

Treshnish Isles Auk Ringing Group

Report for 2006



Razorbill M88146 (Robin M. Ward)

Compiled by
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Expedition dates:
23rd June – 1st July 2006

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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 generalised summary of the early expeditions is given in *Birds on the Treshnish Isles 1971-1985* (Walker & Cooper 1996). Annual reports have been produced each year since. This report summarises the results of the Group's 28th expedition to the Treshnish Isles during 23rd June – 1st July 2006, a day longer than most years.

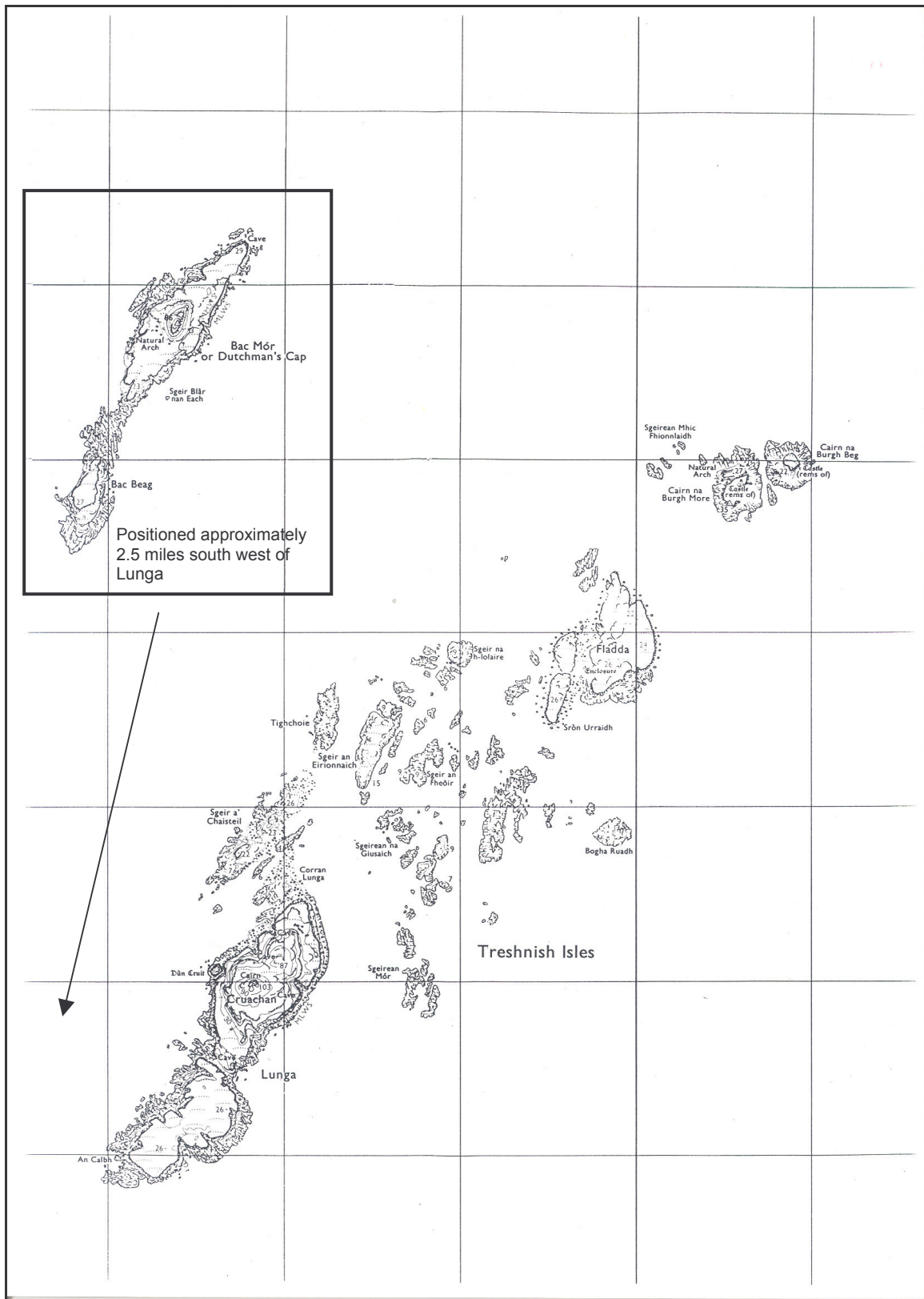
As in previous years, the expedition's base was set up around the ruined village site at the northern end of Lunga. The majority of the week's fieldwork was centred upon Lunga & Sgeir a' Chaisteil where the regular annual full seabird census and the systematic ringing of specific seabird colonies was carried out. For the second year in succession, the week was dominated by unfavourable wind conditions that resulted in very few auks being fleyged, although the opportunity to visit the other islands when weather conditions enabled a sample of Storm Petrels to be ringed on Fladda. This year, the second repeat survey of six permanent seabird monitoring plots set up in 2004 were made, providing the Group with quantification of seabird productivity in addition to the general perspective provided by the annual census. The first year of a Shag retrap adult survival study (RAS) was initiated that entails ringing each adult with its own uniquely engraved colour-ring so that it can be re-sighted in the field in future years. This is part of the British Trust for Ornithology's Integrated Population Programme funded by the UK Government.

All TIARG census and ringing data are fed into two national monitoring programmes, the Seabird Colony Register (J.N.C.C.) and National Ringing Database (British Trust for Ornithology), 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 because of the breeding colonies of seabirds they support. Financial support for the monitoring work TIARG undertook in 2006 was provided by the Hebridean Trust (www.hebrideantrust.org), owners of the islands.

Highlight of the expedition was a visit by Hebridean Trust staff, who kindly allowed us use of their hired Rigid Inflatable Boat to take advantage of the weather to undertake a complete census of all islands north of Lunga surrounding Fladda. This was the first census of the Cairn na Burghs since 1999 for Seabird 2000. Landings on other islands such as Sgeir na h-Iolaire, greatly enhanced the accuracy in the censusing of the other islands, usually counted from a vantage point on Lunga. A pair of stonechats bred above Shearwater Gulley on the east side of Lunga and represents the first breeding record for the Treshnish Isles.

This expedition once again brought home to Group members realisation of how useful our 13 consecutive years' ringing and census data has been in quantifying the extent of the poor productivity witnessed amongst some seabird species. This was against a backdrop of previous casual visits suggesting until then that all was well in the seabird colonies of Lunga.

MAP OF THE TRESHNISH ISLES



SYSTEMATIC LIST OF BIRDS FOR 2006

The following systematic list describes those bird species seen during the Treshnish Isles Auk Ringing Group's presence on the Treshnish Isles, 23rd June – 1st July 2006. Unless specified, no records are available for the Dutchman's. 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 2006 (with the exception of Fladda and the Dutchman's), is provided in a subsequent section of the report. For a third successive year the census results and timing of the breeding season suggested several seabird species were experiencing lower than expected breeding success. The census results for 2006 show a marked reduction in numbers of Shag compared with previous years on Lunga. Furthermore, for Shag and several other species (Kittiwake, Guillemot) the majority of individuals breeding were still incubating eggs or brooding small young, indicative of another late breeding season. This late breeding by some species and poor productivity was also widely reported elsewhere around the Scottish coasts in 2004 and 2005 (Mavor *et al.* 2006). The available evidence suggests that severe food shortage (e.g. of sandeels, sprats) is the primary causative factor in the poor and late seabird seasons (Mavor *et al.* 2006).

For some seabird species, average rates of population change have been calculated by linear regression of the natural logarithms of the breeding numbers year on year. The significance of the slope of the regression, equivalent to the average annual rate of increase or decrease in the population, is then assessed using the t-statistic (Fowler & Cohen 1986).

Fulmar *Fulmarus glacialis*

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

Breeding was confirmed on Cairn na Burgh Beg, Cairn na Burgh More, Fladda, Lunga and Sgeir a' Chaisteil. The breeding population for Lunga and Sgeir a' Chaisteil in 2005 was estimated at 507 pairs based upon apparently occupied sites (AOS). This 14% reduction from 2005 follows a brief two year interlude of increase following a long-term decline in the population. Over the long term, 1994-2006, the average rate of change in the numbers of breeding birds on Lunga is calculated at -3.1% per annum, this trend being significant ($P < 0.05$). For a similar period, 1993-2005, Mavor *et al.* (2006) reports a downward non-significant trend in the cumulative Fulmar population of colonies monitored in this region, S.W. Scotland.

Manx Shearwater *Puffinus puffinus*

A regular 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 at night on Lunga. During the week small flocks of between 2 – 20 birds were regularly noted flying past far offshore. On several days a feeding flock of 1000+ birds was noted on the sea to the south-east of Lunga.

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* (1998 – 2002).

Many birds were heard churring from burrows on Fladda and Lunga. Several birds were also heard churring during a brief visit to Cairn na Burgh More.

A repeat census of the breeding colony occupying the Boulder Beach where in 2001 450 AOS were estimated, for the second consecutive year failed to provide any birds for the previously used 8m x 18m calibration plot; at least 15 responses are necessary during the initial playback. The alternative, a complete census, was impractical given the time available. Instead a transect running mid way between spring high water mark and shoreline vegetation, was taken along which at approximately 10 metre intervals diurnal tape play-back was undertaken. Play back was via a mini-disc player connected to computer desktop speakers, with a 10 second segment of call (of a Lunga breeder) used for repeatability. This single survey at 13.00 in light winds (25th June) elicited a total of 20 birds to responded along the estimated 330 metre transect; 0-3 birds per 10 metre sector.

