

# Treshnish Isles Auk Ringing Group

## Report for 2012



Guillemot chick (*Robin M. Ward*)

Compiled by  
Robin M. Ward

Expedition dates:  
23<sup>rd</sup> – 30<sup>th</sup> June 2012

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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. This report summarises the results of the Group's 34<sup>th</sup> expedition to the Treshnish Isles, during 23<sup>rd</sup> – 30<sup>th</sup> June 2012.

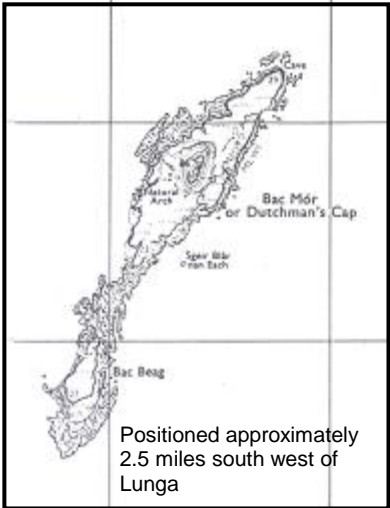
As in previous years, the expedition was based around the village ruins at the northern end of Lunga. The majority of the week's fieldwork was centred upon Lunga and Sgeir a' Chaisteil where the annual full seabird census and ringing of specific seabird colonies was carried out. The Group's activities were dictated as always by the prevailing weather conditions. Other than rain at times hindering activities, the week was dominated by very favourable weather that allowed the mist netting of Storm Petrels on Lunga during several nights. However, the light to moderate southerly winds resulted in very few auks close enough to our fleyg sites. This year was the seventh 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.

All TIARG census and ringing data are submitted to two national monitoring programmes, the Seabird Colony Register (J.N.C.C.) 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) for seabird breeding colonies of national importance. Financial support for the monitoring work TIARG undertook in 2012 was organised by the Seamark Trust, on behalf of the Hebridean Trust ([www.hebrideantrust.org](http://www.hebrideantrust.org)), owners of the islands.



Expedition participants 2012: Photo 1 - Jurjen Annen, John Hodson, Simon Roberts, Tim Dixon, Steve Willis, Richard Barnes & Claire Dovey (*Robin Ward*), Photo 2 – Robin Ward, Claire Dovey, Simon Roberts & Dennis Cooper (*Richard Barnes*)

## MAP OF THE TRESHNISH ISLES



## **WEATHER**

Most of the week was wet, mostly in the form of heavy showers. Lighter showers were experienced on days with intermittent sunny spells. Sea conditions over to and off the island were rough.

Census activities were not halted by bad weather as there were enough breaks in the rain to complete all of Lunga, as well as Chasteil. Fleyging conditions were far from perfect, due to the wind direction remaining for the most of the week from the south, south east and south west. Rain stopped Storm Petrel netting on two nights, however other nights were suitable for netting after dark.

Visibility for the week stayed good apart from the middle of the week where mist restricted visibility to approximately 25m from the village. However this cleared by the next day and visibility returned to good however intermittent rain continued.

All readings were taken from the plateau just below the Village site at the NE extremity of Lunga, unless otherwise noted.

Claire Dovey

Date	Time	Wind (Beaufort scale)	Max wind speed (mph)	Cloud cover (%)	Visibility	Temp (°C)	Humidity (%)	Pressure (mb)	Notes
23.06.12	19.00	3	8.3	80	Coll/Tiree	14.1	93.5	1005.9	Crossing over – rough Heavy rain eventually becoming light and stopping by 4pm. Bright sunny spells after with a light breeze
24.06.12	09.00	3	7.3 NW	95	Coll/Tiree/ Rum	12.3	97.5	1005.1	Cool start with light rain. Cleared by 9.00.
	19.00	4/5	14.8 W	100	Coll/Tiree/ Rum	12.5	95.4	1009.5	Small showers most of the day visibility good
25.06.12	09.30	2	3.2 W	100	Rum/Eigg	13.3	88.4	1014.3	Cool Start. Light winds. Good visibility
	16.40	3	8.8 W	90	Rum/Eigg	14.8	92.1	1014.9	
	23.12	2	3.3 W	50	Rum/Eigg	14.0	88.3	1015.2	
26.06.12	11.05	4	12.1 SE	90	Rum/Eigg	16.6	100	1012.7	Sunny start – turning to rain showers from 14.30 onwards getting heavier towards the evening
	15.15	3	9.3 SE	100	Tiree/Coll	13.5	94.0	1011.7	
	23.15	2	2.6 SE	100	Coll	14.3	96.3	1010.4	
27.06.12	09.40	2	4.2 S	100	Coll	14.5	95	1009.4	Rain set in early. Heavy mist from early afternoon and light wind. By late afternoon visibility was poor unable to see past the end of the island from the village (approx. 25m).
	14.20	2	5.8 SE	100	Mull	15.2	98.1	1008.5	
	22.50	2	2.5 SE	100	Lunga	15.1	100	1006.3	
28.06.12	12.00	3	7.4 SE	100	Coll	16.2	91.3	996.4	Rain heavy, occasionally light Drying up around 14.00 with sunny spells, stronger winds developing throughout the day
	16.45	4	10.0 SE	100	Skye	16.9	90.0	989.7	
	22.45	2	4.0 S	100	Coll	14.2	98.4	989.5	
29.06.12	09.30	3	8.9 SE	90	Eigg	16.0	100	985.1	Light winds, and rain showers with occasional sunny spells throughout the day.
	16.45	2	4.0 S	100	Fladda	17.8	100	986.4	
	22.15	4	12.1 S	100	Mull	12.7	100	988.8	
30.06.12	09.20	5	18.2 SW	100	Eigg	13.9	92.5	991.0	Rain early on, sea conditions rough.

## SYSTEMATIC LIST OF BIRDS FOR 2012

The following systematic list describes those bird species seen during the Treshnish Isles Auk Ringing Group's presence on the Treshnish Isles, 23<sup>rd</sup> – 30<sup>th</sup> June 2012. 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 Lunga and Sgeir a' Chaisteil in 2012 is provided on page 18. 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).

### **Greylag Goose** *Anser anser*

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

The moult flock had built up to at least 50 birds by 24<sup>th</sup> June, typically most were around the islands of Sgeir an Eirionnaich, Fladda and Sgeir an Fheòir. Fourteen birds were seen at the south end of Lunga on 24<sup>th</sup> June with several records during the week of up six birds in flight over the island. Two adults were seen on Cairn na Burgh Beg as the expedition arrived at the Treshnish Isles on 23<sup>rd</sup> June.

Year	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Peak count	25	160	240	268	79	101	316	90	164	77	80	225	160	140	50

### **Shelduck** *Tadorna tadorna*

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

A pair of adults were seen in flight around the northern half of Lunga on 23<sup>rd</sup> June. One of these birds or another individual was seen on occasions during the week foraging at Corran Lunga or in flight along Lunga's north east coast.

### **Eider** *Somateria mollissima*

Breeds regularly in small numbers.

Only one brood was seen from Lunga, two ducks with three ducklings near Corran Lunga.

The waters between Fladda and Lunga supported small numbers of late-summer moulting birds, typically male-biased with a maximum of 10 males and four females on 24<sup>th</sup> June. Five females were noted at Lunga's south end on 24<sup>th</sup> June.

### **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 464 pairs based upon apparently occupied sites (AOS). This is the first sizable increase in the population since 2002 and prior to that 1996. Over the longer term, 1994-2012, the average rate of change in the numbers of breeding birds on Lunga is calculated at -3.5% per annum, this trend being very highly significant ( $P < 0.001$ ). Fulmar is amongst several offshore surface feeders whose breeding population in the UK has declined since the mid 1990s (JNCC 2009).

On the expedition's passage through the northern Treshnish Isles when arriving on 23<sup>rd</sup> June, birds on apparently occupied breeding sites (AOS) were seen on Fladda (2+ AOS), Cairn na Burgh Beg (5 AOS) and Cairn na Burgh More (24 AOS).

### **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. During the week up to 420 birds were noted passing in the evenings, offshore along the west coast 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*.

Many birds were heard churring from burrows on Lunga and Sgeir a' Chaisteil.

Several nights of light winds gave the opportunity 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 162 and 77 birds using two 12m and one 18m (for 2½ hours), and one 12m net (for 45 minutes before rain) respectively. At the Village, 53 birds were caught using three 18m nets over two nights (for 2¾ hour period in total). Numbers caught at the Village and Boulder Beach colonies were, as in other recent years, less than during the 1990s. The presence of many birds with partial brood patches was again recorded amongst these smaller catches suggesting either a reduction in the numbers and success of breeding birds or a change in the time of breeding since the 1990s.

