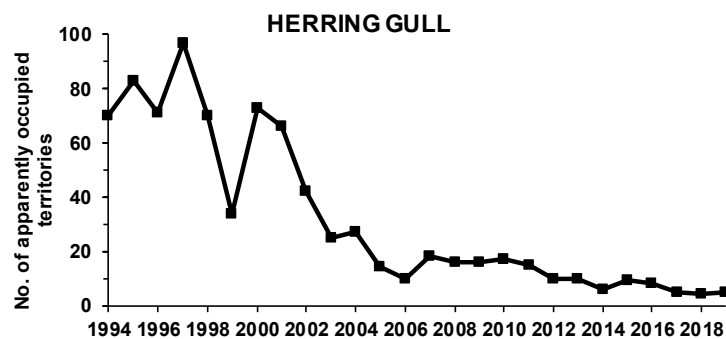
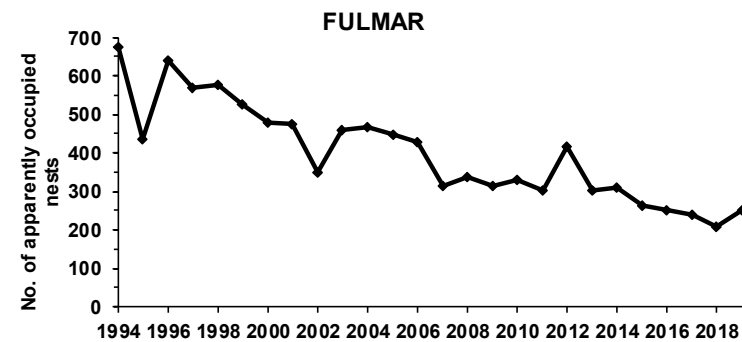
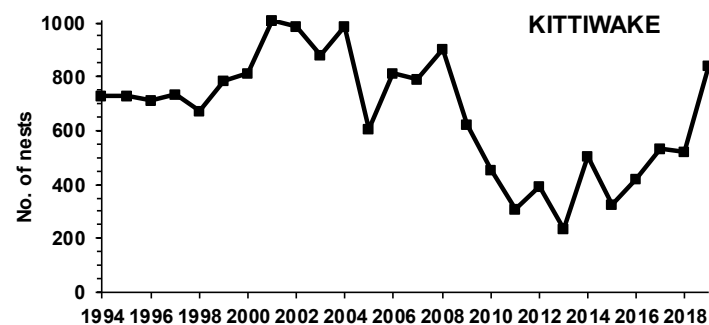
Sector	Count Unit	Count Sectors on Lunga (1 – 12a) and Sgeir a' Chaisteil (13)															Lunga & Chaisteil
		1	2	3	4	5	6	6a	7	8	9	10	11	12	12a	13	Totals
Fulmar	AOS		32	11	2	49		13		16		4	8	106	9	23	273
Shag	AON		22	35	3	42		1		25		24	26	72		11	261
Great Skua	AON						1								1		2
Lesser B-b Gull	AOT																0
Herring Gull	AOT									5							5
Great B-b Gull	AOT				1		4		4								9
Kittiwake	AON											15	771*	57			843
Razorbill	IND		52	87	19	8		6		2		91	196	241	14	18	734
Razorbill	AON					22		1		4							27
Razorbill	SEA		43			30											73
Guillemot	IND					20						171	10,073	193	75	135	10,667
Guillemot	SEA				47	1											48
Black Guillemot	IND		2					2									4
Puffin	SEA		476	170	273	5										35	959
Puffin	IND		77	281	104	3											465
Puffin	AOB					1						264	543	1,566	2	294	2,670

Key to count unit codes: AON/AOT/AOB = apparently occupied nest/territory/burrow IND = Individuals on land
SEA = individuals on sea within 200m of colony PRS = Pairs nc = no count + = breeders present
* The count includes birds only visible from the sea and a wave cut platform. These were not in previous years accessible to view to include in the annual count unless otherwise stated.

Population changes for a selection of breeding species on Lunga, 1994 – 2019



Population changes for a selection of breeding species on Lunga, 1994 – 2019 (con't)



Treshnish ringing totals for 22nd – 29th June 2019

Site	Species	New birds			Recaptures		Total
		Adult	Juvenile	Pulli	Retraps	Controls	
Lunga	Manx Shearwater	6			4		10
	Storm Petrel	487			92	13	592
	Shag	37		62	85		184
	Kittiwake	25			11		36
	Guillemot	375			58	2	435
	Razorbill	36		5	27		68
	Puffin	94		2	8		104
	Wren				1		1
Sgeir an Eirionnaich	Great Black-backed Gull			17	1		18
Treshnish Isles	Grand total for 2019	1,060		86	287	15	1,448

*80 of 85 Shag 'retraps' were colour-ringed birds of which the majority (50) were sighted only and not captured.

