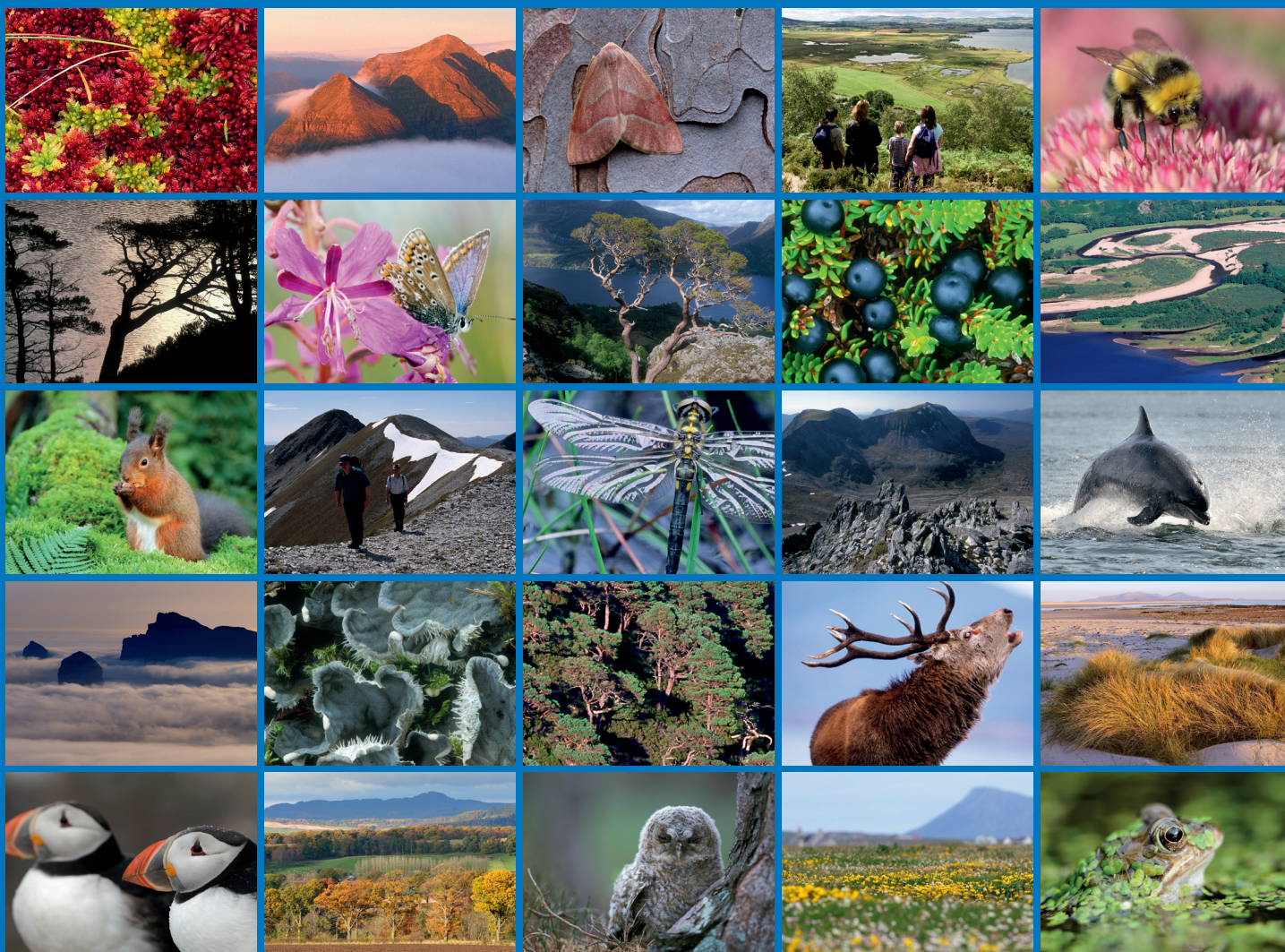


Marking, tagging and ageing of Annex 1 goose species in Scotland 2016-2018





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RESEARCH REPORT

Research Report No. 1195

Marking, tagging and ageing of Annex 1 goose species in Scotland 2016-2018

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RESEARCH REPORT

Summary

Marking, tagging and ageing of Annex 1 goose species in Scotland 2016-2018

Research Report No. 1195

Project No: 114469

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Keywords

Greenland barnacle geese; Greenland white-fronted geese; ringing; Global Positioning System telemetry

Background

Scotland is the main wintering ground for Annex 1-listed Greenland barnacle geese *Branta leucopsis* and Greenland white-fronted geese *Anser albifrons flavirostris*. A two year (winters 2016/17 and 2017/18) programme of work was commissioned to mark, tag and age these species on the main resort of Islay and across other parts of their Scottish range to inform flyway planning and conservation management decisions respectively.