**Gannet** *Morus bassanus*

Regularly seen offshore

Small numbers of mainly adult birds were seen 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 Beg, Lunga and Sgeir a' Chaisteil. The breeding populations on Lunga and Sgeir a' Chaisteil were 178 and 13 pairs respectively, based on nest counts. Following a marked decline in the numbers of active nests in 2005 and 2006, numbers have since fluctuated between 73 and 178 active nests.

A flock of 360 birds moving offshore from the islands to forage on the morning of 30<sup>th</sup> June was the only large flock of adults seen. In recent years large numbers of adults have been seen in the vicinity of the colonies undertaking such movements daily, with atypical concentrations of between 500-1000 birds. It was presumed many of these were in too poor condition to breed successfully. Of those birds that were breeding on Lunga and Sgeir a' Chaisteil, great variation was once again found in the progress of breeding, with all stages from eggs to already fledged young noted. Brood sizes were mostly small, typically only two or three young.

2012 was the seventh 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 2012, of the birds marked from 2006 to 2011 on Lunga, 3, 13, 19, 8, 9 and 2 were re-sighted by TIARG respectively involving 54 out of a possible 191 individuals. A further 18 breeding adults were colour-ringed on Lunga in 2012.

**Grey Heron** *Ardea cinerea*

Rare visitor.

A single bird was seen on two occasions flying over Lunga on 26<sup>th</sup> June.

**Hen Harrier** *Circus cyaneus*

Rare visitor.

A single immature/female "ringtail" bird was seen daily from 23<sup>rd</sup> June hunting over Lunga. It was seen on several occasions flying to/from the direction of Fladda. These sightings represent the first record by TIARG of the species on the Treshnish Isles.

**Buzzard** *Buteo buteo*

Until recently, one pair bred in most years

Regular sightings suggested the presence of two adults on Lunga that were seen commuting to other islands in the Treshnish Isles to the north. A third bird, a non-moulting individual, was seen on 25<sup>th</sup> June with this or another such individual seen flying to Mull from Lunga.

**Peregrine** *Falco peregrinus*

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

An immature (1<sup>st</sup> summer) female was seen on several dates around Lunga. One bird was also seen hunting over Fladda as the expedition passed by on arriving at the Treshnish Isles on 23<sup>rd</sup> June.

**Corncrake** *Crex crex*

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

Two calling males were noted on Lunga during the week. One was in residence to the north and east of the Village. A second bird was also heard in the vicinity of the Village 23<sup>rd</sup> June.

A single male was seen in flight moving between bracken/nettle patches east of the Village on the

27<sup>th</sup> June.

**Oystercatcher** *Haematopus ostralegus*

Breeds regularly in small numbers.

On Lunga's beaches and rocky outcrops, 13 pairs were behaving as though on breeding territory, alarming at human intruders and performing displays on the appearance of other Oystercatchers (2 pairs at Corran Lunga, 3 in area 2, 1 in area 4, 1 in area 5, 3 in area 6a, 2 in area 8 and 1 in area 9). The only confirmed breeding records were of a brood at Corran Lunga and a nest with two eggs at Tarbet in Area 9. Away from Lunga, breeding was suspected on Sgeir a' Chaisteil where 4 pairs were found alarming during a visit on 28<sup>th</sup> June. Additional adults may have attempted to breed and were seen during scans of the islands to the north; specifically Sgeir an Eirionnaich (3 birds), Cairn na Burgh Beg (1 pair) and Cairn na Burgh More (1 pair).

Small flocks of presumed failed breeders/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 26 birds roosting. A flock of nine birds were also seen in area 8 on 24<sup>th</sup> June.

**Ringed Plover** *Charadrius hiaticula*

One or two pairs breed annually.

Typically, the only breeding pair on Lunga was confined to Corran Lunga and the adjacent boulder beach, accompanying a fledged juvenile. During a visit to Sgeir a' Chaisteil on 28<sup>th</sup> June, one bird was noted alarming suggestive of an on-going breeding attempt.

**Snipe** *Gallinago gallinago*

Breeds regularly in small numbers.

Only one bird was to be heard drumming/chipping over the Village on most days, the exceptions being 3 and 2 on 28<sup>th</sup> and 29<sup>th</sup> June respectively. Elsewhere on the north end of Lunga, the only records were of a single bird calling at Shag Alley and a drumming bird south of Shearwater Gully. At the south end of Lunga, singles were flushed in areas 7 and 6 where drumming by three birds was also noted. These data suggest a minimum population of 7+ pairs.

**Whimbrel** *Numenius phaeopus*

An irregular passage migrant.

One bird was on Sgeir a' Chaisteil on 28<sup>th</sup> June.

**Curlew** *Numenius arquatus*

An irregular visitor.

Up to two birds were noted on three occasions during the week passing Lunga in a southerly direction. One bird was seen on Sgeir an Eirionnaich as the expedition passed by on arriving at the Treshnish Isles on 23<sup>rd</sup> June.

**Common Sandpiper** *Actitis hypoleucos*

One or two pairs usually breed.

One of two pairs holding breeding territories on Corran Lunga were found to be incubating a clutch of two eggs. A single bird was present at the south end of Lunga on 24<sup>th</sup> June.

**Arctic Skua** *Stercorarius parasiticus*

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

Up to two birds at any one time, of both dark and light phases, were seen on three dates, generally offshore from Harp Rock and Sgeir a' Chaisteil.

**Great Skua** *Stercorarius skua*

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

On Lunga breeding was confirmed by the presence of one chick on the high ground south of Tarbet (area 6), and a second pair with nest and egg immediately south of Tarbet (area 7). A fifth adult was present south of Tarbet on 27<sup>th</sup>. Up to four adult birds were seen regularly flying over Lunga.

On Fladda birds at times could be seen from Lunga on one apparently occupied territory at a location where breeding has also previously occurred. No other birds could be seen on Fladda from Lunga.

**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 392, a 27.3% increase from 2011. However, the average rate of change in the numbers of breeding birds on Lunga for the period 2008 – 2012, is calculated at -21.0% per annum. This downward trend is statistically significant ( $P < 0.05$ ). A minor contribution at most to the reduction is the counts of 2011 and 2012 not including nests (c.50 in 2009-2010) in that part of sector 11 to which access was obstructed by a rockfall in winter 2004.

Up to 100 birds roosted on intertidal rocks off Sgeir a' Chaisteil at times. A first-summer bird present amongst breeding birds on Lunga's west coast was unusual for a species where this age group are rarely seen visiting colonies.

**Black-headed Gull** *Chroicocephalus ridibundus*

Irregular visitor.

One second-summer plumage bird was seen flying east from the south end of Lunga on 29<sup>th</sup> June.

**Lesser Black-backed Gull** *Larus fuscus*

Regular breeding species in small numbers.

Two pairs were noted within the south end gullery on Lunga, in area 8. One bird exhibiting the characteristics of first-summer plumage was seen flying along Lunga's east coast on 29<sup>th</sup> June.

**Herring Gull** *Larus argentatus*

A common but declining 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 10 pairs) and Sgeir a' Chaisteil (estimated 5 pairs). Breeding was also suggested by the presence of paired adults on territory on Fladda, Sgeir an Eirionnaich (estimated 1 pairs; 2 adults), Sgeirean na Guisaich (estimated 1 pair; 2 adults) and Cairn na Burgh More (estimated 3 pairs). No birds were holding territory on Sgeir na H-lolaire or Sgeir an Fheòir. The average rate of change on Lunga between 1994 and 2012, is calculated at -11.8% per annum, this downward trend continuing to be very highly significant ( $P < 0.001$ ).

**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 observations, breeding was confirmed on Lunga (28 pairs), Sgeir a' Chaisteil (1 pair with 2 chicks) and Cairn na Burgh Beg (5 pair including 2 chicks). Breeding was also suggested by the presence of paired adults on territory on Cairn na Burgh More (1 pair), Sgeir an Eirionnaich (estimated 3 pairs) and Sgeirean na Guisaich (3 pairs). Following a period of fluctuation in the breeding population of Lunga (1994-2004; 34-67 pairs), a decline occurred during the first decade of this century that has since stabilized at a lower level (16-28 pairs).