Note: All rings used in 2019 were registered to *Treshnish Auk Ringing Group*.



Shag (Andrew Carter)

Small rodents and their presence or absence within seabird colonies on Lunga

Robin M. Ward

1. Introduction

A major threat to seabirds in the world is the introduction of mammals on their breeding islands. Mammals have typically been brought to remote Scottish islands by humans either accidentally as stowaways on ships, or deliberately for hunting and farming. The sea however is not necessarily a barrier to the natural spread of introduced populations of mammals, including small rodents of which Brown Rats *Rattus norvegicus* have colonised islands up to about 1 km offshore in New Zealand (Ecosure 2009). Introduced mammals have direct and indirect negative effects on seabirds. Direct effects include predation and disruption of breeding activities, and indirect effects include habitat transformation due to overgrazing.

Rats *Rattus* sp. are by far the most common introduced mammals on seabird islands (Safina 2008, Harris 2009). Currently, approximately 80% of islands worldwide have populations of introduced rats (Safina 2008). Introduced rats have been shown to negatively impact 75 species of seabirds, with burrow-nesting seabirds such as storm petrels and shearwaters being the most negatively affected (Jones *et al.* 2008). Mice are another commonly introduced small rodent to islands. The species usually introduced is the House Mouse *Mus musculus*. Though the diet of the House Mouse is mainly grain and insects, on tiny, remote islands these food items are frequently unavailable, forcing the mice to adapt and prey on seabird eggs and chicks e.g. on Gough Island where the introduced mice act as significant predators of albatross and petrel chicks (Cuthbert & Hilton 2004, Wanless *et al.* 2007).

In 2011, the Hebridean Trust expressed their interest to TIARG of establishing the presence or not of potential mammalian predators of seabirds on the Treshnish Isles, in particular Mink and Rats. This coincided with TIARG increasing awareness of an apparent reduction in the numbers and distribution of breeding Storm Petrels around the Village and Boulder Beach at the north end of Lunga. TIARG were also becoming increasingly aware of the concern on several seabird islands in the UK of the role mice may play as a predator of petrel eggs and chicks e.g. on Skomer and St Kilda (Bolton *in litt.*). TIARG members have therefore undertaken during four expeditions (2012, 2013, 2015 and 2016), surveys to assess the distribution and relative abundance of small rodents with in the vicinity of breeding seabirds on Lunga. More recently, a technical assessment of the biosecurity measures required on the 41 UK seabird island Special Protect Areas (SPAs) was carried which included an audit of the Treshnish Isles with assistance from TIARG (Varnham 2019). Actions for this Biosecurity of LIFE project included in the short-term provisioning of monitoring equipment to TIARG for their annual visit in June 2019 i.e. tracking tunnels and chocolate wax monitoring blocks. This paper reports on the survey undertaken by TIARG during the 2019 expedition to assess the distribution and relative abundance of small rodents with in the vicinity of breeding seabirds on Lunga.

2. Study area and Method

The study area on Lunga comprised of:

- The **Boulder Beach** at the north end of Lunga which censuses in 1996 and 2000 estimated respectively support 350 and 1,200 pairs of breeding Storm Petrel (Gilbert & Helmsley 1996; Willis 2000);
- The Puffin colony ("**Puffin Lawn**") adjacent to the cliff top path taken by visitors in count area 12A;
- The **2nd Gully Wall**, a low stone wall known to be occupied by breeding Storm Petrels, beside the cliff top coast path above 2nd gully south of the Village, Area 12
- **Area 11-12**, in the mixed seabird colony in Area 11, at the lowest accessible area to island visitors directly opposite Harp Rock and a higher adjacent "viewing platform" to the north overlapping Area 11 and 12; and,
- The **southern settlement**, a settlement at the southern foot of Cruachan, the remaining stone foundations of which are known to be occupied by breeding Storm Petrels.

At the first four sites were laid chocolate wax monitoring blocks to attract and record the distinctive bite marks of different rodent groups e.g. mice and rats (Varnham 2008). The chocolate wax monitoring blocks were made following the method of Varnham (2008). Single ink tracking cards to establish the presence through footprints of rodents were positioned within the natural cover of boulders and walls at all sites but the Puffin Lawn. The rodents walk over ink-pads at either end of the rectangular card (48 x 10 cm) and then

leave their footprints on the card between the ends. Each species has a different footprint and so the ink marks on the card will show which species visited.