Main findings

- In total, 531 Greenland barnacle geese were caught for ringing between February 2017 and March 2018, in 16 catches in six areas: 260 on Islay (Argyll), 155 at Durness (Sutherland), 52 on Tiree (Argyll), 49 on South Walls (Orkney) and 15 on Oronsay (Argyll). An unsuccessful catching attempt was made on North Uist.
- An additional 432 Greenland barnacle geese were caught outwith this contract; 75 on Islay, 41 in Iceland and 316 in Ireland.
- Age counts of Greenland barnacle geese were carried out on Islay, Tiree, Oronsay, North Uist and Durness. Results suggest that 17.8% of the wintering population were first winter birds in 2016/17 and 5.3% were first winter birds in 2017/18.
- Sightings of Greenland barnacle geese marked in 2016/17 yielded 712 sightings of 193 individuals in winter 2017/18.
- On Islay, 123 Greenland white-fronted geese were captured in 11 catches across winters 2016/17 (55 birds) and 2017/18 (68 birds including two recaptures).
- A subset of 10 Greenland white-fronted goose adult females were fitted with GPS-GSM-UHF telemetry collars in winter 2016/17, and 19 were fitted in winter 2017/18 (two of which were non-UHF and one of which was non-GSM).
- In addition, 13 Greenland white-fronted geese were captured in winter 2016/17 at Loch Ken (Dumfriesshire), 12 at Rhunahaorine (Kintyre) and six at Tayinloan (Kintyre) and a further four GPS-GSM-UHF telemetry collars were deployed.
- Seven and six previously tagged Greenland white-fronted geese with functional GPS tags were located during winters 2016/17 and 2017/18 respectively, and data successfully downloaded.

- Sightings of marked Greenland white-fronted geese yielded 415 sightings of 111 individuals in winter 2016/17 and 900 sightings of 152 individuals in winter 2017/18.

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Catching of Greenland barnacle geese on Islay was carried by Steve Percival (SP) and Tracey Percival, with thanks to Islay Estates and James How. On Hoy, Orkney catching was carried out by Bob Swann (BS), Highland Ringing Group, Colin Corse and Orkney Ringing Group. At Durness, catching was carried out by BS, Kenny Graham and Highland Ringing Group. On Tiree, our thanks go to Janet & John Bowler and, on Oronsay, to Andy Knight and Mick Green. Thanks are also extended to landowners and farmers who allowed catches to take place on their land. Geoff Hilton, Rae McKenzie and Jess Shaw kindly provided comments on an earlier version of this report.

Author contributions

Carl Mitchell (CM) produced the report and managed the Greenland barnacle goose catching programme; SP was responsible for catching and resightings on Islay, BS was responsible for catching at Orkney and Caithness and CM at sites elsewhere. Larry Griffin (LG), in conjunction with CM, was responsible for catching, marking and tagging the Greenland White-fronted Geese on Islay and elsewhere with help from Ed Burrell (EB) who was responsible for the majority of the resightings on Islay and catch preparation work. All submitted comments on the report.

1. INTRODUCTION

A programme of work was commissioned to provide evidence necessary to inform flyway planning and management decisions for Greenland barnacle geese *Branta leucopsis* across the Scottish winter range. It also aimed to provide evidence necessary to support conservation management of Greenland white-fronted geese *Anser albifrons flavirostris* on Islay and elsewhere.

The objectives were:

- To better understand movements and demography of Greenland barnacle geese and Greenland white-fronted geese on the west coast of Scotland.
- To increase the number of marked birds through catching (principally by cannon net) and colour ringing/fitting of neck collars at a number of agreed sites on Islay and, for Greenland barnacle geese, across the west coast of Scotland.
- To set up a database to record the ringing and sighting of marked Greenland barnacle geese.

These were to be achieved by:

Greenland barnacle geese

- Establishing a marked population in each of the main wintering resorts (Islay, Oronsay/Colonsay, North Uist, Tiree, Orkney, Sutherland) to better understand movements within and between resorts, and therefore the impact of management in different areas, and also ultimately to generate survival data to inform Population Viability Analyses (PVAs).
- Gathering age-ratio data in the main wintering resorts, since there is a fairly poor understanding of demographic parameters of Greenland barnacle geese outside of Islay.
- Establishing a mark-resight system to capture data on marked birds.
- Investigate using telemetry devices to better understand habitat use, day to day movements and behaviour in response to management activities.

Greenland white-fronted geese

- Maintaining the mark-resight programme developed over the past few winters on Islay (Griffin *et al.*, 2020) by marking more birds and maintaining the sighting effort, as well as at a few other sites (e.g. Loch Ken, West Freugh). The data collected so far on Islay is at the point where they can be used to understand demographic parameters, and so maintaining this effort is crucial. Having a better understanding of survival and productivity at different sites is potentially key to understanding the population decline.

This report details fieldwork carried out and initial results, which will facilitate more detailed demographic analysis in future once further data have been collected over time.

2. METHODS

2.1 Extend the long-term mark-resight programme for Greenland barnacle geese in Scotland during winters 2016/17 and 2017/18

In order to understand demography (annual survival and immigration/emigration), a mark-resight programme is required. For barnacle geese, this is done by capturing birds, deploying engraved plastic leg rings and subsequently reading them in the field. A long-term ringing scheme on Islay has been in place since the early 1980s. This gives valuable long-term insights (see e.g. Trinder 2014), but is limited because all the birds are ringed at essentially a single, undisturbed location. Current evidence indicates that population trends - and hence potentially survival or movements - differ markedly between wintering subpopulations. In order to elucidate and understand this, mark-sighting needed to be conducted at a representative range of sites.

The existing ringing scheme on Islay was extended by:

- a) Attempting to capture geese and deploy leg rings, targeting in particular areas subject to legal disturbance, to provide a contrast with the existing ringing that occurs in a very undisturbed part of the island on the Royal Society for the Protection of Birds (RSPB) reserve at Gruinart.
- b) Attempting to capture geese and deploy leg rings at other wintering sites away from Islay, including South Walls (Orkney), Durness (Sutherland), Coll/Tiree (Inner Hebrides), Colonsay/Oronsay (Inner Hebrides) and North Uist (Outer Hebrides). These represent the largest non-Islay flocks in Scotland.
- c) Undertaking sightings (ring-reading) at sites in the winter after catches were made (i.e. 2017/18 for those sites where catches were made in 2016/17).