**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 ternery was present on the islet at the north end of Sgeir an Eirionnaich. Flush counts resulting from passing avian predators varied daily around 250 birds as seen from Lunga. The ternery was considered to be dominated by Arctic Terns with few if any Common Terns. The only confirmed Common Terns seen were two singles fishing offshore at the north end of Lunga.

**Arctic Tern** *Sterna paradisaea*

Irregular breeding species.

A ternery was present adjacent to Sgeir an Eirionnaich (see above). When flushed by passing avian predators, all birds identified at the colony were of this species.

**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 only on Lunga and Sgeir a' Chaisteil, with the main concentration as usual within the vicinity of Harp Rock where 7,239 adults were estimated. The total for Lunga and Sgeir a' Chaisteil

combined was 7,605, largely reversing the previous year's marked decline. The mean count for the past five years is 6,964 (range 5,265-7,712).

Many adults were either brooding or tending chicks close to fledging.

The average annual rate of change for the population of Lunga is calculated at 0.0% p.a. for the period 1994-2012; the trend is not significant.

#### **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 with 234 adults estimated.

A total of 566 birds was counted on Lunga and Sgeir a' Chaisteil. Although the numbers of individuals counted continues to increase from a low point in 2009 and 2010, a doubling in numbers would be required to reach the levels recorded during the earlier period of stability at around 950-1250 birds (1999-2008; no significant trend).

#### **Black Guillemot** *Cepphus 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).

Breeding was confirmed on Lunga. Adults were seen around the Sgeir an Eirionnaich - Sgeir an Fheòir sea area (8 birds), Cairn na Burghs (10), Fladda (1) and Lunga (19).

#### **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. The estimated breeding population on Lunga and Sgeir a' Chaisteil was 3,037 apparently occupied burrows (AOBs), a 89% increase from 2011. For counts of birds, one bird is taken to represent one AOB (Mitchell *et al.* 2004). This year's count suggests a marked recovery from the comparatively low estimates of the previous two years to that approaching the counts in 2004-2009.

One "white-winged" Puffin was seen visiting the breeding colony amongst boulders in Shag Alley, 25<sup>th</sup> & 29<sup>th</sup> June. This partial albino individual exhibited normal summer plumage other than extensive white feathering on the wing.



"White-winged" Puffin at Shag Alley  
(Jurjen Annen)



**Rock Dove** *Columba livia*

Regular breeding species in very small numbers.

Birds were seen almost daily on Lunga, principally along the east coast, the largest group of four birds being in area 5. Breeding was confirmed in area 5 where an adult was found on a nest.

Up to three feral pigeons (domesticated rock doves) were seen on occasions on Lunga, at one time with a Rock Dove.

**Swift** *Apus apus*

Irregular visitor.

A total of fifteen birds were seen flying south over the Village, Lunga, on 28<sup>th</sup> June following behind a thunderstorm. At the same locality, a single bird was seen the following evening.

**Hooded Crow** *Corvus cornix*

A regular breeding bird in small numbers.

At least one pair of adults were seen daily on Lunga, mostly at the north end. No juveniles were noted. Elsewhere up to two adult birds frequented Sgeir a' Chaisteil and a pair were seen from the boat when passing Fladda.

**Raven** *Corvus corax*

At least one pair breeds in most years.

At least eight individuals were seen regularly frequenting the north end of Lunga. At least two were moulting adults, with the remainder thought to be juveniles due to the absence of wing moult or abraded flight feathers. Generally one of the adults would be seen in the company of the presumed juveniles.

Elsewhere, up to six birds were seen occasionally on Sgeir a' Chaisteil, as the birds on Lunga foraged further afield.

**Skylark** *Alauda arvensis*

A regular breeding species in small numbers.

At least five singing males were on Lunga, all in the same general localities as in other recent years. Single territories were on the slopes of Cruachan and immediately above the Village with three at and beyond Tarbet.

**Swallow** *Hirundo hirundo*

Irregular visitor.

A single bird was noted over Lunga on 25<sup>th</sup> and 29<sup>th</sup> June.

**House Martin** *Delichon urbica*

A rare visitor

One bird was noted over Lunga on 29<sup>th</sup> June.

**Sedge Warbler** *Acrocephalus schoenobaenus*

A scarce but almost annual visitor.

A single bird was found alarming in the reedbed at the south end of Lunga on 29<sup>th</sup> 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. There was no sign of a recovery in the species abundance on Lunga from the low numbers noted in the past two years. Casual observations indicated a minimum of two territories south of Tarbet; two around the Village; two beside the Boulder Beach; three along the west coast footpath between the Village and Harp Rock, and three along the east coast footpath between the Village and Tarbet. Breeding was confirmed by a nest being found at Harp Rock and at least one brood noted at the north end of Lunga where also an adult was seen carrying a faecal sac.

During a visit to Sgeir a' Chaisteil on 28<sup>th</sup> June, a family party of 4+ birds was seen.

**Starling** *Sturnus vulgaris*

A regular breeding species in small numbers.

Small flocks of up to 25 birds were noted daily on Lunga, comprising both adults and juveniles. During a visit to Sgeir a' Chaisteil on 28<sup>th</sup> June, a flock of 35 birds was found.

**Wheatear** *Oenanthe oenanthe*

A regular breeding species in small numbers.

Several families of adults with dependent (and presumed locally bred) young were seen on Lunga, including around the Village (one family), along the west coast between Corran Lunga and Harp Rock (two), at Shag Alley (one) and in area 5 (one). In addition, adult pairs apparently holding territories included birds between Shag Alley and Tarbet (two pairs), Village and Shearwater Gully (two) and in area 6a (one). Breeding was confirmed with a nest with young located near the Village, Lunga.

Three adult females were noted during a visit to Sgeir a' Chaisteil on 28<sup>th</sup> June.

**Dunnock** *Prunella modularis*

Scarce visitor.

A single singing male was present throughout the week on territory above the second gully south of Corran Lunga.

**Pied Wagtail** *Motacilla alba yarrelli*

An irregular breeding species.

Adults carrying food in the vicinity of the Village, Lunga, followed later in the week by the presence of a pair with fledged young, suggested breeding had occurred nearby. Elsewhere on Lunga, a pair with one juvenile was regularly observed at Tarbet, with two additional pairs noted at the south end of Lunga and single adults noted at Harp Rock and Corran Lunga.

One bird showing the characteristics of the subspecies White Wagtail *M.a.alba* was seen with a Pied Wagtail at the south end of Lunga on 27<sup>th</sup> June.

**Meadow Pipit** *Anthus pratensis*

A regular breeding species in small numbers.

Widespread breeding species on Lunga with no estimate of territories made though probably less numerous than Rock Pipit *Anthus petrosus*. No birds were recorded during a three hour visit to Sgeir a' Chaisteil.

**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. Food carrying, alarms and recently fledged young confirmed breeding by several pairs on Lunga and Sgeir a' Chaisteil.

**Twite** *Carduelis flavirostris*

Regular breeding species in small numbers

Small parties of up to five birds were noted almost daily around the Village, Lunga. Elsewhere birds were regularly encountered with up to 22 birds estimated for the east coast from the Village to Tarbet and the south end on 24<sup>th</sup> June. The largest flocks were along this coast where on subsequent days at Tarbet and Shearwater Gully, 10 and 7 birds respectively were seen whilst up to 5 birds were encountered along the west coast between Corran Lunga and Harp Rock. Some flocks seen were identifiable as family parties. One pair of adults were seen during the visit to Sgeir a' Chaisteil.

## SYSTEMATIC LIST OF MAMMALS FOR 2012

### **Otter** *Lutra lutra*

Evidence of presence regularly noted.

Fresh spraint was found on the coast north of Shearwater Gully. Two days after the expedition, a returning TIARG member had good views of a dog Otter at the blow-hole at the south end of Lunga.

### **American Mink** *Neovison vison*

No known occurrences.

No evidence of this species was noted on either Lunga or Sgeir a' Chaisteil..

### **House Mouse** *Mus musculus*

Resident, apparently in small numbers.

Single animals were seen on several occasions at the expedition base in the Village, at the north end of Lunga. These animals were seen frequenting the remains of the three westernmost cottages. Live trapping using Longworth traps confirmed the identity of the species, which rarely persists on islands following loss of the human population.

Seven animals were trapped overnight on 27/28<sup>th</sup> June on the Boulder Beach, Lunga. Nineteen Longworth traps had been set along the beach in two sections at 10m intervals. Within a couple of metres of each station chew sticks were also left overnight. Eleven were found to have been chewed by mice the following day. Until this trapping, no evidence from casual observations made by TIARG since expeditions began in 1971, had suggested the presence of mice anywhere other than the Village.