The numbers and positions of the chocolate wax blocks deployed were:

- **Boulder Beach:** a single line of eight chocolate wax blocks (no. 1 to 8) were spaced at approximately 50 m apart, set parallel with the tide edge between high water mark and the start of vegetation from the eastern end of the Boulder Beach to the western end up to below the cessation of vegetation (before Corran Lunga). A further two chocolate wax blocks were positioned against the edge of vegetation at the western end of the Boulder Beach.
- **Puffin Lawn:** a single line of five chocolate wax blocks were spaced at approximately 25 m apart set parallel to the cliff edge through the Puffin colony adjacent to the coastal path.
- **2nd gully in Area 12:** Five chocolate wax blocks were laid either on top or base of the low stone wall seaward of the footpath above the 2nd gully.
- **Seabird colony within Area 11-12:** Five chocolate wax blocks were laid in amongst the mixed seabird colony in Area 11, at the lowest accessible area to island visitors directly opposite Harp Rock and a second five blocks across the higher adjacent “viewing platform” to the north overlapping Area 11 and 12.

The survey was conducted over the 25/28th June at the Boulder Beach and 24/28th June at all other localities. The chocolate wax blocks were inspected for rodent teeth marks, their presence recorded and whether that of rat, mouse or vole. All tracking cards and blocks were removed from the study area following inspection.

3. Results

Table 1 presents the results from the setting of tracking cards and chocolate wax blocks on Lunga in June 2019. Two chocolate wax blocks at the 2nd Gully wall were missing upon retrieval. Mice had chewed eleven (54%) of the remaining of chocolate wax blocks (Figure 1) laid out on Lunga. At all sites, at least one of chocolate wax blocks had been chewed by Mice.

Mouse tracks were only found on the tracking card positioned at the north end of Boulder Beach.

Table 1: Results from setting of tracking cards and chocolate wax blocks on Lunga, June 2019

Location	Tracking card or wax block ID no.	Chocolate wax block chewed?	Comments
Puffin Lawn	1	Yes – Mouse sp.	
	2	Yes – Mouse sp.	
	3	Yes – Mouse sp.	
	4	None	
	5	Yes – Mouse sp.	
Boulder Beach (East to west)	1	None	
	2	None	
	3	None	
	4	None	
	5	Yes – Mouse sp.	Adjacent to small breeding colony of Razorbill
	6	Yes – Mouse sp.	
	7	Yes – Mouse sp.	
	8	Yes – Mouse sp.	Storm Petrel singing at location
	9	Yes – Mouse sp.	
	10	Yes – Mouse sp.	
2nd Gully wall	Track (beside 10)	Yes prints	
	1G2	Missing.	
	2G2	Missing	
	3G2	Yes – Mouse sp.	
	4G2	Yes – Mouse sp.	
	5G2	Yes – Mouse sp.	
Area 11 (Harp)	Track	No prints	
	1F1	Yes – Mouse sp.	Immediately adjacent to breeding Guillemots

Location	Tracking card or wax block ID no.	Chocolate wax block chewed?	Comments
Rock)	2F1	None	Immediately adjacent to breeding Guillemots
	3F1	None	Beside to Shag's nest, adjacent Guillemots
	4F1	None	Adjacent to breeding Guillemot and Shag
	5F1	None	Adjacent to breeding Guillemot and Shag
	Track	No prints	Adjacent to breeding Guillemot and Shag
Area 11-12 (Harp Rock)	1F2	None	Adjacent to breeding Puffin and Shag
	2F2	None	Adjacent to breeding Puffin and Shag
	3F2	None	Adjacent to breeding Puffin and Shag
	4F2 (1F3)	Yes – Mouse sp.	Boulders beside access to 2 nd fleyg position
	5F2 (2F3)	None	Promontory used by Puffin (3 rd fleyg position)
Southern settlement	Tracks	No prints	Positioned at the cottage foundations nearest to path down from Shag Alley (Area 3)

4. Discussion

Though TIARG annually records the presence of House Mice amongst the remains of the Village cottages, no evidence of mice had previously been seen elsewhere on Lunga other than that detected from the deployment of chocolate wax blocks and live trapping. If it were not for the live trapping and chew blocks, this will have remained so for 2019 as well given no other signs of Mice were noted by TIARG during the course of their traditional survey work.

Where the current survey recorded the House Mice on the Boulder Beach and 2nd Gully Wall were within, or at least in close proximity to, known colonies of breeding Storm Petrel. The two locations opposite Harp Rock where the presence of mice were also detected was either in close proximity to breeding Guillemots (wax block ID no. 1F1) or in the vicinity of Puffin burrows (4F2). Whether these 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 the Boulder Beach and Wall, and the need for monitoring to be non-invasive. A better opportunity may exist in monitoring those nest sites within the walls of the Village cottages where the location of breeding sites and placement of nest cameras may prove easier. Until such time suitable equipment becomes available, further tracking cards and use of chew blocks elsewhere on Lunga would be beneficial in establishing whether a relationship does exist between the distribution of House Mice and breeding Storm Petrels on Lunga.