Mist netting on Lunga at the Village (3 x 18m nets) on two dates, and on single dates at Boulder Beach west (2 x 18m nets) and east (3 x 18m nets), provided catches of 56, 83, 211 and 356 birds respectively. There has been, seen for the same effort and net positions, a marked decline in catch totals at the Village from 149-263 birds to 56-85 birds within the periods 1997-2000 and 2005-2006 respectively.

Interestingly no change in catch totals has been evident at the Boulder Beach or Fladda, this despite tape play-back surveys and casual observations suggesting a substantial reduction in the Boulder Beach colony. Casual observations whilst handling birds caught at the Village have also found the majority in 2006 had partially feathered brood patches and not the well defined brood patches normally expected. Substantial reduction in numbers of Storm Petrels have been noted by tape play-back surveys of colonies in west Scotland since the point when the base-line was set during Seabird 2000 (Mavor *et al.* 2006), including the Lunga Boulder Beach.



Andrew Carter censusing for Storm Petrels on the Boulder Beach, Lunga (Robin M. Ward)

Leach's Petrel *Oceanodroma leucorhoa*

Rare visitor

One bird was seen from the ferry by team members crossing between Oban & Craignure on 23rd June. This species has not previously been recorded by a TIARG expedition. The nearest known breeding colonies are to the north-west (St Kilda, Western Isles) and to the south-west (Stags of Broadhaven, Co. Mayo).

Gannet *Sula bassana*

Regularly seen offshore

Up to 30 birds, the vast majority adults, were recorded daily, feeding or passing offshore 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 (northeastern) population as estimated by *Seabird 2000* (1998 – 2002).

Breeding was confirmed on Cairn na Burgh More, Sgeir an Eirionnaich, Fladda, Lunga and Sgeir a' Chaisteil. A nest used in a previous season was found on Cairn na Burgh Beg. The breeding population for Lunga and Sgeir a' Chaisteil was 73 and 5 pairs respectively, based upon a nest count. The overall number counted has declined by 58% from that in 2005. Furthermore this count is only approximately half of the previous lowest nest count since annual monitoring began in 1994, and below an earlier low count for Lunga of 92 nests in 1974. In between times, the population on Lunga had more than doubled over the period

1994-2004, for which the average annual rate of change was 6.0% (highly significant trend, $P < 0.01$). Pertinent perhaps to the situation at the Treshnish Isles, productivity of shags in northern Scotland, though interestingly not S.W. Scotland, was noted to be particularly low in 2005, possibly due to birds failing to attain adequate breeding condition (Mavor *et al.* 2006).

Large numbers of adults were in the vicinity of the colonies but had chosen not to breed, as evidenced by the atypical concentration of 700+ roosting adult shags on Sgeir an Fheòir that departed daily towards Coll in the mornings to forage. Presumably many of these were in too poor condition to breed successfully as evidence of failed breeding attempts was limited in terms of abandoned nests. For the second year in succession those Shags breeding were incubating eggs or brooding very young chicks with few nests containing the well developed chicks normally expected by the end of June. This was reflected in the low number of broods found of a suitable size to ring. In 2004, 155 pulli were ringed (and ring stocks exhausted with birds left unringed) on Lunga whereas in 2006 only 9 pulli could be found that were of a suitable size for ringing.

Though no counts were made on Fladda, the breeding population was considered to be much reduced in numbers from that of the late 1990s/early 2000's with most breeders still incubating eggs and small young.

Cormorant *Phalacrocorax carbo*

Rare visitor

1 heading S. on 24th June was noted from Lunga. This is only the second documented record of this species by a TIARG expedition. The nearest breeding colony is on Mull (Craik 2001).

Greylag Goose *Anser anser*

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

The late summer moult flock had built up to at least 164 birds by 27th June, typically most residing around the islands of Sgeir an Eirionnaich, Fladda and Sgeir an Fheòir. Extensive areas of vegetation heavily grazed and trampled by geese were located once again on Sgeir an Eirionnaich and at the south end of Lunga. Evidence of breeding locally included single goslings in South Haven and on the west coast of Fladda.

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006
Peak count	25	160	240	268	79	101	316	90	164

Snow Goose *Anser caerulescens*

Rare visitor

One white phase bird was briefly seen on Sgeir an Eirionnaich from the Turus Mara boat as she arrived at Lunga with the team on 23rd June. A flock of 30-40 re-introduced geese moves between Coll and Mull during the year, breeding and moulting on Coll (Ogilvie & RBBP 2004).

Shelduck *Tadorna tadorna*

Rare visitor

A lone female was seen flying from Corran Lunga on 23rd June.

Eider *Somateria mollissima*

Regularly breeds in small numbers

Only four broods were noted around Lunga, comprising two ducks with four ducklings, and broods of one and two ducklings in Area 8. Elsewhere two ducks with five ducklings were initially seen around Sgeir a' Chaisteil, with single nests located on Sgeir an Fheòir and Sgeir an Eirionnaich.

The waters between Fladda and Lunga supported the usual late summer moult flock of birds, typically male-biased; 80 were counted on 24th June.

Buzzard *Buteo buteo*

Until recently, one pair bred in most years

Two adults were regularly seen frequenting the north east coast of Lunga, and at times elsewhere, also at least one, possibly two juveniles. Along this coast one oiled juvenile was seen grounded on the 24th June whilst the same or another was seen with the adults on 26th. Four unaged birds were along Lunga's east coast on 29th June. Food carrying by an adult was only observed once. These observations together suggest successful breeding.

Peregrine *Falco peregrinus*

Seen most years with breeding known to occur on adjacent coasts

A female was seen on three dates along the west coast cliffs of Fladda, on one occasion perched with some “splash” suggestive of regular use. A male was seen on the 30th flying along the east side of Cruachan round to Harp Rock.

Corncrake *Crex crex*

Probably a regular breeder in small numbers

Two calling males were noted on Lunga during the week. One calling male occasionally showed from beside the Well on the Boulder Beach; it was ringed, the return of last year’s bird? A second bird (female?) was briefly seen on the path being chased by the calling male on 30th June. This male frequently moved up the cliff to call within the vicinity of the Village. A second calling male was in residence typically on the saddle to the north of Cruachan, above the second west coast gully (area 12), Lunga. Late evening and night vigils of other areas where in the past calling birds have been recorded, e.g. cliff top Bracken immediately south of Shearwater Gully, registered no birds.

Elsewhere a single calling bird was typically heard from within the vicinity of the iris bed between South & North Haven, Fladda. Two calling males were heard from within the nettle beds around the chapel during a brief visit to Cairn na Burgh More.

Year	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Estimated no. of calling male Corncrakes on Lunga	1	0	1	5	3	2	2	1	1	3	2

Oystercatcher *Haematopus ostralegus*

Regularly breeds in small numbers

Widespread breeding failure was apparent on Lunga with an absence of chicks and eggs noted, and the presence of Oystercatcher pairs interacting amongst themselves but without reacting to potential predators. Only 3 breeding pairs were found to be clearly defensive to predators on Lunga’s beaches and rocky outcrops (1 in area 8, 1 at Corran Lunga, 1 in area 6) with no broods noted other than a dead chick on Corran Lunga. The pair holding territory on Corran Lunga launched an aggressive display to a passing Otter family.

Elsewhere, the presence of pairs reacting with alarm to expedition members’ presence was in itself indicative of a greater degree of success, though no young or eggs were located during the brief visits. Breeding pairs were identified on Cairn na Burgh Beg (2 pairs), Cairn na Burgh More (3), Sgeir a’ Chaisteil (3), Sgeir an Eirionnaich (4), south-east Fladda (2), Sgeir an Fheòir (1) and Sgeirean na Guisaich North (1). The presence of chicks on several of these smaller islands was suggested by the localised concentrations of predated limpets found on top.

Presumed failed breeders/immatures were evident around Lunga with a regular high tide roost of eight in and around Corran Lunga.

Ringed Plover *Charadrius hiaticula*

One or two pairs breed

One pair was successfully raising a chick on the southern half of the Landing Beach, this area regularly transversed by visitors coming ashore and following the clearly demarcated footpaths. A third adult was also seen occasionally around Corran Lunga. Elsewhere single pairs were found on Fladda’s south-east coast and with a chick at Sgeir a’ Chaisteil north end.

Snipe *Gallinago gallinago*

Regularly breeds in small numbers

Breeding was confirmed with a clutch of 4 eggs found on the north east slope of Cruachan immediately south of the Village, Lunga. Up to two males at any one time would drum over the Village whilst while a walk across these northern slopes of Cruachan would flush up to five individuals. The anxiety “chipper-chipper” call given by a bird when Corran Lunga was walked was suggestive of the presence of eggs or young, drumming also heard from a male on occasions. At the south end of Lunga, up to five birds were flushed when crossing the area with the only drumming bird being in area 7. One drumming bird has been found to equate to about two nests when at least three counts are made during April/May at dawn/dusk (Green 1985).

Elsewhere individuals were flushed or seen whilst walking the heath and bogs of Fladda, and a single flushed on Sgeir an Eirionnaich.

Curlew *Numenius aquata*

Irregular visitor

One calling bird heard from Lunga on the 26th June.

Redshank *Tringa totanus*

Irregular visitor

Three birds were seen from Lunga flying south on the 30th June.