Further details on the use of Longworth traps and chew sticks on Lunga in 2012 can be found in a paper at the end of this report.



House Mouse trapped in the Village, north-east Lunga (*Robin Ward*)

**Brown Rat** *Rattus norvegicus*

No known occurrences.

No evidence of this species was noted on either Lunga or Sgeir a' Chaisteil.

**Rabbit** *Oryctolagus cuniculus*

Resident, numbers much reduced in recent years.

No systematic monitoring took place. Casual observations on Lunga suggest that it is abundant. All sightings of black individuals were from Lunga, involving several individuals at widespread localities.

No evidence was noted of animals on Sgeir a' Chaisteil.

**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 31 animals were visible from Lunga hauled out on intertidal reefs to the north and east at low tide.

**Harbour Porpoise** *Phocoena phocoena*

Rare visitor.

One was seen travelling south off the east coast of Lunga on 25<sup>th</sup> June.

**Bat spp.** *Pipistrellus* sp.

Rare visitor.

A small bat was seen flying at Harp Rock and around the Village at the north end of Lunga, at dusk on 26<sup>th</sup> and 27<sup>th</sup> June respectively. From the size and flight of the animals, viewed well enough by several TIARG members to eliminate mis-identification of early returning Storm Petrels, the species was considered one of the Pipistrelles (*Pipistrellus pipistrellus* or *P. pygmaeus*).

These are the third confirmed observations of bats on the Treshnish Isles by TIARG, the previous sightings in 2006 and 2011.

## SYSTEMATIC LIST OF LEPIDOPTERA FOR 2012

**Green-veined White** *Pieris napi*

Accidental

A single was seen at Village, Lunga on 26<sup>th</sup> June.

**Common Blue** *Polyommatus icarus*

Regular breeder

No more than fifty individuals were seen daily on Lunga, the species notably less numerous than of recent years. During a visit to Sgeir a' Chaisteil on 30<sup>th</sup> June, two individuals were noted.

**Peacock** *Inachis io*

Occasional breeder

Caterpillars of this species were seen at Shag Alley and in two groups at the Village, Lunga.

**Red Admiral** *Vanessa atalanta*

Migrant

A single was seen at the Village, Lunga, on 24<sup>th</sup> June, with another three recorded on the island on 29<sup>th</sup> June. Elsewhere one individual was noted on Sgeir a' Chaisteil on 28<sup>th</sup> June.

**Meadow Brown** *Maniola jurtina*

Accidental

One or two were seen during all four visits to the south end of Lunga, south of Tarbet. A single was seen at the Village on 29<sup>th</sup> June.

**Small Heath** *Coenonympha pamphilus*

Accidental

A single female was seen at Shag Alley and the saddle of Cruachan on 25<sup>th</sup> and 29<sup>th</sup> June.

**Moth spp.**

*During the expedition the following species of moth were recorded on Lunga. All were incidental observations of single specimens from around the village unless otherwise stated:*

**Yellow Shell** *Camptogramma bilineata bilineata*

Two were seen at Shearwater Gully and one at the Village.

**Small Magpie** *Eurrhynchos hortulata*

**Angle Shades** *Phlogophora meticulosa*

**Small Angle Shades** *Euplexia lucipara*

**Silver-ground Carpet** *Xanthorhoe montanata*

**Fox moth** *Macrothylacia rubi*

One caterpillar was found at Harp Rock.

**Foxglove Pug** *Eupithecia pulchellata pulchellata*

**Map-winged Swift** *Hepialus fusconebulosa*

**Snout** *Hypena proboscidalis*

**Bright-line Brown-eye** *Lacanobia oleracea*

Singles were seen on two dates at the Village.

**Emperor Moth** *Saturnia pavonia*

Two caterpillars were found at the South End, Lunga.

**Common Marble** *Celypha lacunana*

## OTHER NOTABLE WILDLIFE RECORDS

**Aspen** *Populus tremula*

One small tree was found east of the Village, Lunga. The species is not known to have been previously recorded on Lunga.

**Blackthorn** *Prunus spinosa*

One small plant was found east of the Village, Lunga. The species is not known to have been previously recorded on Lunga.

**Oyster Plant** *Mertensia maritima*

Localised species on Lunga.

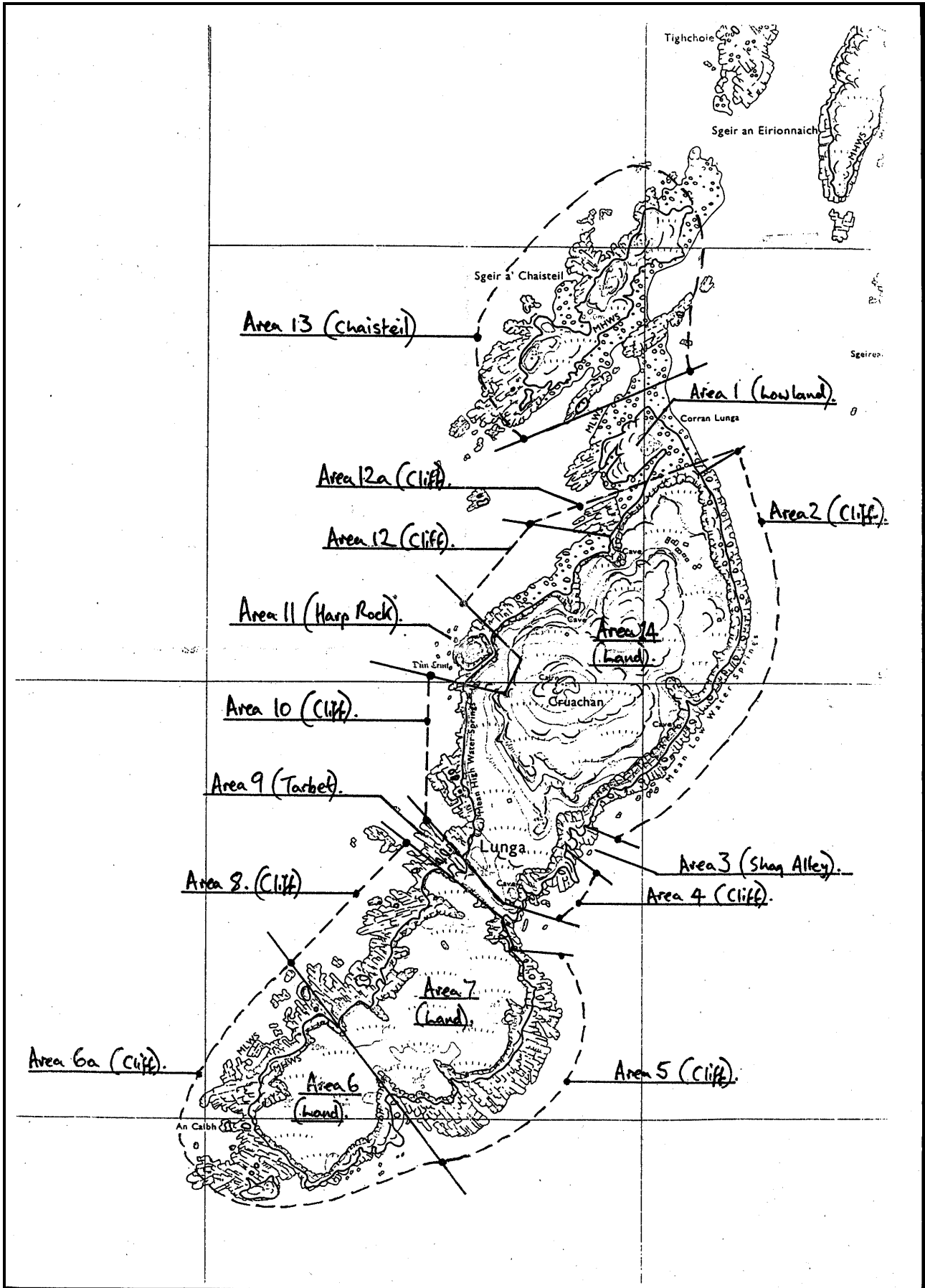
At Tarbet over 750 plants were found, though many were probably sprouting adventitious roots and therefore part of a much larger plant.

Plants first located in 2010 at Corran Lunga and still present there in June 2011, were no longer present.