Catching was by cannon-net, and was undertaken by very experienced and licensed bird ringers. Each Greenland barnacle goose was fitted with a metal British Trust for Ornithology (BTO) ring and a white plastic leg ring engraved with three characters. The metal ring provides an address to report finding a dead bird so that recovery information can be relayed back to the ringer. The plastic ring allows for recognition of individual geese in the field using a telescope. White rings with three engraved black characters are only used on birds from the Greenland population. Most Greenland barnacle geese ringed on Islay were also fitted with a single coloured leg ring above the metal BTO ring to identify birds caught on that island.

Sighting details were sent to SP who maintains a database of sightings of all colour-marked Greenland barnacle geese.

Whilst undertaking cannon-netting attempts, contact was made with local SNH staff, RSPB staff and local birdwatchers to tell them of the ringing activities and to encourage them to look for colour ringed individuals and report sightings to SP.

2.2 Extend the long-term programme of estimating age ratios for Greenland barnacle geese in Scotland during winter 2016/17 and 2017/18 and ensure that the current monitoring is designed appropriately to generate unbiased and precise estimates

Age ratio data are necessary to estimate breeding success (annual productivity), which is an essential demographic variable. As with survival and movements, in order to understand the Greenland barnacle goose population, it is necessary to understand how productivity varies between different wintering subpopulations. Currently, age ratio data are only regularly obtained on Islay and Coll/Tiree. This coverage was extended to further sites (Kyle of Tongue, Oronsay/Colonsay, North Uist and Durness) where cannon-netting was taking place

and/or local volunteers could be trained to undertake the assessments, with a view to establishing long-term monitoring.

Age ratios were determined by ageing on plumage features (adult or juvenile). The aim was to age large numbers of 'independent' individuals in an unbiased fashion. Hence, we aimed to sample multiple locations and flocks, and either entire flocks or a representative range of positions within the flock.

2.3 Establish a system for long-term capture of Greenland barnacle geese sighting, count and age ratio data

Liaison was undertaken with SP to efficiently capture and store colour ring sighting data, and with the Monitoring Unit at WWT to collate and store age ratio data. Liaison with existing barnacle geese ringers (e.g. David Cabot in Ireland) attempted to ensure a common approach to obtaining, sharing and storing data, in order to maximise data quantity and quality.

2.4 Investigate potential for use of neck collars to mark and attach telemetry devices to barnacle geese

Traditionally, barnacle geese (and other small *Branta* spp.) have been marked using engraved plastic leg rings, rather than neck collars which have been used safely and successfully on grey geese (*Anser* spp.). This reflects an early perception that *Branta* spp. tolerate neck collars poorly, and also the fact that leg rings are relatively easy to read on barnacle geese due to their habit of feeding in short grass (*cf.* white-fronted geese). Nevertheless, sighting probability would almost certainly increase if barnacle geese were fitted with neck collars rather than plastic leg rings. WWT ringers suspect that modern lightweight neck collars may be feasible on barnacle geese, and note that they are now widely used on small Canada geese *Branta canadensis* in North America.

WWT obtained permission from the BTO 'Special Marks Panel' for trials of neck collars on Svalbard barnacle geese wintering on the Solway Firth. This was with a view to testing the technique on birds that can be easily resighted on multiple occasions to examine how they tolerated the collars. Svalbard barnacle geese were caught at WWT Caerlaverock and fitted with lightweight plastic collars approximately 25mm tall, 40mm internal diameter and 7.5g mass. Follow-up observations on the behaviour of the marked geese were made by LG.

2.5 Maintain mark-resight programme for Greenland white-fronted geese on Islay

A mark-resight programme for Greenland white-fronted geese was re-established by WWT on Islay in 2012/13 (there was some previous marking in the 1990s). This was prompted by the realisation that demographic rates at Wexford, Ireland (which has been the subject of long-term mark-sighting), were apparently unrepresentative of the global population, and that in order to better understand the population decline, it was necessary to understand demography in a range of different subpopulations. In order to calculate demographic rates from mark-sighting using established statistical techniques, it is critically important to maintain annual deployment of new marks and sighting effort.

The mark-sighting programme has already delivered valuable insight into within-island movement of Greenland white-fronted geese (Griffin *et al.*, 2020), and will shortly be suitable for demographic rate analysis. We therefore continued the successful capture (by cannon-net) of Greenland white-fronted geese at a range of locations across Islay, and maintained the sighting effort across the island. Experience suggested that dedicated and systematic sighting effort yields far more sightings than incidental sighting effort by fieldworkers engaged in other tasks (such as censusing geese), even though the latter provides extremely valuable additional data.

2.6 Extend mark-resight programme for Greenland white-fronted geese to other sites

To extend our understanding of the demographic drivers behind the Greenland white-fronted goose population decline, and especially in view of apparently large, but poorly understood, net immigration/emigration rates, a mark-sighting programme at a representative range of wintering subpopulations was established. Away from the two core ringing sites (Wexford and Islay), WWT have successfully caught Greenland white-fronted geese at Loch Ken (Dumfries) and West Freugh, Stranraer (Galloway). As part of the current contract, catches were also made at Tayinloan and Rhunahaorine (both Kintyre) in 2016/17 with resightings undertaken in 2017/18.