5. Acknowledgements

Karen Varnham (RSPB) is kindly thanked for providing the tracking cards and chocolate wax blocks.

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Figure 1: One photograph of a mouse chewed chocolate wax block and one unmarked. (Robin M. Ward)



Treshnish Isles ringing totals 1971 – 2019

SPECIES	1971	1974	1976	1977	1978	1980	1982	1984	1986	1989	1991	1993	1994	1995	1996	1997	1998	1999	2000
Eider																			
Fulmar	17	6	4		8	21	14	18	7	21	15		4	27	38	7	24	23	12
Manx Shearwater		2	13		4	4	1	8					9	1		2	1	4	4
Storm Petrel		254	22		1	283		203	800	411	975	75	440	536	331	1104	741	732	414
Shag	150	7	10	10	24	80	50	160		40	10		10	59	96	99	150	100	59
Buzzard						1	2												
Corncrake																			
Oystercatcher		1				1	4	2										2	
Ringed Plover																			
Common Sandpiper																	1		
Great Skua																	1		
Kittiwake						1	1	1	2	2	4		6	10	1	50	41	23	13
Common Gull																	4		5
Lesser Black-b Gull																			
Herring Gull	6	1			14	46	35	56	4	4	3		5	24	19	52	73	39	15
Great Black-b. Gull	3	6	3	7	6	22	14	35		22	15		6	25	16	48	19	16	2
Guillemot	32	20	14		66	502	137	364	180	250	306		109	498	349	472	503	507	892
Razorbill	65	72	90		115	266	218	236	151	103	64		81	101	105	98	112	102	133
Black Guillemot																1			
Puffin	70	198	271		203	200	208	182	174	160	114		358	236	301	267	398	274	389
Hooded Crow																			
Willow Warbler														1					
Wren														3					
Starling																			
Stonechat																			
Wheatear			12					1	3						5	24	37	22	50
Pied Wagtail													1	3	2				
Meadow Pipit														4		1			12
Rock Pipit									5	1				2	4	2	4	2	1
Twite																2			
TOTAL	343	567	439	17	441	1427	684	1266	1326	1014	1506	75	1029	1530	1267	2229	2109	1846	2001

NOTES: (1) Data for 1971 - 1995 extracted from Walker & Cooper (1996). This may not include all rings used.
 (2) Ringing data for a three-day visit in 1972 are not available.

Treshnish ringing totals 1971 – 2019 (continued)

SPECIES	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Eider				1																1
Fulmar	25	22	25	47	14	15	8						1		1		1	9	1	435
Manx Shearwater			2		1	1	2		4	9	3	18	3	13	13	5	8	2	6	141
Storm Petrel	1030	15	360	83	491	962	21	118	403	293	202	212	191	448	978	258	289	427	487	14590
Shag	37	97	99	200	77	35	141	124	53	116	67	120	115	90	148	165	200	235	99	3333
Buzzard																				3
Corncrake					1						2									3
Oystercatcher	1						4				2	2	1	2	1	4		1		28
Ringed Plover					1		1											1		3
Common Sandpiper						1	1	1									1			5
Great Skua		1	1		1			2	4		2			2			2	1		17
Kittiwake	11	3	2	21	15	14	16	3	4	3	8			16	12	14	22	13	25	357
Common Gull	11	11	6		16	8								4	1	1				67
Lesser Black-b Gull								1		2	2				4	1				10
Herring Gull	11	11	8	11	8	1	11	7	20	11	8	7	3	4	3	8	4	2		534
Great Black-b. Gull	27	5	21	18	12	3	4	13	12	15	10	4	1	2	15	11	16	2	17	473
Common Tern						1														1
Arctic Tern														44	104	16		11		175
Guillemot	312	425	261	800	141	172	123	1	51	53	169	46	8	145	154	161	230	329	375	9157
Razorbill	31	110	56	147	37	33	34	5	6	7	8	2	2	32	23	17	40	76	41	2819
Black Guillemot	1																			2
Puffin	214	351	244	226	151	272	195	327	32	38	68	301	71	128	239	260	214	333	96	7783
Hooded Crow							1													1
Rock Dove																		3		3
Willow Warbler											1							1		3
Whitethroat											1									1
Sedge Warbler											2									2
Wren	1			2	4	2		2	1	1	2	6		2	1	3		16		46
Starling							3								1					4
Stonechat						2		1												3
Wheatear	24	2	2	2	7	1	2	4	2	4	5	10	4	7	11	3	3	5		252
Dunnock											1		1	1		2				5
Pied Wagtail							4				3	1			4					18
Meadow Pipit	1	4	1	3	5	1		4		1	2	15	3	1	5		1	3		67
Rock Pipit	2	2	2	2		3	21	10	1	2	4	3	1	2	11	1	4	7		99
Twite		1					1	1	1		3	1						16		26
TOTAL	1739	1060	1090	1563	982	1527	593	624	594	555	575	748	405	943	1729	930	1035	1497	1147	40467