A Goldsinny Wrasse dropped by a Guillemot (John Hodson)

# MAP OF CENSUS ZONES – LUNGA AND SGEIR A' CHAISTEIL



# **2012 BREEDING SEABIRD CENSUS DATA FOR LUNGA, SGEIR A' CHAISTEIL AND ISLETS**

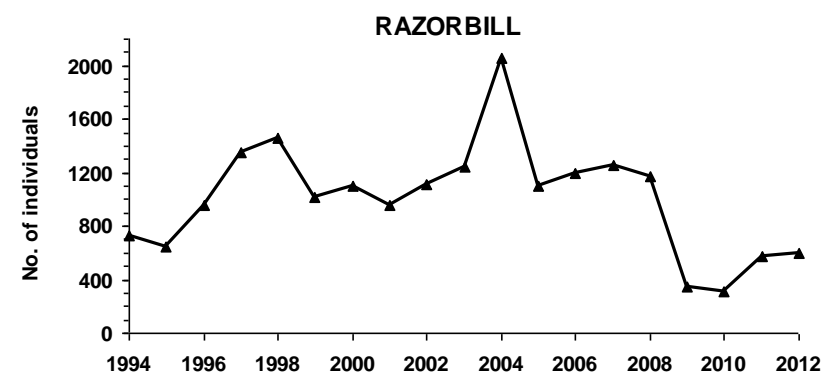
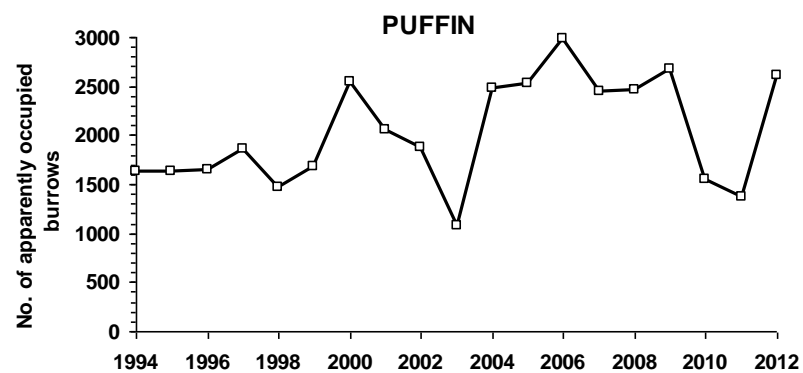
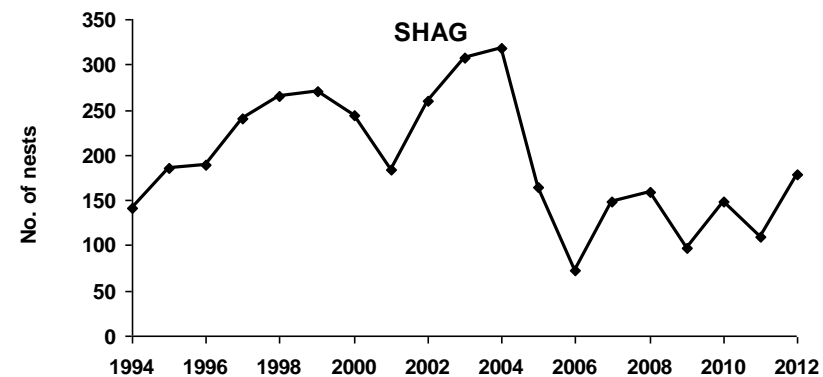
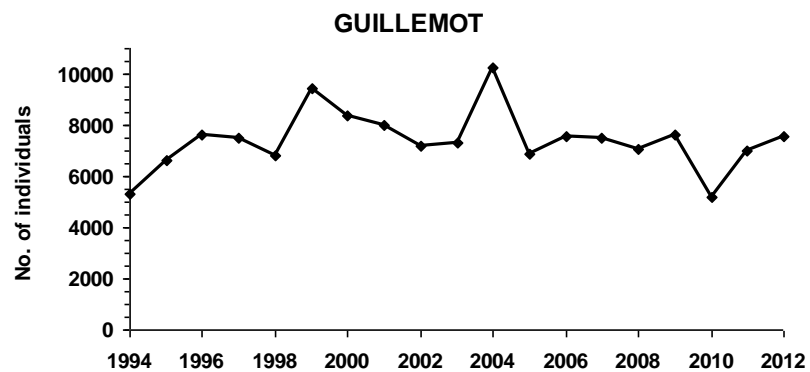
Sector	Count unit	Lunga	Sgeir a' Chaisteil	Sgeirean na Giusaich	Sgeir an Fheoir	Sgeir an Eirionnaich	Sgeir na h-Iolaire
Fulmar	AON	417	47				
Manx Shearwater	No census	+					
Storm Petrel	No census	+					
Shag	AON	178	13			nc	
Great Skua	AOT	2					
Lesser B-b Gull	AOT	2					
Herring Gull	AOT	10	5	1		1	
Great B-b Gull	AOT	28	1	3		3	
Kittiwake	AON	392					
Common Tern	AON						
Arctic Tern	IND					250	
Razorbill	IND	481	8				
Razorbill	AON	74	3				
Guillemot	IND	7580	25				
Black Guillemot	IND	19				8	
Puffin	SEA	833					
Puffin	IND	810	25				
Puffin	AOB	1797	405				

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

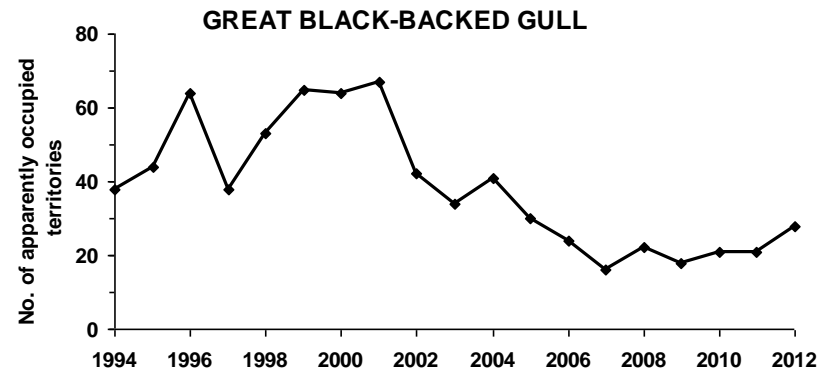
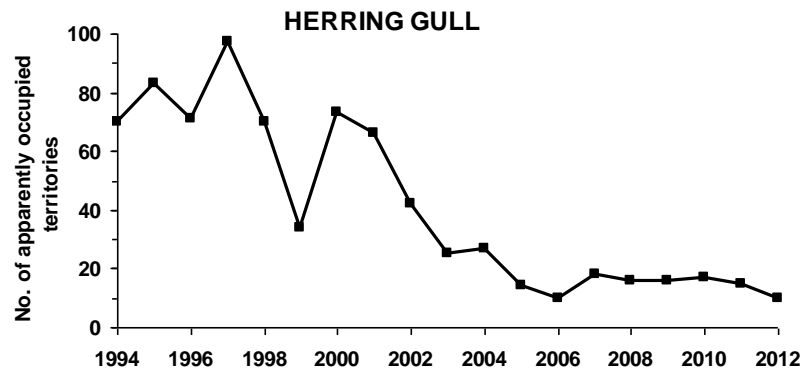
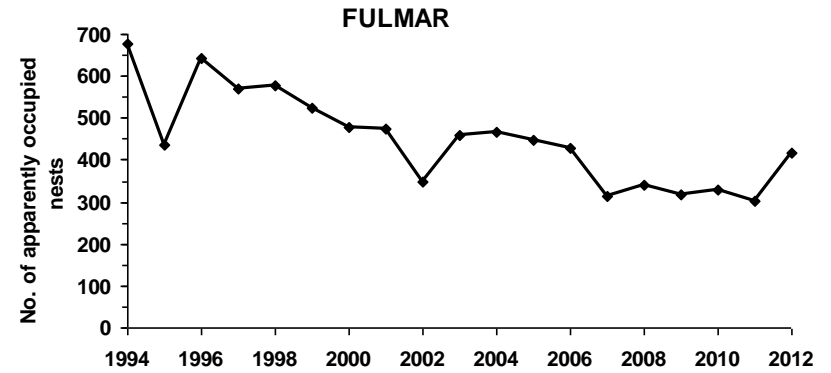
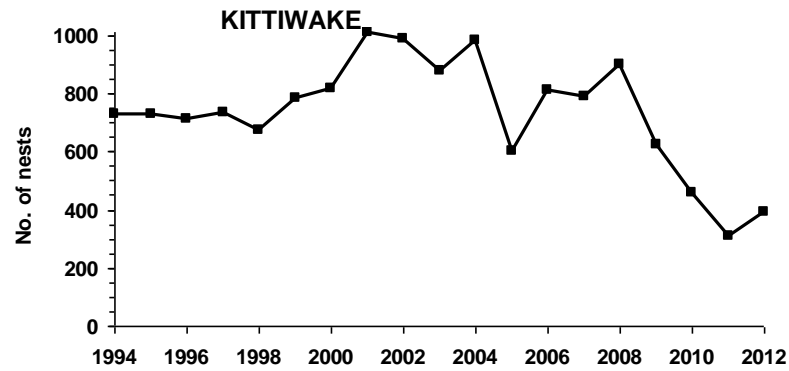
Sector	Count Unit	Count Sectors on Lunga (1 – 12a) and Sgeir a' Chaisteil (13)															Lunga & Chaisteil Totals
		1	2	3	4	5	6	6a	7	8	9	10	11	12	12a	13	
Fulmar	AON		68	12	11	49		41		47		10	29	134	16	47	464
Shag	AON		18	40	2	38				13		23	14	27	3	13	191
Great Skua	AON						1		1								2
Lesser B-b Gull	AOT									2							2
Herring Gull	AOT					1				7				2		5	15
Great B-b Gull	AOT	2					15		9			2				1	29
Kittiwake	AON												371	21			392
Razorbill	IND		59	15	11			4		7		3	234	128	20	8	489
Razorbill	AON					49		15				10				3	77
Guillemot	IND					15						114	7239	182	30	25	7605
Black Guillemot	IND		2					16		1							19
Puffin	SEA		60	305		68									400		833
Puffin	IND		30											780		25	835
Puffin	AOB			50	136	13						178	642		778	405	2202