2.7 Capture telemetry data from Greenland white-fronted geese marked on Islay during previous winter and deploy further telemetry devices

Twelve Greenland white-fronted geese departed on spring migration in 2015 carrying functional GPS-UHF telemetry devices. A high proportion of these birds were expected to return with these devices during winter 2016/17. The devices obtain several GPS fixes per day. The data are stored onboard, and then downloaded to a hand-held reader when the observer is able to get within a few hundred metres of the bird. The data make a major contribution towards understanding the movements of Greenland white-fronted geese and hence understanding the decline and identifying solutions. For example, they show movements around wintering sites, which can be used to identify preferred habitat and response to management. Recent instances of tracked birds being shot in Iceland hint at hunting pressure that may be more substantial than had been realised, and can be used to identify where and when hunting may be occurring. Location data from the breeding sites in Greenland are indicating the stage at which breeding failure occurs, which is critical to understanding the low productivity suffered in recent years (Griffin *et al.*, 2020). Attempts were made to locate and download the data from returning tracked geese (typically, c. 85% of birds will return alive; most but not all telemetry devices will be retained and functional).

The deployment of GPS devices attached to neck collars is now a well-tested procedure that we are confident delivers high quality data with low impact on bird behaviour. However, because of the high cost of tags and the resources required to catch birds, sample sizes remain relatively small, and data are available from only a small number of years. There is though a new software development in the existing telemetry devices, which could greatly increase their utility. This is a 3-D accelerometer, which can be used to derive behavioural time- and energy-budgets for the birds over the annual cycle.

We took advantage of plans to continue catching birds for marking by deploying new tags to increase overall sample size of tracked birds and time-spread of data. We aimed to trial the new accelerometry function in the tags, preferably on adult females which give the most valuable breeding season data, from a range of locations.

3. RESULTS

3.1 Extend a long-term mark-resight programme for Greenland barnacle geese in Scotland during winters 2016/17 and 2017/18

In total, 16 cannon-net catches in six areas were made and 531 birds were caught (Table 1, Figure 1). Of these, 523 geese (98.5%) were newly ringed; two were caught that had been originally ringed elsewhere (controls) and six were caught that had been ringed in the same place previously (retraps). Two cannon nets were set on North Uist in March 2018, but no birds entered the catching area and no catch was possible.

Table 1. Summary details of Greenland barnacle geese caught between February 2017 and March 2018 (see also Annex 1).

Catch No.	Winter	Area	Site	Grid Reference	Date	No. geese caught
1	2016/17	Islay	Carnain	NR3162	22/2/17	32
2	2016/17	Islay	Carnain	NR3162	23/2/17	16
3	2016/17	Islay	Carnain	NR3162	24/2/17	23
4	2016/17	Islay	Carnduncan	NR2466	25/2/17	7
5	2016/17	Tiree	Carsamull	NM0646	02/3/17	52
6	2016/17	Orkney	South Walls	ND3089	14/3/17	4
7	2016/17	Durness	Sutherland	NC3968	25/3/17	53
8	2016/17	Durness	Sutherland	NC3968	26/3/17	102 ¹
9	2017/18	Islay	Carnain	NR3162	25/10/17	36
10	2017/18	Islay	Carnain	NR3162	13/2/18	52 ²
11	2017/18	Islay	Carnain	NR3162	14/2/18	35
12	2017/18	Oronsay	Oronsay Fm.	NR3588	15/2/18	5
13	2017/18	Islay	Carnain	NR3162	16/2/18	52 ³
14	2017/18	Oronsay	Oronsay Fm.	NR3588	16/2/18	10
15	2017/18	Islay	Cornabus	NR3346	25/2/18	7
16	2017/18	Orkney	South Walls	ND3089	3/3/18	45 ⁴
-	2017/18	North Uist	Baleshare	NF7981	11-15/3/18	-
TOTAL						531

Notes:

¹ Included one retrap, originally ringed at Durness in 2008 and a control, originally ringed on Islay.

² Included one retrap, ringed in an earlier catch.

³ Included four retraps, ringed in earlier catches.

⁴ Included one control, originally ringed on Islay.