Common Sandpiper *Actitis hypoleucos*

One or two pairs occasionally breed

Breeding was confirmed for two pairs. One bird was watched on to a nest beside the Well at the Landing Beach, Lunga. Following the absence of alarming adult birds anywhere in the vicinity after two days, the nest was checked and found to be empty. Success was confirmed however on Corran Lunga where a pair were observed with a well-grown chick. At times, a third pair was present within the vicinity of the Landing Beach and Corran Lunga.

Elsewhere a single bird was observed on Sgeir a' Chaisteil. On the other islands visited, no other individuals were recorded; this including Fladda, for the second year in succession, where previously regular breeding had been suspected.

Turnstone *Arenaria interpres*

Irregular visitor

A first summer individual was on Sgeir an Eirionnaich during a brief visit on 28th June.

Arctic Skua *Stercorarius parasiticus*

Small numbers seen daily presumably from the breeding grounds on Coll where there were 12 apparently occupied territories in 2004 and 2005 (Mavor *et al.* 2005, 2006)

Up to 4 birds at any one time were seen daily, generally offshore from the Harp Rock - Sgeir a' Chaisteil coast.

Great Skua *Stercorarius skua*

A regular but small breeding population has become established since confirmation of breeding by a pair in 1998.

On Lunga breeding was confirmed for the first time since 2003, on the high ground south of the Tarbet (area 6), a locality where breeding has previously been proven. On the 27th June, when the nest was located it held two eggs, both of which had hatched by 29th, with both chicks seen the following day.

Brief visits were made to previously held breeding territories situated on the west and east coast of Fladda where single pairs on watch had been observed from Lunga to regularly hold vigil. Breeding was only confirmed for the pair occupying the north-east territory where a nest with two eggs was found on 27th June.

One pair of birds was seen holding territory on the north east corner of Staffa during a brief visit by expedition members on 1st July.

Common Gull *Larus canus*

In recent years has become established as a regular breeding species in small numbers

A minimum estimated of 23+ breeding pairs (from 45 adults counted on site) were localised on the low-lying basalt rock outcrop of Fladda's south-east coast in a colony where breeding has been noted annually since 1998. Only 6 chicks were found and ringed. Though productivity would appear to have been poor, the number of adults at the colony was the largest since the colony's establishment in 1998.

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006
Estimated no. of breeding pairs on Fladda	6	6	6	9	10	11	17	9	23+

Lesser Black-backed Gull *Larus fuscus*

Regular breeding species in small numbers

For the second year in succession no confirmation of breeding was recorded on Lunga. Occasional adult and immatures were seen mainly at the south end gully in area 8. Elsewhere breeding was suggested by the presence of paired adults on territory on Sgeir a' Chaisteil (1 pair), Sgeir an Eirionnaich (2-3 pairs) and Cairn na Burgh More (2-3 pairs).

Herring Gull *Larus argentatus*

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

The breeding population for the Treshnish Isles (excluding Bac Mor & Bac Beag) was estimated at 60 pairs with breeding either confirmed or considered to have occurred on all islands except Sgeirean na Guisaich and Sgeir an Fheadir. The largest single colony was of 26 pairs on Sgeir an Eirionnaich. Why a large discrepancy occurred between the flush counts made on Cairn na Burgh More & Beg (38 & 12 respectively) and on another day the scan (from the *Turus Mara*) of birds on territory in the two colonies (7 & 1 AOT) is unclear. Obviously the scan from the passing boat may have missed birds but the numbers involved seem excessive suggesting the flush itself may have attracted many loafing non/failed breeders.

The clear conclusion from this estimate is that the decline is not restricted just to Lunga but shared by the breeding populations of the neighbouring islands of the group which totalled 217 pairs in 1999 as opposed to an estimated 60 in 2006. The average rate of change in the numbers of breeding birds on Lunga for the period 1994 – 2006, is calculated at -14.7% per annum, this trend being highly significant ($P < 0.01$).

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).

The breeding population for the Treshnish Isles (excluding Bac Mor & Bac Beag) was estimated at 96 pairs with breeding either confirmed or considered to have occurred on all islands except Sgeirean na Guisaich (south). The largest single colony was of 26 pairs on Sgeir an Eirionnaich. During the period 1994-2006 the population of Lunga has fluctuated widely (24-67 pairs, no significant trend) though the population has since 2000 been in decline and at its lowest (from the data available, 1976 onwards). In common with the Herring Gull, the observed decline is not restricted just to Lunga. The present census includes islands last censused in 1999, and clearly demonstrates that the decline in the breeding population is shared across the neighbouring islands of the group which totalled 214 in 1999 as opposed to an estimated 96 in 2006.

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 only confirmed on Lunga where the main colony is situated around Harp Rock. The numbers of apparently occupied nests on Lunga totalled 814. This substantial recovery from a marked decline in numbers in 2005 to their lowest level since annual monitoring of Lunga began in 1994 brings the population up to the mean for the period. Notable decreases in numbers were also widely reported in 2005 elsewhere on the Scottish west coast with a complete breeding failure at Canna, with late breeding and food shortage noted as the features of the season (Mavor *et al.* 2006). Up until 2005, the average rate of change in the numbers of breeding birds on Lunga for the period 1994 – 2004 was calculated at 3.8% per annum, this trend being highly significant ($P < 0.01$). This is comparable to the overall trend reported for the seabird colonies monitored over a similar period (1991 – 2004; 4.5% p.a.) in S.W.Scotland (Mavor *et al.* 2005); these include Lunga.

In common with several other breeding seabirds on Lunga, the vast majority of pairs were, as in 2005, breeding late, some brooding young chicks but most still incubating eggs.

Typically a flock of up to 330 adults (with the occasional first summer bird) was noted daily on rocks between Lunga and Sgeir a' Chaisteil.

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).

A mixed Common/Arctic ternery was present for the fourth consecutive year on the islet immediately adjacent to Sgeir an Eirionnaich. Flush counts resulting from passing avian predators varied daily in number from 150-300 birds as observed from Lunga. The ternery was found during a visit to be dominated by Arctic Terns with only approximately 5% (15 birds) of the 300 birds flushed to be Common Terns.

Arctic Tern *Sterna paradisaea*

Irregular breeding species

A mixed Common/Arctic ternery was present (see above) adjacent to Sgeir an Eirionnaich (where a small number of birds were also considered to be nesting but not confirmed). When flushed during a visit to

the ternery, approximately 95% of birds in attendance at the colony were of this species. 92 nests were counted and inspected, the contents of which were:

	Scrape	1 egg	2 eggs	3 eggs	4 eggs	Chick + egg
No. of nest	2	7	31	50	1	1

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 only confirmed on Lunga and Sgeir a' Chaisteil, the main concentration typically located within the vicinity of Harp Rock with 7312 adult birds estimated. The numbers of individuals counted on Lunga and Sgeir a' Chaisteil totalled 7540, a 10% increase from 2005. The count for 2006 falls just below the mean and well within the range of variability exhibited from counts made since annual monitoring of Lunga and Sgeir a' Chaisteil began in 1994. This inherent variability is in part a consequence of only a proportion of birds present on cliffs at a given time actually incubating an egg or brooding a chick. Others present will be off-duty partners, failed breeders, or non-breeders, and their attendance can change according to time of day, weather and feeding conditions. Though counts are standardised to allow for time of day and to some extent the weather, they can not take into account fluctuations between years in prey abundance, which if scarce or distant from the colony may force birds to spend more time foraging and allow less time loafing in the colony.

The average annual rate of change for the population of Lunga is calculated at 1.9% p.a. for the period 1994-2006; the trend is not significant.

Casual observations at Harp Rock did suggest an improvement upon the breeding season of 2005 with a higher proportion of adults breeding and of those, a greater number brooding chicks. For the third year in succession however, the breeding season was late, chicks younger than typically expected for this colony in late June and none being seen to fledge. Usually the first chicks are seen to fledge in late June, these chicks seen in the evening to be led down and off the cliff by the parents thereafter being taken out to sea by the male. A characteristic call is given by the chick as it attempts to follow the adults through the colony. Neither chicks fledging nor the characteristic call were registered during this expedition, as was also the case for the past two years. Once again comparatively fewer adults than expected were returning from the sea carrying fish, this perhaps related to fewer young requiring feeding but also poor food availability at that time for this species.

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. Birds were also seen at suitable breeding sites on Fladda and offshore from such sites on Cairn na Burgh More (6 birds).

The number of individuals counted on Lunga and Sgeir a' Chaisteil totalled 1193, an 8% increase from 2005. As most Razorbills nest within inaccessible crevices, it was not possible to ascertain whether the majority of birds were incubating or brooding. Amongst the few small boulder colonies accessible, young were heard, and when seen, these were small.

Following a significant period of increase in the past decade (+24% p.a. 1994-1998; $P < 0.05$) to a count of 1400 individuals, the population has since remained largely stable at around 950-1250 birds since (1999-2006; no significant trend).

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).

Adult birds were seen around Fladda (estimated 15 pairs), Sgeir an Eirionnaich - Sgeir an Fheòir sea area (15 birds), Lunga's south end (est. 10 pairs), Lunga's east coast (1 bird in area 2) and in the tidal stream between Cairn na Burgh More & Beg (3 birds). One bird was also observed flying up with food into the Keyhole Cave on Cairn na Burgh More.

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 were occupying burrows on Lunga and Sgeir a' Chaisteil. Birds were also seen on suitable breeding sites at Fladda and offshore from such sites on Cairn na Burgh More (4 birds).