NOTES: (1) Ringing totals are not included for July 2019.

Recent ringing recoveries

STORM PETREL

TIARG have in the past year received details of 16 recoveries of birds ringed within Britain and Ireland in the months July - September and controlled by TIARG on Lunga in June 2018. These recoveries are summarised in the table below; all birds were ringed as adults (Euring code 4).

Ringing Site	No. of controls at:	Time interval (years, days)		Distance Km	Direction (degrees)
	Lunga	min	Max		
West Yell, Shetland	1		36 yr 363 d	545	214
Fair Isle, Shetland	2	326 d	348 d	442	220
Bewan, North Ronaldsay, Orkney	1		1 yr 340 d	401	217
Souter Lighthouse, Tyne & Wear	1		2 yr 344 d	360	299
Annagh Head, Mayo	1		333 d	342	043
Sule Skerry, Orkney	1		2 yr 346 d	313	203
Calf of Man, Isle of Man	1		1 yr 347 d	290	340
Eyemouth, Scottish Borders	1		3 yr 331 d	277	285
Eilean nan Ron, Highland	1		3 yr 336 d	262	209
Faraid Head, Highland	1		2 yr 322 d	255	203
Isle of May, Fife	2	332 d	2 yr 324 d	241	278
Ballyreagh, Londonderry	3	338 d	1 yr 312 d	146	007

RECOVERIES OF OTHER SPECIES

All other recoveries relating to the Treshnish Isles received since the previous TIARG report are listed below.

Manx

Shearwater

FC52554	4	30/6/1994	Lunga			
	X	30/6/2018	Lunga			
			0 km	0 degs	8766 days	
			Recaptured.			

Guillemot

Y17286	1	25/6/2016	Isle of Canna, Highland			
	R	23/6/2018	Lunga			
			64 km	174 degs	728 days	
			Dead for more than a week, not fresh. Bird found.			

Razorbill

M77258	1	30/6/1996	Isle of Canna, near Mallaig, Highland			
	R	26/6/2018	Lunga			
			64 km	174 degs	8031 days	

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We thank Iain Morrison and his family, for providing our transportation between Mull and Lunga, between the islands of the Treshnish Isles (<http://www.turusmara.com/>), and are grateful for his continuing advice, co-operation and help.

Any comments on this report, and suggestions for improvements for relaying information required by conservation agencies, are much welcomed.

The Expeditions 1971 – 2019

A list of participants through the years, with brief notes on the work performed

- 1971** Barry Lawson, Peter Deans, John Eatough, Shiela Anderson, Dick Hansford.
Full census and ringing.
This was the first trip and the Treshnish Isles were included in a “mopping up” of islands not fully covered during the 1969/70 “Operation Seafarer” National Seabird Census.

- 1972** Barry Lawson, Geoff Ward, Bevan Craddock.
Part census and ringing
Forced to leave after three days due to bad weather.

- 1973** Barry Lawson, Peter Deans, John Hodson, Geoff Cope.
Trip abandoned – unable to land due to rough seas

- 1974** Barry Lawson, Peter Deans, Geoff Ward, John Hodson, Geoff Cope, Tom Pool.
Census of Lunga and ringing
An RAF Helicopter landed a photographer onto Harp Rock, causing many bird casualties.

- 1976** Barry Lawson, Peter Deans, Geoff Ward, John Hodson, Geoff Cope, Tony Kilgallen.
Full census Lunga – Fladda and ringing.
Very hot summer.

- 1977** Barry Lawson, John Hodson.
Ringing only.
Called in on “Corryvreckan” boat cruise.

- 1978** Barry Lawson, Peter Deans, John Hodson, Simon Walker.
Full census Lunga and Sgeir a’ Chaisteil and ringing.

- 1980** Barry Lawson, Peter Deans, John Hodson, Simon Walker, David Lawson.
Ringing only

- 1981** Geoff Ward, Geoff Cope.
Part census and photography

- 1982** Barry Lawson, Peter Deans, John Hodson, Simon Walker, Andrew Lawson.
Ringing only.