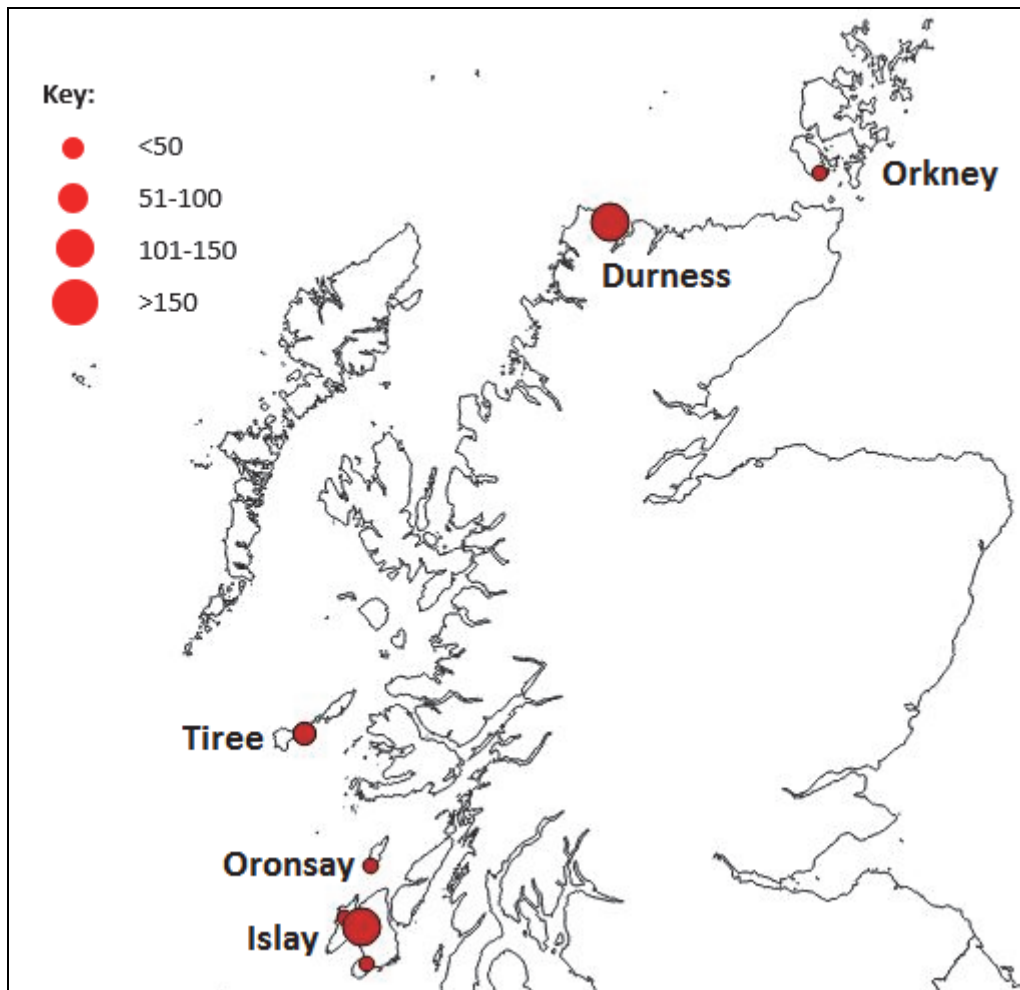


Figure 1. Distribution of catches of Greenland barnacle geese in winters 2016/17 and 2017/18. Size of the dot indicates number of birds caught.

In the eight catches in winter 2016/17, 34.9% of the birds caught were young (101 young out of 289 birds caught). In the eight catches in winter 2017/18, 10.3% of the birds caught were young (25 young out of 242 birds caught). These percentages are approximately double the percentage of young recorded in flock observations (see section 3.2 below), and show that young birds are over-represented in cannon-net catches of Greenland barnacle geese.

3.1.1 Other catching

Outwith this contract, on Islay 71 Greenland barnacle geese were caught at the RSPB Gruinart reserve (19 in winter 2016/17 and 52 in winter 2017/18) by SP, and four birds were caught in February 2017 by LG. Forty-one Greenland barnacle geese were caught in Iceland in July 2017 during their annual wing moult. In Ireland, 316 Greenland barnacle geese were caught in winter 2017/18, of which 286 were fitted with a plastic leg rings (K Colhoun *in litt.*). This brings the total number of Greenland barnacle geese caught in the population between February 2017 and April 2018 to 963, of which 933 were fitted with plastic leg rings. As of the end of March 2018, the total number of birds alive and carrying plastic legs rings in the Greenland population was thought to be about 1,300 or ~1.8% of the 2018 population total (SP, WWT data) or one colour ringed bird in every 55.

3.1.2 *Within-winter movements*

There were 17 within-winter movements in winter 2017/18 of the birds ringed in 2016/17; ten from Islay to Tiree, one from Sligo to Islay, one from Islay to Danna, one from Islay to Donegal, one from Islay to North Uist, one from Tiree to Oronsay, one from Durness to Donegal and one from Durness to Tiree (Figure 2). These numbers simply report the numbers of ringed birds observed and do not take into account differences in resighting effort at different sites, so do not reflect estimates of movement rates.

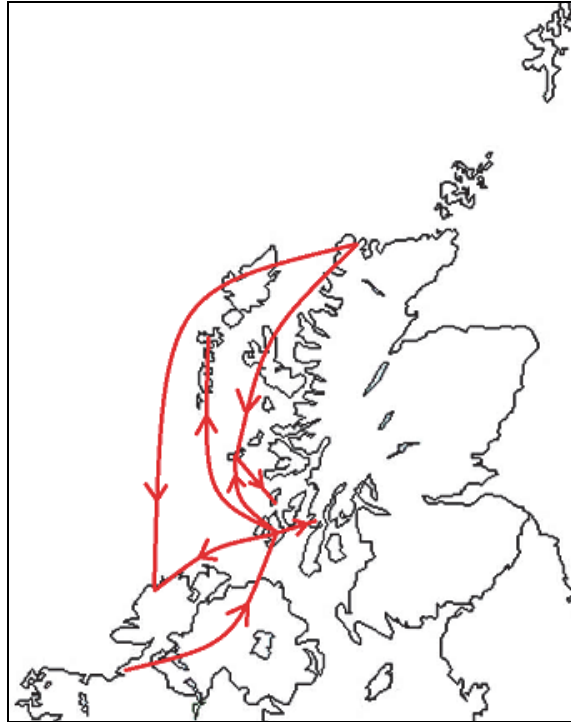


Figure 2. Reported within-winter movements of Greenland barnacle geese in winter 2017/18 of birds ringed in 2016/17. See text for number involved.

3.1.3 Between-winter movements

Of the Greenland barnacle geese caught in winter 2016/17, 38-83% were seen again at or near the ringing site and 9%-39% were seen in a different wintering area in winter 2017/18 (Table 2, Figures 3 to 5). Some ringed birds were seen at both the original ringing site and elsewhere in winter 2017/18. As for winter-winter movements, these numbers simply report the numbers of ringed birds observed and do not take into account differences in resighting effort at different sites, so do not reflect estimates of movement rates.

Table 2. Sightings of Greenland barnacle geese ringed in winter 2016/17 and seen in winter 2017/18.