The estimated breeding population on Lunga and Sgeir a' Chaisteil totalled 3095 AOBs, a 9%

increase from 2005; where for counts of birds, one bird is taken to represent one AOB (Lloyd *et al.* 1991, Mitchell *et al.* 2004). For Lunga alone the estimate (2,979 AOB) is the highest count since annual monitoring began in 1994 with this the third year of increase though it is unclear as yet whether this is inherent fluctuation of a largely stable population or a period of growth. The average annual rate of change for Lunga's population is calculated at 2.5% p.a. for the period 1994 – 2006; the trend is not significant.

Much of this short-term variability ("noise") in the annual population estimate is to be expected due to the difficulties of censusing a burrowing nest species. This is the case whether it is active burrows you are censusing (when confusion at a distance is likely with other burrow users in the vicinity of the colonies i.e. Rabbits and Manx Shearwaters) or where burrows are hidden by vegetation or the viewing perspective, so necessitating counts of birds. The latter will include an unknown number of loafing immatures and failed breeders, with attendance of birds at a colony changing according to time of day, weather and feeding conditions. Though counts are taken when colony attendance by non-breeders is minimal i.e. mid-day, they cannot take into account fluctuations between years in prey abundance, which if scarce or distant from the colony may force breeding birds to spend more time foraging and allow less time loafing in the colony (see also comments on Guillemot).

In contrast to the other common auk species, Puffins were regularly seen to arrive at the colonies carrying beakfuls of small fish. It was not possible to determine the state of development of the chicks and whether the breeding season had been delayed as observed for some other seabird species.

One white headed bird was seen at Harp Rock on 29th June.

Rock Dove *Columba livia*

Regular breeding species in very small numbers

Birds were seen daily on Lunga, principally along the east coast, the largest groups being south of Tarbet consisting of a minimum of nine birds. Elsewhere birds were seen at Cairn na Burgh More and Cairn na Burgh Beg, 3 and 2 birds respectively.

Collared Dove *Streptopelia decaocto*

Rare visitor

Two birds were seen on Cairn na Burgh More during a brief visit on 28th June. This is the second documented record of this species by a TIARG expedition, the first a single bird at the Village, Lunga in 1999.

Swift *Apus apus*

Irregular visitor

Between 1 and 5 birds were seen or heard on three dates over Lunga.

Skylark *Alauda arvensis*

Regular breeding species in small numbers

The presence of at least six singing males on Lunga in 2006 reaffirms the encouraging increase in numbers that has followed a period of population decline since the 1990s that culminated in only one singing bird in 2003. Territories were over the north slope of Cruachan immediately above the Village, on the saddle of Cruachan above Shearwater Gully, above Harp Rock, in sector 6 and two in sector 7.

Swallow *Hirundo rustica*

An irregular visitor

A single bird was noted over the north-east end of Lunga on the 1st July.

Meadow Pipit *Anthus pratensis*

Regular breeding species in small numbers

Widespread breeding species on Lunga and Fladda with no estimation of territories made though probably less numerous than Rock Pipit *Anthus petrosus*. Elsewhere a single bird was seen on Cairn na Burgh Beg.

Rock Pipit *Anthus petrosus*

Regular breeding species in small numbers

Common breeding species along the coast of Lunga, with birds also noted on Carn na Burgh More (estimated 5 pairs), Carn na Burgh Beg (3 pairs), Fladda, Sgeir an Eirionnaich (1+ pairs), Sgeir a' Chaisteil (2+ pairs), Sgeirean na Guisach (south; 1bird) and Sgeir na H-lolaire (1 bird). Food carrying, alarms and recently fledged young confirmed breeding for several pairs on Lunga and a pair on Sgeir a' Chaisteil, whilst a nest was found at Corran Lunga.

Pied Wagtail *Motacilla alba yarrelli*

Irregular breeding species

At least one pair is thought to have bred on Lunga with adults and up to three juveniles regularly noted in the vicinity of Harp Rock. Another brood in the vicinity of Harp Rock had also yet to fledge as witnessed by an adult carrying off a faecal sac. What were perhaps separate birds to those at Harp Rock were seen at Corran Lunga and Tarbet, an adult and juvenile respectively. Elsewhere four birds were noted on Fladda and a single on Sgeir a' Chaisteil.

Wren *Troglodytes troglodytes*

Regular breeding species, quite common where habitat suitable.

As in previous years, the vast majority of records of the species 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. Casual observations identified a minimum of 13 territories between the Village and Tarbet on Lunga, seven south of Tarbet and two on Sgeir a' Chaisteil. Several adults seen carrying food and faecal sacs indicated perhaps most broods had still to fledge with only one very recently fledged brood noted; three juveniles in the reedbed at Lunga's south end on 29th June. Mist netting at the Village caught two adults, one a female with an active brood patch.

During the visit to Fladda, at least 3 males were noted on territory in and around the low lying "waist".

Dunnock *Prunella modularis*

Irregular breeding species

One singing male was noted during a visit to Fladda on 27th June.

Wheatear *Oenanthe oenanthe*

Regular breeding species in small numbers

A minimum of five families of dependent and presumably locally bred young were noted on Lunga around Cruachan summit, Corran Lunga, Harp Rock and Shearwater Gully. Small numbers of apparently independent juveniles were also present on Lunga, regularly encountered in ones or twos, most north of Tarbet. Single family parties were also noted during the visits to Fladda and Cairn na Burgh Beg, with breeding also confirmed on Cairn na Burgh More by two adults seen carrying food.

Stonechat *Saxicola torquata*

Rare visitor

One breeding pair was on territory above Shearwater Gully, Lunga. The female was found to have a fully developed brood patch when both birds were spring trapped and ringed. The pair's respective behaviours also supported that they were incubating eggs. A juvenile seen on one date with the male was suggestive that the pair may have already produced one brood that season. No birds were seen away from Shearwater Gully.

This is the first documented record of this species breeding on the Treshnish Isles by a TIARG expedition. (In fact the only previous documented record of this species by a TIARG expedition was of a juvenile on Lunga in 1999.)

Sedge Warbler *Acrocephalus schoenobaenus*

Scarce visitor

After the recording of a single singing male in the reedbed at Lunga's south end during late June in five of the last eight years, breeding was finally confirmed in 2006 with the sighting of an adult with a recently fledged juvenile. A male was also found on territory singing on the west side of the low lying "waist" on Fladda.

Grasshopper Warbler *Locustella naevia*

Rare visitor

One bird was heard reeling from the reedbed at Lunga's south end on the 28th June. This is the first documented record of this species by a TIARG expedition.

Willow Warbler *Phylloscopus trochilus*

Rare visitor

One adult was seen at the reedbed at Lunga's south end on the 29th June. There has only been one previously documented record of this species by a TIARG expedition, a bird that was mist netted and ringed

on Lunga in 1995.

Hooded Crow *Corvus corone cornix*

Regular breeding species in small numbers

One pair would appear to have bred on Lunga. A pair of moulting adults accompanied three non-moulting juveniles centred upon the cliffs between Harp Rock and the Village, Lunga. A second pair of adults was usually to be found at the south end of Lunga.

Elsewhere 2 moulting adults accompanying a juvenile was noted during a visit to Fladda. From Lunga four birds were seen the following day over Fladda mobbing a Peregrine.

Raven *Corvus corax*

At least one pair breeds in most years

Two birds were in residence on Sgeir a' Chaisteil where they were seen to predate Puffins. This pair was seen with five or four other birds on three dates, when they would be seen pursuing the intruders across to Lunga. Two moulting pairs of adults were occasionally recorded from the south end of Lunga.

Elsewhere up to 4 birds were seen over Fladda and a used nest was found on Cairn na Burgh More.

Starling *Sturnus vulgaris*

Regular breeding species in small numbers

Small flocks of up to 20 birds (including juveniles) were noted daily on Lunga. Elsewhere birds were noted on Sgeir a' Chaisteil (flock of 20), Sgeir an Eirionnaich (1) and Fladda (a flock of 6).

Twite *Carduelis flavirostris*

Regular breeding species in small numbers

Deciding the numbers of successful breeding pairs on Lunga was particularly difficult in 2006 with flocks of between 9 and 14 birds seen on occasions by the end of the trip and much movement between areas. At least two family parties (both of 5 birds) frequented the south end of Lunga. The data would suggest an estimated breeding population of six breeding pairs on Lunga.

During a brief visit to Fladda 3 colour ringed birds were noted; the original ringing details of these are awaited. Several pairs and at least one family party were seen on Fladda. Of the other islands visited, birds were seen on Sgeir an Eirionnaich (2) and Cairn na Burgh More (7 + 1).

SYSTEMATIC LIST OF MAMMALS FOR 2006

Otter *Lutra lutra*

Evidence of presence regularly noted

The whistling of cubs gave away the presence of a female accompanied by two well grown cubs as they moved along the coast to Corran Lunga from the cave to the south one evening. The family party were watched for over 15 minutes (by all expedition members!), fishing and playing around Corran Lunga.

House Mouse *Mus musculus*

Resident

At least one animal was present at the expedition base, the Village at the north end of Lunga. Another small mammal (mouse/vole?) was seen briefly scuttling around the boulders of a Storm Petrel colony on Fladda's south coast.

Pipistrelle Bat *Pipistrellus pipistrellus*

Rare visitor

Single animals were seen over the Village, Lunga, on several dates and South Haven, Fladda during the expedition's overnight stay.

Rabbit *Oryctolagus cuniculus*

Resident, numbers much reduced in recent years.