- 1984** Barry Lawson, Peter Deans, John Hodson, Simon Walker.
Ringing only.

- 1986** Barry Lawson, Peter Deans, Geoff Ward, John Hodson, Simon Walker, Andrew Lawson.
Full census with ringing

- 1989** Barry Lawson, Peter Deans, John Hodson, Simon Walker.
Ringing only.

- 1991** Barry Lawson, Peter Deans, Simon Walker, David & Andrew Lawson, Jan Densham.
Ringing only.

- 1993** Roger Broad *et al.* (Scottish Natural Heritage charter)
Full census of The Dutchman’s, Lunga, Sgeir a’ Chaisteil and Fladda.
Chris Redfern *et al.*
Storm Petrel ringing.

The Expeditions 1971 – 2019 (continued)

- 1994** Simon Walker, Mike Smith, Dennis Cooper, Jan Densham, Danny Lenain.
Full census Lunga and Sgeir a' Chaisteil and ringing.
Chris Redfern *et al.*
Storm Petrel ringing.
- 1995** Simon Walker, Mike Smith, Dennis Cooper, Jan Densham, Fergus Henderson.
Full census of Lunga and Sgeir a' Chaisteil and ringing.
- 1996** Simon Walker, Mike Smith, Dennis Cooper, Danny Lenain, Robin Ward
Full census of Lunga and Sgeir a' Chaisteil and ringing.
- 1997** Simon Walker, Dennis Cooper, Robin Ward, Damian Offer, Steve Willis, Chris Spray
Full census of Lunga – Fladda and ringing.
- 1998** Simon Walker, John Hodson, Dennis Cooper, Robin Ward, Damian Offer, Steve Willis,
Steve Worwood
Full census of Lunga – Fladda and ringing.
- 1999**
Week 1 Simon Walker, Dennis Cooper, Steve Willis, John Osbourne.
Week 2 Simon Walker, John Hodson, Dennis Cooper, Robin Ward, Damian Offer, Jan
Densham
Full census of the Treshnish Isles for *Seabird 2000* and ringing
- 2000**
Week 1 John Hodson, Dennis Cooper, Damian Offer
Full census of Manx Shearwater on Lunga for *Seabird 2000*. Limited passerine ringing. (May).
Week 2 Simon Walker, John Hodson, Dennis Cooper, Robin Ward, Steve Willis, Andrew Carter,
Steve Woodward
Full census of Lunga, Sgeir a' Chaisteil and the islands between Lunga – Fladda. Tern census for
Seabird 2000. Ringing.
- 2001** Simon Walker, John Hodson, Dennis Cooper, Robin Ward, Damian Offer, Andrew Carter
Completion of census for *Seabird 2000*. Full census of Lunga, Sgeir a' Chaisteil and the islands
between Lunga – Fladda. Ringing.
- 2002** Simon Walker, Robin Ward, Andrew Carter, Phil Bone, Sara Brown, Jackie Hay.
Full census of Lunga, Sgeir a' Chaisteil and the islands between Lunga – Fladda. Ringing.
- 2003** Simon Walker, John Hodson, Dennis Cooper, Robin Ward, Andrew Carter, Jackie Hay, Matt
Smith.
Full census of Lunga, Sgeir a' Chaisteil and the islands between Lunga – Fladda. Ringing.
- 2004** Simon Walker, Robin Ward, Andrew Carter, John Calladine, Tim Dixon, Shaun Micklewright,
Tina Wiffen.
Full census of Lunga, Sgeir a' Chaisteil and the islands between Lunga – Fladda. Ringing.
- 2005** Simon Walker, Robin Ward, Andrew Carter, Shaun Micklewright, Gareth Harris, George
Henderson, Tracé Williams.
Full census of Lunga, Sgeir a' Chaisteil and the islands between Lunga – Fladda. Ringing.
- 2006** Simon Walker, Dennis Cooper, Robin Ward, Andrew Carter, Shaun Micklewright, John
Calladine, Tim Dixon, George Henderson.
Full census of Lunga, Sgeir a' Chaisteil, Cairn na Burgh More, Cairn na Burgh Beg and the islands
between Lunga – Fladda. Ringing.