Ringling site	No. ringed in 2016/17	No. of ringed birds seen in 2017/18	No. seen at ringing site in 2017/18	No. seen elsewhere in 2017/18
Durness	154	79 (51.3%)	59 (38.3%)	23 (14.9%) ¹
Tiree	52	44 (84.6%)	35 (67.3%)	21 (38.5%) ²
Islay	78	70 (89.7%)	65 (83.3%)	7 (9.0%) ³

Notes:

¹ 14 seen on Islay, four on Tiree, one on Inishkea, two in Donegal, one on Oronosay/Colonsay and one on Shetland (Figure 3).

² 16 seen on Islay, one in Donegal, two on Oronosay/Colonsay and two on North Uist (Figure 4).

³ Three in Sligo, two on North Uist, one on Tiree and one on Danna (Figure 5).

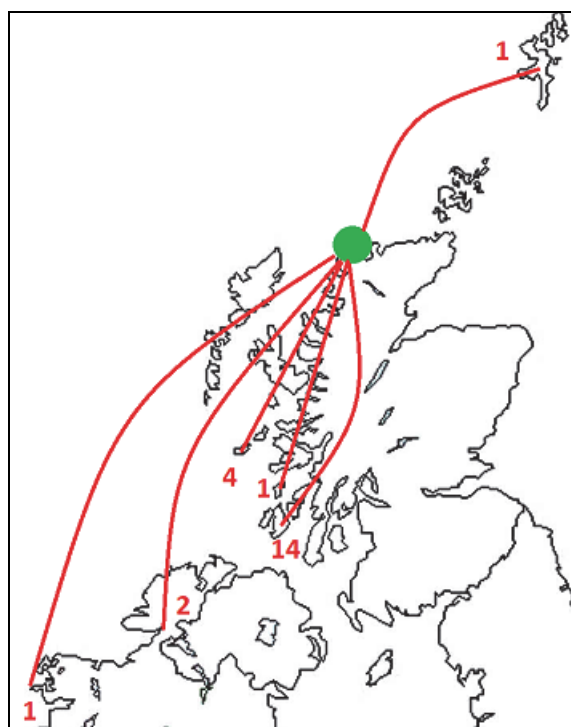


Figure 3. Sightings of Greenland barnacle geese marked at Durness (●) in 2016/17 and seen elsewhere in the winter range in winter 2017/18. The number of individual geese involved are given.



Figure 4. Sightings of Greenland barnacle geese marked on Tiree (●) in winter 2016/17 and seen elsewhere in the winter range in winter 2017/18. The number of individual geese involved are given.

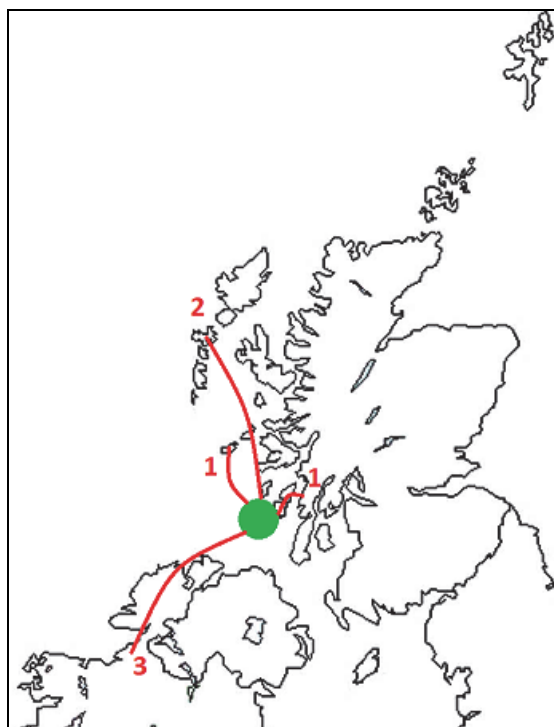


Figure 5. Sightings of Greenland barnacle geese marked on Islay (●) in winter 2016/17 and seen elsewhere in the winter range in winter 2017/18. The number of individual geese involved are given.

3.2 Extend the long-term programme of estimating age ratios for Greenland barnacle geese in Scotland during winters 2016/17 and 2017/18

In winter 2016/17, age ratios were undertaken on Islay, Tiree and Durness (Table 3). In winter 2017/18, age ratios were undertaken on Islay, Tiree, Durness, North Uist, Kyle of Tongue and Oronsay (Table 3). The overall percentage young in winter 2016/17 (17.8%) was similar to that recorded on Islay (17.9%) and likewise in winter 2017/18 the overall percentage young (5.3%) was similar to that recorded on Islay (5.3%). The percentage young recorded in winter 2017/18 at the Kyle of Durness (0.5%) and on Oronsay (10.2%) were different to the overall mean by 4.8% and 4.9% respectively, although both assessments were based on relatively small sample sizes (~200 birds).

Table 3. Summary details of age ratios of Greenland barnacle geese in north and west Scotland in 2016/17 and 2017/18.

Winter	Area	No. aged	% young	No. broods	Mean brood size
2016/17	Islay ¹	12,010	17.9	684	2.12
2016/17	Tiree ²	500	16.2	50	1.62
2016/17	Durness	212	15.1	13	1.77
2016/17	Total	12,722	17.8	747	2.08
2017/18	Islay ¹	9,015	5.3	111	1.92
2017/18	Tiree ²	300	3.3	9	1.11
2017/18	Durness	200	6.0	4	1.33
2017/18	Kyle of Tongue	204	0.5	1	1.00
2017/18	Oronsay ³	226	10.2	-	-
2017/18	North Uist	412	5.6	10	1.40
2017/18	Total	10,357	5.3	135	1.79

Notes:

¹ Data provided by Malcolm Ogilvie under contract to SNH

² Data provided by John Bowler (RSPB)

³ Data provided by Andy Knight (RSPB)

Identifying local observers to maintain the recording of annual breeding success in Greenland barnacle goose flocks proved difficult, with only one new volunteer found. It is hoped that age ratio recording will be maintained on Islay, Tiree and Oronsay, with other areas covered by WWT staff when undertaking other fieldwork.