Though no systematic monitoring of this species took place, casual observations on Lunga continued to suggest fewer visible animals than in the years immediately prior to 2002. All sightings of black individuals were from Lunga, involving six or more individuals.

No evidence was noted of animals on the other islands visited.

Grey Seal *Halichoerus grypus*

Regular breeding species whose numbers are regularly monitored by the Sea Mammal Research Unit (NERC, St Andrews)

Up to 44 animals regularly hauled out on intertidal reefs north and north-east of Lunga.

Common Seal *Phoca vitulina*

Rare visitor

One animal was seen at Harp Rock and Sgeir a' Chaisteil on 30th June.

Minke Whale *Balaenoptera acutorostrata*

Resident in Hebridean waters

One animal was seen towards Staffa on 24th June. The following day a report of five animals in the same general area was received.

Harbour Porpoise *Phocoena phocoena*

A resident in West Scottish coastal waters

A pod of 15+ animals were seen towards Staffa on 24th June followed later that day by a single animal off Sgeir a' Chaisteil.

SYSTEMATIC LIST OF BUTTERFLIES FOR 2006

Large White *Pieris brassicae*

Accidental

A single was seen at the Village, Lunga on 27th June.

Green-veined White *Pieris napi*

Accidental

A single was seen at Tarbet, Lunga on 27th June.

Common Blue *Polyommatus icarus*

Regular breeder

Up to an estimated 50 individuals were seen daily on Lunga, the vast majority along the east coast. The species was also noted during visits to Sgeir an Eirionnaich, Sgeir a' Chaisteil and Fladda, with over 30 seen at the latter locality.

Red Admiral *Vanessa atalanta*

Migrant

Between one and three individuals were recorded on four dates between 24th and 28th June on Lunga.

Painted Lady *Vanessa cardui*

Regular migrant

Between one and three individuals were recorded on four dates between 23rd and 28th June on Lunga. A single was seen in North Haven, Fladda on 26th June.

Ringlet *Aphantopus hyperantus*

Accidental

Singles were seen on Fladda at South Haven and on the west coast plateau on 27th June.

Meadow Brown *Maniola jurtina*

Accidental

A single was seen at the Village with a further two at the south end, Lunga, on 30th June.

OTHER SPECIES RECORDED LISTED SYSTEMATICALLY

Basking Shark *Cetorhinus maximus*

Rare visitor

The sighting of two possibly three individual animals based on size, around the waters of Lunga was

not too unexpected given the summer migration of this species in to UK coastal waters having been reported by the media to be earlier than normal in 2006. A single animal off the northwest coast of Lunga on 24th June was followed later that day by the same or another animal feeding in the waters between Lunga and Fladda. A smaller animal was seen on the 26th June offshore from Harp Rock.

Three-spined Stickleback *Gasterosteus aculeatus*

Unknown

All rain filled pools inspected on Sgeir an Eirionnaich held a population of this fish species.

Oyster Plant *Mertensia maritima*

Localised species known only from "colonies" at Tarbet (west), Lunga and two localities on Sgeir a' Chaisteil.

An absence of plants from what was a well established "colony" at the north end of Sgeir a' Chaisteil was again noted for the second consecutive year, this was attributed to a particularly strong gale ripping out the 117 plants prior to last season (I. Morrison pers comm.). The gale's impact was also evident at the larger second "colony" on the beach at Tarbet (west), Lunga, where in 2005 only 174 plants were to be found, these small with only five having reached sufficient maturity to flower. The majority, if not all, were flowering in 2006 with a total count of 170 plants.

Six-spot Burnet *Zygaena filipendulae*

Resident

Many individuals were seen at the South End of Lunga on 26th June followed by small numbers noted on Lunga on 29th.

Humming-bird Hawk-moth *Macroglossum stellatarum*

Rare migrant

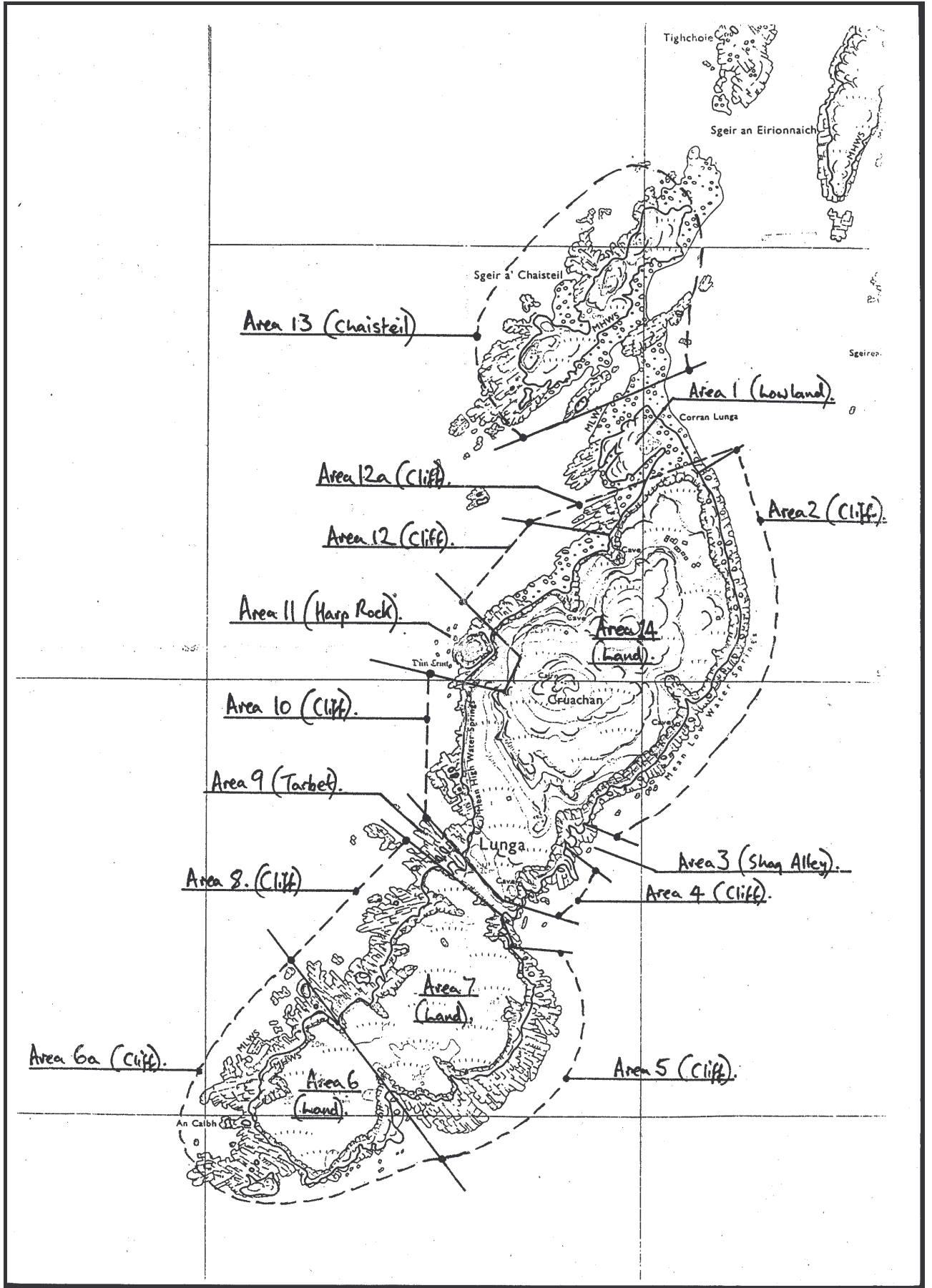
A single was seen at the south end of Lunga on 30th June

Silver Y *Autographa gamma*

Resident

One or two individuals were seen on several dates on Lunga, with a single also noted during the visit to Fladda.