**Key to count unit codes:** AON/AOT/AOB = apparently occupied nest/territory/burrow within 200m of colony    PRS = Pairs    nc = no count    + = breeders present    IND = Individuals on land    SEA = individuals on sea

# POPULATION CHANGES FOR A SELECTION OF BREEDING SPECIES ON LUNGA, 1994 – 2012



POPULATION CHANGES FOR A SELECTION OF BREEDING SPECIES ON LUNGA, 1994 – 2012 (con't)



# TRESHNISH RINGING TOTALS FOR 2012

Site	Species	Adults	Pulli	Retraps/Controls	Total
Lunga	Manx Shearwater	18		6	24
	Storm Petrel	213		96	309
	Shag	17	94	54	165
	Oystercatcher		2		2
	Herring Gull		5		5
	Great Black-backed Gull		4		4
	Guillemot	46		6	52
	Razorbill	2		4	6
	Puffin	300		44	344
	Wren	6			6
	Wheatear	10			10
	Pied Wagtail	1			1
	Meadow Pipit	15		2	17
	Rock Pipit	3			3
	Twite	1			1
Sgeir a' Chaisteil	Herring Gull	0	2	0	2
	Shag		3		3
Treshnish Isles	Grand total for 2012	632	110	212	954

Note: All rings used in 2012 were registered under *Treshnish Auk Ringing Group*.

### TRESHNISH RINGING TOTALS 1971 – 2012

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

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 – 2012 (continued)**

SPECIES	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Total
Eider							1									1
Fulmar	24	23	12	25	22	25	47	14	15	8						422
Manx Shearwater	1	4	4			2		1	1	2		4	9	3	18	93
Storm Petrel	741	732	814	1030	15	360	83	491	962	21	118	403	293	202	213	11913
Shag	150	100	59	37	97	99	200	77	35	141	124	53	116	67	114	2274
Buzzard																3
Corncrake								1						2		3
Oystercatcher		2		1						4				2	2	19
Ringed Plover								1		1						2
Common Sandpiper	1								1	1	1					4
Great Skua	1				1	1		1			2	4		2		12
Kittiwake	41	23	13	11	3	2	21	15	14	16	3	4	3	8		255
Common Gull	4		5	11	11	6		16	8							61
Lesser Black-b Gull											1		2	2		5
Herring Gull	73	39	15	11	11	8	11	8	1	11	7	20	11	8	7	510
Great Black-b. Gull	19	16	2	27	5	21	18	12	3	4	13	12	15	10	4	409
Guillemot	503	507	892	312	425	261	800	141	172	123	1	51	53	169	46	7755
Razorbill	112	102	133	31	110	56	147	37	33	34	5	6	7	8	2	2588
Black Guillemot				1												2
Puffin	398	274	389	214	351	244	226	151	272	195	327	32	38	68	300	6421
Hooded Crow										1						1
Willow Warbler														1		2
Whitethroat														1		1
Sedge Warbler														2		2
Wren				1			2	4	2		2	1	1	2	6	20
Starling										3						3
Stonechat									2		1					3
Wheatear	37	22	50	24	2	2	2	7	1	2	4	2	4	5	10	219
Dunnock														1		1
Pied Wagtail										4				3	1	14
Meadow Pipit			12	1	4	1	3	5	1		4		1	2	15	54
Rock Pipit	4	2	1	2	2	2	2		3	21	10	1	2	4	3	73
Twite					1					1	1	1		3	1	10
TOTAL	2109	1846	2401	1739	1060	1090	1563	982	1526	593	624	594	555	575	742	33159

## 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 - July 2011. 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 (days)		Distance Km	Direction (degrees)
	Lunga		min	Max		
Sheepland Harbour, Ardglass, Co.Down	1			656	251	348
Calf of Man, Isle of Man	2		2503	3264	290	340
Copeland Bird Observatory, Co.Down	1			1393	208	345
Ailsa Craig, Strathclyde	1			4917	160	330
Sanda Island, Kintyre, Strathclyde	6		690	4354	146	340
Isle of Muck, Highland Region	1			1412	41	198
Isle of Canna, Highland Region	1			11314	64	174
Faraid Head, Highland Region	1			1089	255	203
Eilean Nan Ron, Highland Region	1			1445	262	209
Fife Ness, Fife	1			2908	238	276

Storm Petrel recoveries relating to the Treshnish Isles as either birds ringed or controlled there, now number 568 (relating to 538 birds) of which many have been of birds from the Isle of Man & Sanda (64 & 147 respectively). The above retraps of birds ringed on the Treshnish Isles, were attracted in by tape lure on recapture and are therefore likely to have been wandering immatures (up to 4 years old) or failed breeders. Only 69 birds ringed on the Treshnish Isles have been recaptured elsewhere, 12.8% of all recoveries. This figure is remarkably close to the overall probability of 15% that Ratcliffe *et al.* (1998) found for non-breeder colony attendance in late June/early July.

### RECOVERIES OF OTHER SPECIES

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

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 calendar years before year of ringing

Manner of recovery

R - Caught and released by a ringer  
 X - Found dead  
 XF - Found freshly dead or dying  
 SR - Sick or injured, released with ring  
 S - Sick or injured, fate unknown  
 O - Ring read on bird in field by non-ringer

### Manx Shearwater

ER57963	1 R	09/8/2005 27/7/2011	Sanda Island, Kintyre, Strathclyde Lunga 146 km	339 degs	2148 days
<b>Guillemot</b> T94760	1 R	03/7/1991 29/6/2011	Isle of Canna, Highland Lunga 64 km	174 degs	7301 days
<b>Guillemot</b> X04325	1 R	04/7/1992 27/6/2011	Isle of Canna, Highland Lunga 64 km	174 degs	6932 days Re-ringed GBT R65911
<b>Guillemot</b> X57900	1 R	07/7/1998 28/6/2011	Isle of Canna, Highland Lunga 64 km	174 degs	4739 days
<b>Guillemot</b> X83095	1 R	04/7/1999 27/6/2011	Isle of Canna, Highland Lunga 64 km	174 degs	4376 days Re-ringed GBT R72672; previously controlled Lunga 27/6/2010
<b>Guillemot</b> X88936	1 R	06/7/2001 29/6/2011	Isle of Canna, Highland Lunga 64 km	174 degs	3645 days
<b>Guillemot</b> GK95485	1 R	07/7/1980 29/6/2011	Isle of Canna, Highland Lunga 64 km	174 degs	11314 days Re-ringed GBT R72698
<b>Guillemot</b> R31952	1 R	29/6/2002 27/6/2011	Sanda Island, Kintyre, Strathclyde Lunga 146 km	339 degs	3285 days Re-ringed GBT R65922
<b>Guillemot</b> R73660	6 XF	29/6/2007 17/12/2011	Lunga Kilchoan, Highland 29 km	40 degs	1632 days
<b>Guillemot</b> X67779	6 X	29/6/1997 12/04/2012	Lunga Lunga 0 km	0 degs	5401 days
<b>Puffin</b> EW50315	6 XF	27/6/2011 12/6/2012	Lunga Lunga 0 km	0 degs	351 days Freshly dead Leg & Ring Only Found

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## ACKNOWLEDGEMENTS

Firstly we would like to express our appreciation to the owners of the Treshnish Isles, THE HEBRIDEAN TRUST ([www.hebrideantrust.org](http://www.hebrideantrust.org)) for permission and funding to allow our continuing studies to be made on these fascinating islands. Financial support for the monitoring work TIARG undertook in 2012 was organised by the Seamark Trust, on behalf of the Hebridean Trust ([www.hebrideantrust.org](http://www.hebrideantrust.org)).