3.3 Establish a system for long-term capture of Greenland barnacle geese sightings, count and age ratio data

SP has agreed to maintain the ring sightings database for all individually-marked Greenland barnacle geese. The geese were marked with BTO metal rings issued to WWT, SP and BS and any birds ringed as part of the current study that are seen or shot will be reported back to SNH. As of the end of April 2018, two birds ringed as part of this study have been reported shot; both were ringed and shot on Islay. Age ratio data were and will be collated by the Monitoring Unit at WWT Slimbridge.

3.4 Investigate potential for use of neck collars to mark and attach telemetry devices to barnacle geese

The small-scale trial of neck collars at Caerlaverock commenced in winter 2015/16 and continued in winters 2016/17 and 2017/18 with 14 plastic collars fitted in all (Table 4).

Table 4. Deployment schedule and resighting rate of plastic neck collars fitted to Svalbard barnacle geese in 2015/16 to 2017/18.

Winter deployed	Age	Sex	Sighted 2016/17	Sighted 2017/18
2015/16	5 adults	3 male 2 female	2 (pair)	2 (same pair)
2016/17	2 adults 1 juvenile	3 male	-	2
2017/18	6 adults	6 male	-	-

All catches were carried out in late March or April, so there was little chance for observation of the birds before spring migration. Limited observations so far, if excluding the day of capture itself, showed that the birds showed no signs of distress and fed at normal rates compared to un-collared birds and had typical abdominal profile scores. It was of interest

that a cracked collar was found on Rockcliffe Marsh, Cumbria, in early June 2018, having only been fitted to a male in mid-April 2018; it was thought probable that the bird had shed the collar since it was subsequently seen alive without the collar.

Field observations of some of the collared birds suggested that there was slight feather wear on the back of the neck in a small patch at the back of the skull. Therefore, it would probably be prudent, considering the constant movement of the collar on the neck of a foraging barnacle goose, not to use a collar (or a collar-tag combination) of greater than perhaps 10-15g. The resighting of four out of eight individuals fitted with simple plastic collars over two winters should probably be taken as representing a minimum survival rate. This is partly because of possible collar loss rates (as per the observation of a bird shedding a collar above), and partly because resighting effort is almost zero on some areas of the Solway Firth (mainly the English side) where many thousands of birds reside for the winter.

There is currently no well-established system for deploying modern GPS-GSM/UHF telemetry devices on barnacle geese (unlike white-fronted geese, for which WWT has established a reliable technique). We suspect that a neck collar attachment is viable for barnacle geese, but this remains untested by WWT, although David Cabot, working in Ireland, deployed '*Pathtrack*' GPS collars on Greenland barnacle geese in March 2018. The results of that deployment are awaited.

3.5 Maintain mark-resight programme for Greenland white-fronted geese on Islay

Catches of Greenland white-fronted geese were attempted in two bouts during winters 2016/17 and 2017/18 on Islay: in November (hereafter "autumn") and February and March (hereafter "spring"). All catch attempts were conducted by licensed cannon-netters LG and/or CM, with support from EB. Details of catch attempts are given in Table 5. Sites were typically pre-baited with grain for a number of days prior to nets being set in an effort to maximise catch success. A total of 55 individual Greenland white-fronted geese were captured in six successful catches in 2016/17, with 68 individuals from five catches in 2017/18. Captured birds were fitted with BTO metal rings, plastic leg rings engraved with a unique alpha-numeric code and correspondingly coded plastic neck collars, according to standard practice. A subset of 27 adult and two juvenile females (sexed though cloacal examination and aged according to plumage characteristics) were fitted with ECOTONE IBIS GPS-GSM-UHF telemetry collars (in 2017/18 of 19 tags fitted, the two juvenile's tags were non-UHF and one adult tag was non-GSM).

Sighting efforts also occurred during the two fieldwork periods outlined above. This was principally undertaken by EB. In total, 410 resightings of 111 individuals were made on Islay in 2016/17, and over 900 sightings of 152 individuals were made on Islay in 2017/18, and reported to the Greenland White-fronted Goose Study (GWGS).

Table 5. Greenland white-fronted geese catching attempts made on Islay in winters 2016/17 and 2017/18

Location	Catch bout	Pre-baited?	Number of nets	No. birds caught	No. GPS tagged deployed	Notes
<i>2016/17</i>						
Cornabus Farm	Autumn	Yes	1	9		
Kinnabus Farm, RSPB "The Oa" reserve	Autumn	No	2	9	2	
Ballinaby Farm	Autumn	Yes	2			No nets fired
Cornabus Farm	Spring	Yes	2	12	3	One net fired
Craigens Farm	Spring	Yes	1	9	2	Geese fed on bait in drainage ditch
Aoradh Farm, RSPB "Loch Gruinart" reserve	Spring	Yes	1	5	1	Plus 4 Greenland barnacle geese in a half net feeding on bait in semi-permanent pool
Coille Farm	Spring	Yes	1	11	2	Plus 7 Greenland barnacle geese feeding on bait on grass pasture
Total				55	10	
<i>2017/18</i>						
Cornabus Farm	Autumn	Yes	1	15	3	
Cornabus Farm	Autumn	Yes	1	10	2	
Cornabus Farm	Spring	Yes	1	9	3	Geese fed on bait on grass pasture with small pool of water
Cornabus Farm	Spring	Yes	1	8	3	Plus 7 Greenland barnacle geese feeding on the bait
Balaclava Croft	Spring	Yes	1			Net set over baited pool but net not fired as pool dried
Cornabus Farm	Spring	Yes	2	26	8	Bait ineffective as frozen into stream
Total				68	19	