MAP OF CENSUS ZONES – LUNGA AND SGEIR A' CHAISTEIL



2006 BREEDING SEABIRD CENSUS DATA FOR TRESHNISH ISLES (does not include Bac Mor & Bac Beag)

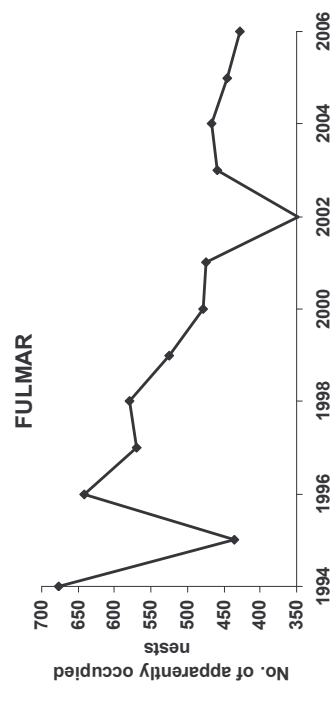
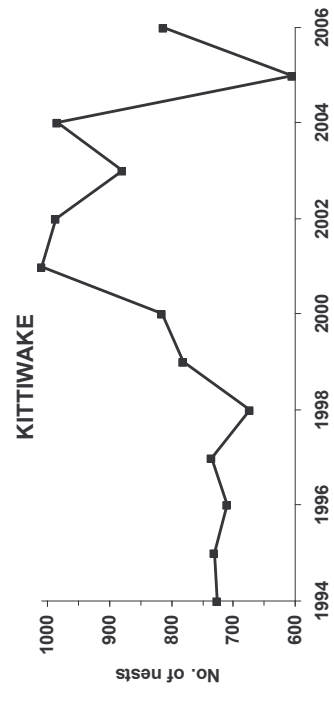
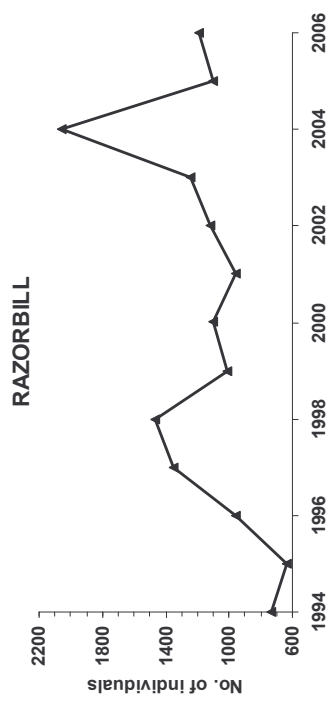
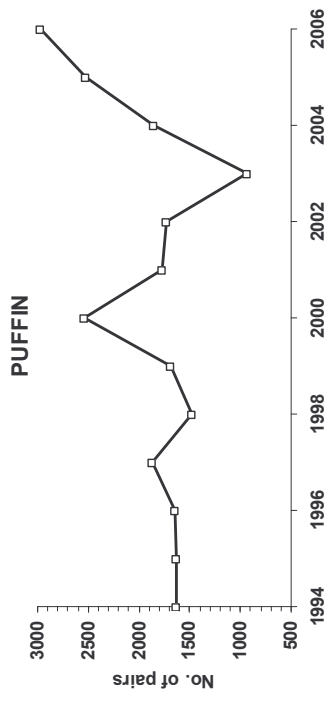
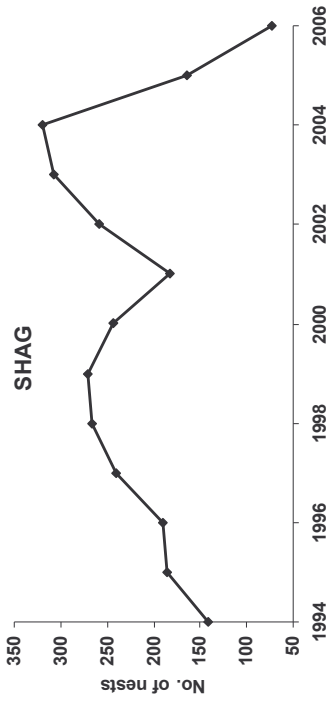
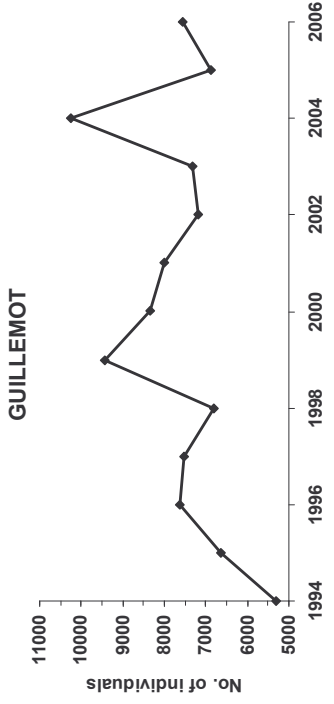
Sector	Count unit	Lunga	Sgeir a' Chaisteil	Sgeirean na Giusaich (north)	Sgeir an Fheoir	Sgeir an Eirionnach	Sgeir na h-Iolaire	Fladda	Cairn na Burgh More	Cairn na Burgh Beg
Fulmar	AON	427	80					nc		
Manx Shearwater	No census	+								
Storm Petrel	No census	+						+	+	
Shag	AON	73	5			2		nc		
Great Skua	PRS	1						1		
Common Gull	IND							45		
Lesser B-b Gull	AOT		1			2			2	
Herring Gull	AOT	10	17					13*	7	1
Great B-b Gull	AOT	24	8	2	2	26	2	25*	4	3
Kittiwake	AON	814						nc		
Common Tern	IND					15				
Arctic Tern	IND					285 (92 AON)				
Razorbill	IND	1193						nc		
Guillemot	IND	7540						nc		
Black Guillemot	PRS	11						nc		
Puffin	IND	539								
Puffin	AOB	2440	116					nc		

Totals for each Census Zone of Lunga and Sgeir a' Chaisteil

Sector	Count unit	Count Sectors on Lunga (1 - 12) and Sgeir a' Chaisteil (13)													Lunga & Chaisteil Totals*				
		1	2	3	4	5	6	6a	7	8	9	10	11**	12		12a	13		
Fulmar	AON	47	16	4	6	5	18	61	58	49	2	7	7	44	122	14	80	507	
Shag	AON																		
Lesser B-b Gull	AOT																		
Herring Gull	AOT	2								8									
Great B-b Gull	AOT	1										3							
Kittiwake	AON																		
Great Skua	AON																		
Razorbill	IND		70	7	14	53		23	1	9	2								
Guillemot	IND					18													
Black Guillemot	PRS	1						9		1									
Puffin	IND	347	120		66	6													
Puffin	AOB					2								879	1049	510	116	539	2556

Key to count unit codes: AON/AOT/AOB = Apparently occupied nest/territory/burrow IND = Individuals PRS = Pairs nc = no count
 * Estimated from flush counts of 26 and 50 Herring Gulls and Great Black-backed Gulls respectively + = breeders present
 ** Rock fall prevented access to a wave cut platform that had prior to 2005 provided a vantage point for viewing one section of cliff in Area 11. In 2006 this section of cliff, when counted from boat, held 115 Guillemots (IND) and 101 Kittiwakes (AON).

POPULATION CHANGES IN A SELECTION OF BREEDING SPECIES ON LUNGA, 1994 – 2006



SEABIRD MONITORING PLOTS, LUNGA 2004-2006

In order to give some indication of the variation in timing of the seabird breeding season and its success a series of monitoring plots on Lunga were introduced in 2004. These aim to further aid interpretation of the monitoring data (counts and ringing) collected annually by TIARG. Six plots were chosen based on visibility of nest sites and their contents and to monitor an adequate and representative sample of the cliff nesting seabirds on the island. Each plot was photographed in 2004 and photographs were annotated with lines marking the boundaries of the monitored areas to permit precise location between years. Plot boundaries followed distinct features (e.g. rock fissures) to ease identification of the areas to be monitored.

Within each plot, counts of birds and where appropriate of nests, their contents (when seen), apparently occupied sites and apparently brooding or incubating individuals were recorded. For all species, the numbers of adult birds present (or more accurately birds whose plumage could not reliably distinguish them as non-breeding immatures) within the plots were recorded. Additional information collected was:

- For Kittiwake – (i) The number of ‘well built’ nests i.e. those that could be expected to contain eggs or young, and (ii) the contents of nests where this was visible;
- For Fulmar – The number of ‘apparently occupied sites’ i.e. birds whose appearance suggests they could be incubating an egg;
- For Guillemot and Razorbill – (i) The number of apparently incubating or brooding individuals (judged from the posture of birds), and (ii) the number of eggs and young that were seen.

Although not a target species for this monitoring programme, the numbers of apparently occupied Shag nests within the plots are also counted.

All counts are made from fixed points (a single point for each plot) and should be made within a period of 1-2 days to minimise variation between plots. Observations should be made in dry and calm conditions to maximise the chances of seeing the contents of nest sites; in wet and windy conditions birds will tend to sit tight for prolonged periods but when dry and calm will more frequently move or stand away from young. The duration of observations at each plot should be sufficient for the observer to be confident that the birds (and where appropriate nests) have been accurately counted and that a reasonable sample of nest contents has been recorded. However, prolonged observations will lead to confusion with counts as birds enter and leave the colony and also lead to potential errors with repeatedly counting the contents of the same nests. Therefore the actual duration of observations at each plot are necessarily somewhat objective and will vary between plots and years depending on the behaviour of the birds present.

Tabulated below is the seabird monitoring plot data for the three years since monitoring began, 2004 – 2006.

Some interpretation of data collected in 2006

Kittiwake – Relatively low counts of birds and of well built nests suggests either a late year or one where relatively few birds attempted to breed. Relatively few young have been seen in any of the three years since initiation of the monitoring plots.

Fulmar – Relatively little difference noted between years.

Guillemot – In 2006, a relatively good count of birds and apparently incubating individuals (*cf* 2004 & 2005). The ratio of the number of young:eggs seen suggests that 2006 was either more successful or more advanced than the two preceding years.

Razorbill – Although more difficult to monitor than Guillemots (lesser numbers and more obscured nest sites), the counts of birds were relatively high in 2006 and the proportion of those apparently brooding or incubating was also higher than in the two previous seasons. As with guillemot, this suggests either a more advanced and/or more successful breeding season.