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



Kittiwake adult and chick (R.M. Ward)

## THE EXPEDITIONS 1971 – 2012

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.  
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- 1991** Barry Lawson, Peter Deans, Simon Walker, David & Andrew Lawson, Jan Densham.  
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- 1993** Roger Broad *et al.* (Scottish Natural Heritage charter)  
Full census of The Dutchman’s, Lunga, Sgeir a’ Chaisteil and Fladda.  
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Storm Petrel ringing.

## THE EXPEDITIONS 1971 – 2012 (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  
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- 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  
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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  
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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 – 2012 (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 and Sgeir a' Chaisteil. 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.



Twenty one expeditions later! (Jurjen Annen)

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

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

\*\* Ring series still in use

<sup>#</sup> Ring series purchased but yet to be used

## **Some findings from the Shag Retrap Adult Study on Lunga, 2006-2011**

**Robin M. Ward**

### **Introduction**

Pulli and breeding adult Shag are ringed annually by TIARG in specific sections of the colonies on Lunga. The conservation value of this aspect of TIARG's ringing programme has since 2006 been much increased with its inclusion into the British Trust for Ornithology's Retrap Adult Survival (RAS) monitoring programme (BTO 2012). Adult Shags are now fitted with a uniquely numbered colour ring; many of these birds have been metal ringed already as pulli. Over 200 Shags are now individually identifiable in the field without the need for recapture.

### **What is RAS**

RAS aims to provide information on adult survival for a range of species, particularly those of conservation concern and those not well monitored by other current BTO ringing. RAS uses captures (or resightings of colour-marked individuals) of adult birds to calculate what proportion survive each year. Recaptures generally give a much higher quality of information on adult survival than recoveries of dead birds.

RAS projects are operated annually for a minimum of five years, preferably longer. The aim of a RAS project is to catch within a defined area, a minimum of 40-50 adult birds of the study species, which include 30 retraps or resightings from previous years. The ringers try to avoid big changes in effort between years and keep a record of their catching effort (number of visits made and number of hours spent catching or resighting). This means that survival can be calculated by the BTO more precisely from the information collected.

### **Study area and Method**

TIARG's Shag RAS study areas extend along Lunga's north-west coast (between the Boulder Beach and Tarbet) and "Shag Alley". These correspond to TIARG's seabird census sectors 12, 10, 11 & 3, the latter "Shag Alley" (see page 17 for location of census sectors). For purpose of this analysis, data from sectors 10 and 11 have been considered as one site, "Harp Rock".

All adults are caught by hand in the colonies and usually at the nest. A single engraved darvic colour-ring is placed on the bird's left tarsus and, if not already metal ringed, a BTO metal ring on the right tarsus. The colour-ring is lime with a black engraved number between 100 to 299, read from top to bottom and repeated twice on the ring. As well as recording of the adult's ring details and sex, the clutch or brood size is also recorded if known, and the relationship to any pulli ringed. Adults are sexed from call; males honk and females hiss when approached at the nest. The second adult of the breeding pair can often be caught at the nest at a different time of day. In 2007, fifteen pulli were also colour-ringed. This was however, discontinued as a large and unnecessary expense resulting from the loss of colour-rings as most pulli do not survive to become recruited into the breeding population.

During the annual one week visit to Lunga by TIARG at the end of June, expedition members record the details of any colour-ringed Shags seen both during targeted searches of the colonies for marked birds and at all other times. For each observation of a colour-ringed bird, the date, time and location (census zone) is recorded together whenever possible with the breeding status and its partner's identity i.e. from a colour-ring. Lunga's north-west coast is monitored at least daily and Shag Alley approximately every other day. The exception to this is during inclement weather e.g. frequent rain showers, when no visits are made into breeding colonies as eggs and young would then be highly vulnerable to chilling if left unattended by parent birds through human disturbance.

### **Results**

It is early days for the Lunga RAS for which the marking of adults has been hampered by the start of the study coinciding with a series of poor breeding seasons. TIARG have arrived on Lunga in some years to find large numbers of adults in the vicinity of the colonies but which had chosen not to breed, as evidenced by atypical concentrations of up 700+ offshore. Presumably many of these are in too poor condition to breed successfully. Of those birds that have been found breeding, great variation has been found in the progress of breeding, all stages from eggs to already fledged young being noted. Brood sizes have in these years mostly been small in size, typically of two or three young.

Against this background it is very encouraging that TIARG have succeeded in colour-ringing 177 Shag as breeding adults between 2006 and 2011 (Table 1), 107 of which were re-sighted in later years (61%). An additional 15 birds were colour-ringed as pulli in 2007. No further pulli have been colour-ringed as recruitment into the breeding populations of the RAS study was expected to be considerably lower than for adults. Only 27% of the birds ringed as pulli have since been recruited into the RAS study population.

**Table 1: Number of birds colour-ringed and re-sighted on Lunga in late June/early July, 2006-2011**

	2006	2007	2008	2009	2010	2011
<b>Marked</b>	17	62	51	19	21	7
<b>Available to re-sight*</b>		17	78	128	147	168
<b>No. re-sighted</b>		5	36	35	66	53
<b>% re-sighted</b>		29.4	46.1	27.3	45.0	31.6

*\*Birds colour-ringed in any previous year and not known to have died*

Table 1 provides the numbers of birds marked and re-sighted within the vicinity of colonies by TIARG in each year. Between 27% – 46% of adult shags available to be re-sighted in a season were recorded by TIARG. Shags do not necessarily breed in every year or some years may have deserted following a failed breeding attempt prior to TIARG's late June survey. The number of consecutive years an individual was not recorded by TIARG within the period between marking and last sighting has been between one and four years (Table 2). For the 170 shag colour-ringed prior to 2011, 63% have been re-sighted by TIARG in one or more years. Up to 79% of a year cohort has been seen (Table 3) with no relationship shown between the duration since marking and number of individuals re-sighted.

**Table 2: The frequency and number of breeding seasons colour-ringed adult shags were not recorded at colonies surveyed**

<b>No. of years between first and last observation</b>	<b>No. of consecutive years individuals were not recorded within period of observation</b>					
	<b>0</b>	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Grand Total</b>
<b>3</b>	14	12				26
<b>4</b>	8	15	8			31
<b>5</b>	9	5	1	2		17
<b>6</b>	0	1	1	0	1	3
<b>Grand Total</b>	31	33	10	2	1	77

**Table 3: The number of birds re-sighted of each marked year cohort**

<b>Year cohort</b>	2006	2007	2008	2009	2010
<b>No. marked</b>	17	62	51	19	21
<b>No. re-sighted</b>	9	42	34	15	7
<b>% of cohort re-sighted</b>	52.9	67.7	66.7	79.0	33.3

A summary of colour-ringed adults re-sightings for cohorts marked at each of the three RAS study areas is provided in Table 4. Many birds congregate on the cliff edge adjacent to the colonies in Area 12 and Harp Rock. These sites are used by both non-breeding birds e.g. loafing immature birds, and breeding birds, the latter of which may be expected to loaf in those areas adjacent to their own breeding colony whilst maintaining vigil on their nest. Within the year of marking when the birds breeding locality is confirmed on capture, 11% (n = 15) of individuals were seen within the vicinity of another colony. This exchange was only between the two west coast study areas with no evidence of such movement between those sites and the east coast, Area 3 (Table 5). Between-year movements did occur between the west and east coast colonies, though whether this was as a consequence of a change in breeding colony requires closer scrutiny (Table 5). A greater proportion of birds moved to Harp Rock from Area 12 than vice versa. At the former locality, the numbers of birds loafing at any one time is substantially greater and colour-rings are more readily read than Area 12.