The Expeditions 1971 – 2019 (continued)

- 2007** Simon Walker, Robin Ward, Andrew Carter, Shaun Micklewright, George Henderson, Tim Dixon, Tracé Williams.
Full census of Lunga, Sgeir a' Chaisteil and the islands between Lunga – Fladda. Ringing.
- 2008** Simon Walker, John Hodson, Robin Ward, Andrew Carter, Shaun Micklewright, George Henderson, Tim Dixon, John Calladine.
Full census of Lunga, Sgeir a' Chaisteil and the islands between Lunga – Fladda. Ringing.
- 2009** John Hodson, Robin Ward, Dennis Cooper, Andrew Carter, Shaun Micklewright, Tim Dixon, Jurjen Annen, Claire Dovey.
Full census of Lunga, Sgeir a' Chaisteil and the islands between Lunga – Fladda. Ringing.
- 2010** John Hodson, Robin Ward, Andrew Carter, Shaun Micklewright, Tim Dixon, Tracé Williams, Jurjen Annen, Claire Dovey.
Full census of Lunga, Sgeir a' Chaisteil and the islands between Lunga – Fladda. Ringing.
- 2011** John Hodson, Robin Ward, Andrew Carter, Shaun Micklewright, Tim Dixon, George Henderson, Jurjen Annen, Claire Dovey.
Full census of Lunga, Sgeir a' Chaisteil, Bac Mór (from boat) and Bac Beag (from boat). Ringing.
- 2012** John Hodson, Robin Ward, Dennis Cooper, Tim Dixon, Steve Willis, Jurjen Annen, Claire Dovey, Richard Barnes, Simon Roberts.
Full census of Lunga and Sgeir a' Chaisteil. Ringing.
- 2013** John Hodson, Robin Ward, Dennis Cooper, Andrew Carter, Tim Dixon, Shaun Micklewright, Jurjen Annen, George Henderson.
Full census of Lunga and Sgeir a' Chaisteil. Ringing.
- 2014** John Hodson, Robin Ward, Andrew Carter, Tim Dixon, Shaun Micklewright, Jurjen Annen, Claire Dovey, Cerian Thomas.
Full census of Lunga and Sgeir a' Chaisteil. Ringing.
- 2015** Robin Ward, Andrew Carter, Tim Dixon, Shaun Micklewright, John Calladine, Stuart Brown, Chris Heward, Daniel Plunkett.
Full census of Lunga and Sgeir a' Chaisteil and the islands between Lunga – Fladda. Ringing.
- 2016** Robin Ward, Andrew Carter, Tim Dixon, Jurjen Annen, Chris Heward, Daniel Plunkett, Matt Smith, Lila Buckingham.
Full census of Lunga, Sgeir a' Chaisteil, Cairn na Burgh More, Cairn na Burgh Beg and the islands between Lunga – Fladda. Ringing.
- 2017** Robin Ward, Andrew Carter, Tim Dixon, Shaun Micklewright, George Henderson, Claire Dovey, Chris Heward, Lila Buckingham.
Full census of Lunga, Sgeir a' Chaisteil, Bac Mór (from boat), Bac Beag (from boat) and the islands between Lunga – Fladda. Ringing.
- 2018**
May Dennis Cooper, Tim Dixon, Jamie Dixon, Ross Johns, Matt Williams (For 24 hours: Robin & Judith Ward).
Full census of Manx Shearwater on Lunga for *Seabirds Count*. Limited ringing. (1 week).
- June** Robin Ward, Andrew Carter, Tim Dixon, Shaun Micklewright, Jurjen Annen, Chris Heward, Lila Buckingham, Emma Hughes.
Full census of the Treshnish Isles for *Seabirds Count*. Ringing. (1 week)
- July** Dennis Cooper, Tim Dixon, Chris Heward, Lila Buckingham, Daniel Plunkett, Jamie Dixon, Matt Williams, Nicci Cox, Carole Davis, Jacki Gittins, Thomas Hibbert, Peter Robinson, Chris Smith, Helen Stace.
Census of Storm Petrel on Lunga, Sgeir a' Chaisteil and Fladda for *Seabirds Count*. Limited ringing. (2 weeks).

2019

June

Robin Ward, Andrew Carter, Tim Dixon, Shaun Micklewright, Jurjen Annen, Claire Dovey, Chris Heward, Lila Buckingham.

July

Full census of Lunga and Sgeir a' Chaisteil and the islands between Lunga – Fladda. Ringing.

Tim Dixon, Chris Heward, Lila Buckingham, Daniel Plunkett, Jamie Dixon, Matt Williams, Helen Stace, Sophie Bennett.

Census of Storm Petrel on Bac Mór and Cairn na Burgh More for *Seabirds Count*. Limited ringing. (1 week).