John Calladine

COMPARISON OF SEABIRD MONITORING PLOT DATA FROM LUNGA IN 2004, 2005 & 2006

	Plot 1			Plot 2			Plot 3			Plot 4			Plot 5			Plot 6		
	04	05	06	04	05	06	04	05	06	04	05	06	04	05	06	04	05	06
Year (2004 - 2006) ▶	28	nc	10	36	nc	22	103	60	53									
Kittiwake	11	6	2	18	14	1	61	35	18									
Adult birds present	4		4	1	5	7	14	4	8									
Good nest																		
Trace nest																		
Clutch of 1																		
Clutch of 2																		
Clutch of 3				1														
Clutch of 4																		
Brood of 1																		
Brood of 2																		
Brood of 3																		
Brood of 4																		
Fulmar	15	nc	18	21	nc	33												
Adult birds present	10	4	10	16	20	17												
AOS																		
Guillemot	54	28	39				412	419	413				711	720	984			
Adult birds present	8		18				138	16	188				344	28	680			
Apparently incubating or brooding	1		2				21	6	21				46	21	42			
Eggs seen							34	7	18				39	18	96			
Young seen																		
Razorbill	13	27	6	2	12	2	8	13	14				8	8	29			
Adult birds present			3			1			8						14			
Apparently incubating or brooding									2									
Eggs seen																		
Young seen																		
Shag				5	4	1												
Nests																		

nc = not counted

TRESHNISH RINGING TOTALS FOR 2006

Site	Species	Adults	Pulli	Retraps	Controls	Total
Lunga	Fulmar	15		2		17
	Manx Shearwater	1				1
	Storm Petrel	531		157	18	706
	Shag	12	9	9		30
	Common Sandpiper	1				1
	Herring Gull		1			1
	Kittiwake	14		4		18
	Guillemot	172		25	1	198
	Razorbill	31		10		43
	Puffin	272	2	42		314
	Rock Pipit	2				2
	Meadow Pipit	1				1
	Wren	2				2
	Wheatear	1				1
	Stonechat	2				2
	Sgeir an Eirionnaich	Great Black-backed Gull		3		
Common Tern			1			1
Fladda	Storm Petrel	431		42	21	494
	Shag	10	4	1		15
	Common Gull		8			8
	Rock Pipit	1				1
Treshnish Isles	Grand total for 2006	1499	28	306	40	1859

Note: Rings used in 2006 were registered under *Treshnish Auk Ringing Group* and *Robin M. Ward* (passerines & waders).

AN ASSESSMENT OF TIARG'S CONTRIBUTION TO THE BRITISH AND IRISH RINGING SCHEME

The Treshnish Isles Auk Ringing Group (TIARG) has ringed over 28,000 seabirds between the years 1971 - 2006, a substantial proportion of the national ringing total for some species and years. Tabulated below is TIARG's contribution to the National Ringing totals in 2004 (Clark *et al.* 2005)*.

	Juv/ad ringed 2004			Pulli ringed 2004			Ringing Totals to & incl 2004		
	UK & Eire	TIARG	% UK & Eire	UK & Eire	TIARG	% UK & Eire	UK & Eire	TIARG	% UK & Eire
Fulmar	325	47	14.5	527	0	0	111,220	385	0.4
Storm Petrel	7,214	83	1.2	53	0	0	410,167	9,210	2.3
Shag	270	45	16.7	3,194	155	4.9	211,034	1,547	0.7
Great Skua	96	0	0	235	0	0	73,506	4	0.01
Common Gull	46	0	0	1,748	0	0	83,681	37	0.04
Herring Gull	873	0	0	2,602	11	0.4	308,023	437	0.1
Great black-backed Gull	99	0	0	934	18	1.9	72,530	336	0.5
Kittiwake	496	21	4.2	1,041	0	0	126,790	192	0.2
Guillemot	1,674	800	47.8	3,195	0	0	297,163	6799	2.3
Razorbill	542	146	26.9	1,083	1	0.1	103,377	2456	2.4
Puffin	809	226	27.9	246	0	0	240,568	5238	2.2

* 2004 is the most recent British & Irish annual ringing totals available at the time of publication.

TRESHNISH RINGING TOTALS 1971 – 2006

SPECIES	1971	1974	1976	1977	1978	1980	1982	1984	1986	1989	1991	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	Total	
Fulmar	17	6	4	4	8	21	14	18	7	21	15	4	27	38	7	24	23	12	25	22	25	47	14	15	414		
Manx Shearwater		2	13	4	4	4	1	8				9	1		2	1	4	4			2		1	1	57		
Storm Petrel	254	22	22	1	283	203	800	800	411	975	75	440	536	331	1104	741	732	814	1030	15	360	83	491	962	10663		
Shag	150	7	10	10	24	80	50	160	40	10	10	10	59	96	99	150	100	59	37	97	99	200	200	77	35	1659	
Eider																						1				1	
Buzzard					1	2																				3	
Oystercatcher	1				1	4	2										2		1							11	
Common Sandpiper																	1							1		2	
Ringed Plover																							1			1	
Great Skua																					1	1	1	1		4	
Common Gull																	4					6	16	8		61	
Herring Gull	6	1			14	46	35	56	4	4	3	5	24	19	52	73	39	15	11	11	8	11	8	11	8	1	446
Great Black-b. Gull	3	6	3	7	6	22	14	35		22	15	6	25	16	48	19	16	2	27	5	21	18	12	3		351	
Kittiwake						1	1	1	2	2	4	6	10	1	50	41	23	13	11	3	2	2	21	15	14	221	
Guillemot	32	20	14		66	502	137	364	180	250	306	109	498	349	472	503	507	892	312	425	261	800	141	172	7312		
Razorbill	65	72	90		115	266	218	236	151	103	64	81	101	105	98	112	102	133	31	110	56	147	37	33	2526		
Black Guillemot																1				1						2	
Puffin	70	198	271		203	200	208	182	174	160	114	358	236	301	267	398	274	389	214	351	244	226	151	272	5461		
Meadow Pipit													4		1			12	1	4	1	3	5	1		32	
Rock Pipit								5	1				2	4	2	2	2	1	2	2	2	2	2	3		28	
Pied Wagtail												1	3	2												6	
Wren													3						1			2	4	2		12	
Wheatear								1	3					5	24	37	22	50	24	2	2	2	7	1		192	
Stonechat																										2	
Willow Warbler													1													1	
Twite																2				1						3	
TOTAL	343	558	439	17	441	1427	684	1266	1326	1014	1506	75	1029	1530	1230	2130	2109	1844	2401	1739	1266	1326	1014	1506	1526	75	

NOTES: (1) Data for 1971 - 1995 extracted from Walker & Cooper (1996). (2) Ringing data for a three day visit in 1972 was not available.

(3) In 2003, 2005 & 2006 wind speed and in particular direction was unfavourable for the fledging of large numbers of auks usually ringed at Harp Rock. Likewise wind was a factor in the reduced Storm Petrel catch of 2002-04.

RECENT RINGING RECOVERIES

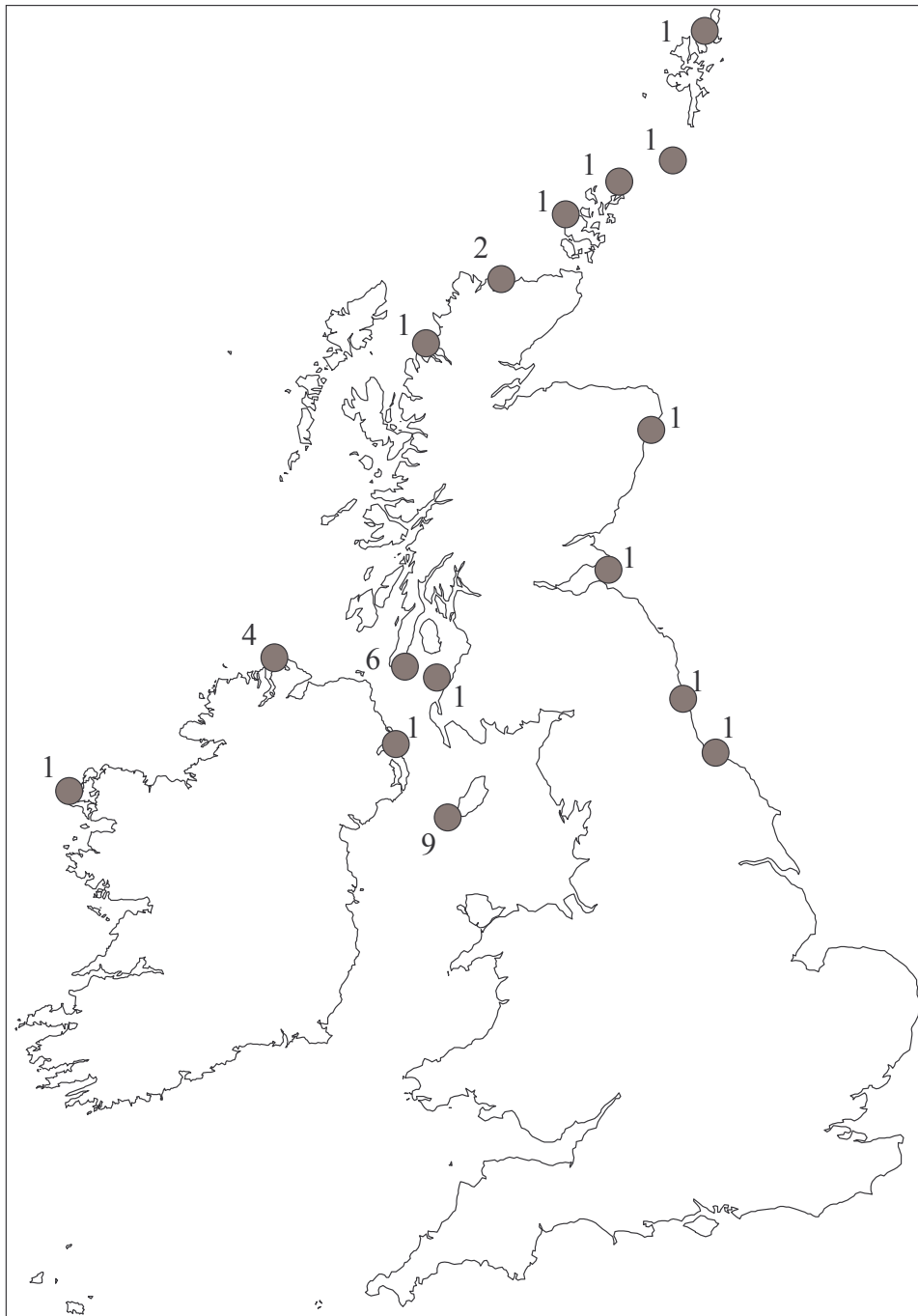
STORM PETREL

TIARG have in the past year received details of 30 recoveries of birds ringed within Britain and Ireland in the months July - September and controlled by TIARG on Fladda or Lunga in June - July 2005. These recoveries are summarised in both the table and map below; all birds were ringed as adults (Euring code 4).