**Table 4: The number of birds marked and re-sighted at the three RAS colonies**

	No. marked	No. re-sighted in later year	Seen in vicinity of other colonies
<b>Area 12</b>	84*	56 (69.1%)	39 (46.4%)
<b>Harp Rock</b>	55*	39 (75.0%)	15 (27.2%)
<b>Area 3</b>	33	14 (42.4%)	5 (15.2%)

\* Includes 3 birds marked in both areas in 2011

**Table 5: The number of birds re-sighted at a RAS colony away from where marked**

Marked at	Re-sighted at	No. of birds		
		Any year at both sites	In same year at both sites	In year of marking at both sites
<b>Area 12</b>	<b>Harp Rock</b>	37	25	12
	<b>Area 3</b>	1	0	0
<b>Harp Rock</b>	<b>Area 12</b>	14	11	3
	<b>Area 3</b>	1	0	0
<b>Area 3</b>	<b>Harp Rock</b>	3	0	0

## **Discussion**

In the above analysis no attempt was made by us to estimate survival rates of the adult shags; this is the primary purpose of RAS and will be calculated and reported in the near future by the BTO who have the necessary expertise in the use of mark-recapture statistical methods. Mark-recapture statistical models take account of heterogeneity among recapture and survival probabilities as account of e.g. age, sex and year (Bearhop et al. 2003).

Most adults are sexed on capture from the difference in their alarm call; males honk and females hiss. It would be interesting in a future analysis of the RAS data to know whether sex influences the above outcomes. The above analysis has highlighted an unexpected marked movement of adult Shags between colonies between and within years. In establishing whether this movement between years is birds switching breeding colonies, the current data has proven inadequate for such an assessment. It is recommended that all future re-sightings records whether the birds were at a nest site or not. Though it is known that some records do identify the partner of a colour-ringed bird captured/re-sighted, these data are not easily extracted for analysis. This is identified as a future objective in terms of field recording and transcription into IPMR, the data submission database for BTO ringers.

No colour-ring ring loss has yet been recorded by TIARG, a factor which can potentially influence estimating survival rates if large (Bearhop et al. 2003). The chances of losing marks may increase with the length of time they have been attached and alter with materials used. Colour-rings made of darvic have been used between 2006 and 2011; lime rings with a black engraved number between 100 to 299. Beginning in 2012, green rings with a white engraved number have been used, these made from a plastic whose durability is as yet untested. Mark loss includes the reduced legibility which recent observations suggest may become an issue with the abrasion of characters on the rings (see photo below). It is recommended that ring loss and any reduced legibility observed is documented to inform future survival analysis.

## **References**

Bearhop, S., Ward, R.M. & Evans, P.R., 2003. Long-term survival rates in colour-ringed shorebirds – practical considerations in the application of mark-recapture models. *Bird Study* 50: 271-279.

British Trust for Ornithology, 2012. About RAS. Available: <http://www.bto.org/volunteer-surveys/ringing/surveys/ras/about-ras> (accessed 20/5/2012).



The darvic ring '290' on a Shag recaptured five years after it was originally ringed as a breeding adult (John Hodson)

## Small rodents and their presence within seabird colonies on Lunga

Robin M. Ward, Steve G. Willis & Jurjen Annen

### 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.*). This paper reports on a survey undertaken by TIARG members during the 2012 expedition, to assess the distribution and relative abundance of small rodents with the vicinity of breeding seabirds on Lunga.

### Study area and Method

The study area 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 dwelling walls of the Village at the north end of Lunga in which an estimated 25 pairs of Storm Petrel bred in 2001 (Ward & Carter 2001); and
- The mixed seabird colony in Area 10 on Lunga, opposite Harp Rock.

At the first two sites were laid (1) Longworth Traps to establish the presence through live trapping of mice and voles, and (2) chocolate wax monitoring blocks to attract and record the distinctive bite marks of different rodent groups e.g. mice and rats (Varnham 2008). Only the chocolate wax monitoring blocks were laid within Area 10. The chocolate wax monitoring blocks were made following the method of Varnham (2008).

At the Boulder Beach, a single line of Longworth Traps in parallel with a single line chocolate wax blocks paired were set parallel with the tide edge between high water mark and the start of vegetation at two locations. One set of parallel lines, two metres apart, was laid for 40 metres along the western end of the Boulder Beach colony, traversing one of the two areas of the site traditionally mist netted for Storm Petrels. The second set of parallel lines, also two metres apart, was laid for 110 metres along the eastern end of the Boulder Beach colony, traversing the second of the two areas where TIARG traditionally set mist nets for ringing of Storm Petrels. The traps and pairs of wax blocks were laid in their respective lines at 10 metre intervals. Two traps and a pair of wax blocks were also positioned in the vegetation at the top of the Boulder Beach below the Well.

At the Village, two traps and two blocks were laid in crevices on the walls of one of the dwellings.

Four pairs of chocolate wax blocks were laid on the ground amongst the seabird colony within Area 10.

The survey was conducted over the 27/28<sup>th</sup> June at the Boulder Beach and Village, and 29/30<sup>th</sup> June in Area 10. All traps on the Boulder Beach and in the Village were checked on the morning of 28<sup>th</sup> June. Any animals caught were identified to species, weighed and then released. The chocolate wax blocks were the morning after setting inspected for rodent teeth marks, their presence recorded and whether that of rat, mouse or vole. All traps and blocks were removed from the study area following inspection.

## **Results**

Table 1 presents the results from the setting of Longworth traps and chocolate wax blocks on Lunga in June 2012. Mice had chewed eleven of the sixteen pairs (69%) of chocolate wax blocks (Figure 1) laid out on the Boulder Beach. At the same site, seven (41% of) Longworth traps caught House Mice. In vegetation immediately adjacent to the Boulder Beach and below the Well, no rodents were detected or caught by respectively, chocolate wax blocks or Longworth traps.

At the Village Mice had chewed the chocolate wax blocks laid out and two House Mice were caught in Longworth traps.

No teeth marks were found on the four pairs of chocolate wax blocks placed within the seabird colony in Area 10.

The mean weight of the House Mice captured were 27.0 grams (range 21.4 – 29.9 grams).

**Table 1: Results from setting of Longworth traps and chocolate wax blocks on Lunga, June 2012**

Location	Trap/paired wax block number	Chocolate wax block chewed?	Trap	
			Species caught	Mass (grams)
Boulder Beach West	1	Yes – Mouse sp.	House Mouse	28.0
	2	Yes – Mouse sp.	None	
	3	Yes – Mouse sp.	House Mouse	27.9
	4	Yes – Mouse sp.	None	
	5	Yes – Mouse sp.	House Mouse	Escaped
	Well 1	-	None	
	Well 2	None	None	
Boulder Beach East	1	Yes – Mouse sp.	House Mouse	28.4
	2	Yes – Mouse sp.	None	
	3	None	Unknown – trap sprung	
	4	None	None	
	5	None	None	
	6	Yes – Mouse sp.	House Mouse	29.9
	7	Yes – Mouse sp.	None	
	8	Yes – Mouse sp.	House Mouse	27.9
	9	Not laid	House Mouse	24.9
	10	None	None	
	11	Yes – Mouse sp.	None	
	12	None	None	
Village	1	Yes – Mouse sp.	House Mouse	27.5
	2		House Mouse	21.4
Area 10 (Harp Rock)	1	None	Not laid	
	2	None	Not laid	
	3	None	Not laid	
	4	None	Not laid	

## **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. If it were not for the live trapping and chew blocks, this will have remained so for 2012 as well given no other signs of Mice were noted by TIARG during the course of their traditional survey work.

House Mice vary in both absolute size and in bodily proportions in different environments (Berry 1970). The

mass of the House Mice caught and weighed on Lunga are at the top end of the species typical range, 12 -30 grams. This concurs with the observations that mice caught on off-shore islands are often larger than those inhabiting other locations e.g. human habitation, cold stores and corn ricks (Berry 1970). The removal of a need for small size to escape down holes from ground predators may be one of a complex of factors that result in island populations of House Mice being larger in size (Berry 1970).

Where the current survey recorded the House Mice on the Boulder Beach was within, or at least in close proximity to, known colonies of breeding Storm Petrel. 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 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 live trapping 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.

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**Figure 1:** One photograph of a mouse chewed chocolate wax block and one unmarked. The metal hoop is a partially inserted standard size paper clip (modified) for securing of the block in position. (Robin M. Ward)