Bottle-nosed Dolphin (Andrew Carter)

Ring series used on the Treshnish Isles since 1927*

SHAG RINGS	A2 RINGS	E RINGS	F RINGS	G RINGS	H RINGS	RAZORBILL RINGS	GUILLEMOT RINGS	MISC. RINGS
1078761 – 800	2010581 – 583	EF75001 – 500	FA50601 - 700	GH21301 – 350	HT03619	K10701 – 1000	R07001 – 100	1F4094 - 097
1080101 – 110	2101991 – 2000	EG23501 – 700	FB22601 – 700	GN85301 – 400	HT09001 – 004	K13001 – 300	R19401 – 20200	C331894 - 900
1087111 – 120	2121401 – 500	EG23721 – 780	FB23401 – 500	GJ35401 – 500	HT17871 – 890	M36341 – 350	R24001 – 26350	E196501 - 520
1105561 – 570	2167051 – 068	EG23801 – 999	FC52551 – 558	GJ76001 – 800	HT17931 – 940	M46501 – 800	R31601 – 900	JB44316
1123531 – 540	2170201 – 203	EG61000 – 500	FC52571	GJ99081 – 082	HT34021 – 030	M55001 – 500	R51501 – 2000	K039209 - 230
1123541 – 550	2238501 – 600	EG88501 – 9000	FC74501	GK34351 – 354	HT68201 – 210	M72451 – 800	R65501 – 6000	K419290 - 295
1123671 – 690	2261001 – 2350	EH33377 – 380	FH36101 – 200	GK50214 – 220	HT68221 – 226	M85501 – 800	R72501 – 4000	NA84296 - 299
1123961 – 970	2284001 – 5000	EH54501 – 55000	FR13606 – 636	GK50551 – 570	HT80301 – 400	M88001 – 300	T14001 – 5000	KX83101 - 106
1130701 - 800	2309901 – 10000	EH89256	FR14401 – 500	GK62985 – 990	HW05351 – 360	M92501 – 700	R73001 – 4000	KX83116 - 118
1159651 – 700	2311301 – 400	EH89260	FR51201 – 300	GK90821 – 840	HW06951 – 7000		T82001 – 300	RF10011-020
1163701 – 740	2311501 – 2000	EH98001 – 300	FR56351 – 400	GK91471 – 490	HW08994 – 09000		X39501 – 40000	LA59201-300
1168001 – 100	2348001 – 500	EK29501 – 900	FR76701 = 800	GM78756	HW37361		X56501 – 57000	DD90261-270
1170601 – 700	2236801 – 7000	EK72657 – 660	FS21478	GP13416 – 450	HW42996 - 3000		X63001 – 500	CBV601-700
1174201 - 300	2369301 – 400	EK91471 – 490	FS51016 – 500	GP47917	HW68101 – 110		X67501 – 68000	V711401-500
1187901 – 950	2405001 – 6000	EL19801 – 276	FS87001 – 100	GP62201 – 207	HW68161 – 170		X79501 – 80000	TJ18901-9000
1237401 – 450	2430701 – 900	EL52501 – 3000	FV10611 – 620	GP74501 – 75000	HW74971 – 990		X99001 – 500	BT09481-490
1322951 – 960	2436501 – 7000	EN22001 – 500	FV10646 – 650	GR44201 – 250	HW87211 – 225		Y09403 – 405	NV42851-860
1328481 – 490	2444501 – 5000	EP85608 – 612	FV54446 – 460		HW96181 - 200			SR49601-700
1350801 – 900	2446202 – 233	EP85687 – 700	FV62410		HW94907 – 913			A297482-500
1357901 – 8000	2455501 – 6000	ER03701 – 800	FV62416 – 226		MA12551 – 600			B229951-992
1366901 – 7000	2480001 – 500	ER48401 – 404	FV96681 – 684		MA15801 – 900			BV70669
1373751 – 3900	2513501 – 4000	ES64018 – 189	SS96101 – 300	A2 RINGS	MA44251 – 900			SV58551-600
1378401 – 8500	2538001 – 800	ET19501 – 700		(cont)				BV28661-670
1399601 – 700	2542001 – 3000	ET52501 – 3000		2664001 – 5000	SHAG RINGS			SV58601-616
1408301 – 500	2554001 – 500	ET80001 – 500		2679001 – 80000	(cont)			Z155001-100
1414301 – 500	2560001 – 1000	EW18001 – 500		2725001 – 6000	1497001 – 100			EL69255-300
1421701 – 800	2579001-80000	EW50001 – 500		640801 – 640900	1500201 - 300			
1417001 – 7100	2605001 – 5500	EX12501 – 3000		2627701 - 800	1701501 - 2000			
1445601 – 800	2624001 – 5000	EY32001 - 500			1118766 - 789			
1491001 – 100	2650101 – 61000	EZ30001 – 1000						

*All rings series known (to TIARG) to have been used on the Treshnish Isles are documented irrespective of ring ownership.