Ringing Site	No. of controls at:		Time interval (days)		Distance km	Direction (degrees)
	Fladda	Lunga	min	Max		
Tullagh Point, Co.Donegal, Eire	4	0	317	1053	149	27
Duvillaun More, Co.Mayo, Eire	0	1		1050	358	42
Copeland, Co.Down, N.I.	0	1		4690	209	345
Calf Of Man, Isle Of Man	3	3	712	2522	290	340
Ailsa Craig, Strathclyde	0	1		2519	160	330
Sanda Island, Kintyre, Strathclyde	2	4	1039	9064*	146	340
Priest Island, Highland Region	1	0		345	170	199
Eilean Nan Ron, Highland Region	1	1	2524	2531	262	209
Brough Of Birsay, Orkney	1	0	693	693	346	212
North Ronaldsay, Orkney	0	1		1438	396	216
Fair Isle, Shetland	0	1		2151	442	220
Collieston, Grampian	1	0		712	287	252
Vatsetter, Yell, Shetland	0	1		3618	553	215
Isle Of May, Fife Region	1	0		338	240	278
Tynemouth, Tyne & Wear	1	0		2896	353	298
Marske-by-the-Sea, Cleveland	1	0		690	399	303

*25 years old – the second oldest ringed Storm Petrel handled by TIARG, the oldest being 28 years old.

Origins of Storm Petrels ringed within Britain and Ireland in the months July - September, and controlled on the Treshnish Isles in June - July 2005.



Drawn in DMAP

OTHER STORM PETREL RECOVERIES

Details are given below of two Storm Petrels originally ringed on the Treshnish Isles and recovered elsewhere.

Abbreviations used:

Age 1 - Pullus
 4 - Hatched before this calendar year, exact year unknown
 6 - Hatched before previous calendar year, exact year unknown
 8 - Hatched more than two calendars before year of ringing

Manner of recovery

R - Caught and released by a ringer
 X - Found dead
 XF - Found freshly dead or dying
 XL - Found long dead
 SR - Sick or injured, released with ring
 VV - alive and probably healthy, ring read in field by non-ringer
 // - condition on finding wholly unknown

Storm Petrel

2554287 4 27/6/2001 Fladda
 R 27/6/2005 Calf Of Man, Isle Of Man
 290 km 160 degs 1461 days

Storm Petrel

2560761 4 23/6/2005 Fladda
 R 10/7/2005 Calf Of Man, Isle Of Man
 290 km 160 degs 17 days

Storm Petrel recoveries relating to the Treshnish Isles as either birds ringed or controlled at, now number 446 (relating to 430 birds) of which many have been of birds from the Isle of Man & Sanda (47 & 124 respectively). The above mentioned two recoveries of birds ringed on the Treshnish Isles, were attracted in by tape lure on recovery at the Calf of Man, and are therefore likely to have been wandering immatures (up to 4 years old) or failed breeders. Only 54 birds ringed on the Treshnish Isles have been recaptured elsewhere, 13% of all recoveries. This figure is remarkably close to the overall probability of 15% that Ratcliffe *et al.* (1998) found of nest site attendance to be that of non-breeders.

RECOVERIES OF OTHER SPECIES

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

Guillemot

T14779 4 29/6/1989 Lunga
 X 14/9/2005 Castle Ceffin, Lismore, Strathclyde
 58 km 85 degs 5921 days

Guillemot

GJ35441 4 4/7/1980 Lunga
 X 27/6/2001 Loch Connel, near Oban, Strathclyde
 64 km 94 degs 7940 days

Guillemot

R65703 6 21/6/2005 Lunga
 XF 27/7/2005 off Loop Head, Co.Clare, Eire
 491 km 208 degs 36 days
 Freshly dead in Salmon drift net

Puffin

EL52819 6 24/6/2005 Lunga
 XL 21/8/2005 Wilsons Point, Bangor, Co.Down, Northern Ireland
 208km 167 degs 58 days

Shag						
1414316	1	21/6/2005	Lunga			
	XF	15/7/2005	Lundy Island, Devon	602km	169 degs	24 days
Shag						
1414315	1	21/6/2005	Lunga			
	XL	5/7/2005	Lunga	2166km	5 degs	1101 days
Shag						
1414308	1	21/6/2005	Lunga			
	X	27/7/2005	Lunga	2166km	5 degs	1101 days
Kittiwake						
EL52548	8	20/6/2005	Lunga			
	XF	2/7/2005	Slidery, Isle of Arran, Strathclyde	136km	148 degs	25 days

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Firstly we would like to express our appreciation to the owners of the Treshnish Isles, THE HEBRIDEAN TRUST (www.hebrideantrust.org) for permission and funding to allow our continuing studies to be made on these beautiful islands. Also for their provision of a skippered RIB hired from Tiree.

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

Any comments on the report and how future editions can be improved upon for relaying information required by conservation agencies are much welcomed.

THE EXPEDITIONS 1971 – 2006

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.
- 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.

THE EXPEDITIONS 1971 – 2006 (con't)

- 1995** Simon Walker, Mike Smith, Dennis Cooper, Jan Densham, Fergus Henderson.
Full census 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.

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
1080101 - 110	2010581 - 583	EF75001 - 500	FB22601 - 700**	GH21301 - 350	HT09001 - 004	K10701 - 1000**	R07001 - 100	1F4094 - 097
1087111 - 120	2101991 - 2000	EG23501 - 700	FC52551 - 558	GN85301 - 400#	HT17871 - 890	M46501 - 800	R19401 - 20200	C331894 - 900
1105561 - 570	2121401 - 500	EG23721 - 780	FC52571	GJ35401 - 500	HT17931 - 940	M55001 - 500	R24001 - 26350**	E196501 - 520
1123541 - 550	2167051 - 068	EG23801 - 999	FC74501	GJ76001 - 800**	HT34021 - 030	M72451 - 800	R31601 - 900	JB44316 ('94)
1123671 - 690	2170201 - 203	EG61000 - 500	FR13606 - 636	GJ99081 - 082	HT68201 - 210	M85501 - 800	R51501 - 2000	K039209 - 230
1123961 - 970	2238501 - 600	EG88501 - 9000**	FR14401 - 500	GK34351 - 354	HT68221 - 226	M88001 - 300	R65501 - 6000**	K419290 - 295
1159651 - 700	2261001 - 500	EH33377 - 380	FR56351 - 400	GK50214 - 220	HT80301 - 400	M92501 - 700**	T14001 - 5000#	NA84296 - 299
1163701 - 740	2284001 - 5000	EH54501 - 55000	FS51016 - 500	GK50551 - 570	HW05351 - 360		T82001 - 300	KX83101 - 106
1168001 - 100	2309901 - 10000	EH89256	FS87001 - 100	GK62985 - 990	HW06951 - 7000		X39501 - 40000	KX83116 - 118
1170601 - 700	2311301 - 400	EH89260	FV10611 - 620	GK90821 - 840	HW08994 - 09000		X56501 - 57000	
1187901 - 950	2311501 - 2000	EH98001 - 300	FV10646 - 650	GK91471 - 490	HW37361		X63001 - 500	
1237401 - 450	2348001 - 500	EK29501 - 900	FV54446 - 460	GP13416 - 450	HW68101 - 110		X67501 - 68000	
1322951 - 960	2369301 - 400	EK72657 - 660	FV62410	GP62201 - 207	HW68161 - 170		X79501 - 80000	
1328481 - 490	2405001 - 6000	EK91471 - 490	FV62416 - 226	GP74501 - 75000	HW74971 - 990		X99001 - 500	
1350801 - 900	2430701 - 900	EL52501 - 3000**	FV96681 - 684		HW87211 - 225			
1357901 - 8000	2436501 - 7000	EN22001 - 500	SS96101 - 300		HW94907 - 913			
1366901 - 7000	2444501 - 5000#	EP85608 - 612			MA12551 - 600**			
1373751 - 3900	2446202 - 233	EP85687 - 700						
1378401 - 8500	2455501 - 6000	ER03701 - 800						
1399601 - 700	2480001 - 500	ER48401 - 404						
1408301 - 500	2513501 - 4000	ES64018 - 189						
1414301 - 400**	2538001 - 800	ET19501 - 700						
	2542001 - 3000	ET52501 - 3000						
	2554001 - 500	ET80001 - 500						
	2560001 - 1000**							
	2579001 - *							
	80000*							

*All rings series known (to TIARG) to have been used on the Treshnish Isles are documented irrespective of whom they were issued to by the BTO.

** Ring series still in use

Ring series yet to be used