3.6 Extend mark-resight programme for Greenland white-fronted geese to other sites

Catch attempts were made at Loch Ken during November 2016, and at Rhunahaorine and Tayinloan (Kintyre) during March 2017 by LG and EB. Two nets were set at each site and were fired successfully, resulting in a total of 13 individuals caught at Loch Ken, 12 at Rhunahaorine and six at Tayinloan (Table 6). Two ECOTONE IBIS GPS-UHF telemetry collars were fitted at Loch Ken and two ECOTONE IBIS GPS-GSM-UHF tags were deployed at Rhunahaorine; all on adult females. No individuals suitable for tagging were caught at Tayinloan. The remainder of the birds were fitted with standard leg rings and neck collars as detailed above, with the exception of two birds at Tayinloan. One adult was visibly lame prior to the catch and was released without ringing. A juvenile female was considered too small to safely fit a neck collar, therefore only leg rings were fitted.

Table 6. Summary of Greenland white-fronted geese catch attempts away from Islay in winter 2016/17

Location	Catch period	Pre-baited?	Number of nets	Outcome
Loch Ken, Fininness farm	19/11/16 – 23/11/16	No	2	Both nets fired successfully over a grass pasture, catching a total of 13 birds. Two GPS- UHF tags deployed on adult females
Rhunahaorine, Lower Dunashery farm	10/3/17 – 12/3/17	Yes	1	Successful catch of 12 birds, feeding on bait in a temporary pool. Two GPS- GSM-UHF tags deployed on adult females.
Tayinloan, Dalmore farm	10/3/17 – 12/3/17	Yes	1	Successful catch of six birds, feeding on bait on grass near a temporary pool

3.7 Capture telemetry data from Greenland white-fronted geese marked on Islay during previous winter and deploy further telemetry devices

Seven previously tagged Greenland white-fronted geese were located on Islay and/or Kintyre with functional GPS tags and data were successfully downloaded in 2016/17. Six of these tags remained functional and were subsequently downloaded in autumn 2017 on Islay/Kintyre. Six of these were initially captured on Islay between March 2013 and November 2015, the remaining bird was caught at West Freugh in winter 2013/14. In 2016/17, two adult females that had nested successfully in 2016 returned to Islay with four and three goslings respectively. One of these females bred successfully again in summer 2017, returning with one gosling. Telemetry data suggests that many of the remaining adult females commenced incubation attempts but failed prior to hatching.

As outlined above, a total of 33 GPS tracking devices were fitted to adult females during the course of the contract: 29 on Islay and two each at Loch Ken and Rhunahaorine.

Trials to assign discrete behaviours to accelerometry data took place on captive Greenland white-fronted geese at WWT Slimbridge in April 2017. These are being augmented by similar data collection on wild birds on Islay and await analysis. The accelerometer function of the tags was deployed to cover the pre-breeding and nesting periods on the summering grounds in West Greenland in an effort to better understand breeding ground distribution, and to determine whether breeding deferral or failure is driving reduced productivity.

4. REFERENCES

Griffin, L.R., Burrell, E.M., Harrison, A.L., Mitchell, C. & Hilton, G.M. 2020. Conservation management of Greenland white-fronted geese *Anser albifrons flavirostris* on Islay, Scotland. *Scottish Natural Heritage Research Report No. 912*.

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ANNEX 1: RINGING DETAILS OF 531 GREENLAND BARNACLE GEESE CAUGHT IN SCOTLAND IN WINTERS 2016/17 AND 2017/18

Catch ¹	#	Metal ²	N/R/C ³	Darvic ⁴	Φ ₅	Φ × 6	Catch Date	Place	Area	Grid Reference	Comment
1	1	1512051	N	ZIA	A	M	22/02/2017	Carnain	Islay	NR312626	
1	2	1512052	N	ZIB	A	F	22/02/2017	Carnain	Islay	NR312626	
1	3	1512053	N	ZIC	A	F	22/02/2017	Carnain	Islay	NR312626	
1	4	1512054	N	ZID	A	F	22/02/2017	Carnain	Islay	NR312626	
1	5	1512055	N	ZIF	A	M	22/02/2017	Carnain	Islay	NR312626	
1	6	1512056	N	ZIH	A	F	22/02/2017	Carnain	Islay	NR312626	
1	7	1512057	N	ZII	J	F	22/02/2017	Carnain	Islay	NR312626	
1	8	1512058	N	ZIL	A	M	22/02/2017	Carnain	Islay	NR312626	
1	9	1512059	N	ZIN	A	F	22/02/2017	Carnain	Islay	NR312626	
1	10	1512060	N	ZIP	J	M	22/02/2017	Carnain	Islay	NR312626	
1	11	1512061	N	ZIJ	A	F	22/02/2017	Carnain	Islay	NR312626	
1	12	1512062	N	ZIS	A	F	22/02/2017	Carnain	Islay	NR312626	
1	13	1512063	N	ZIT	J	F	22/02/2017	Carnain	Islay	NR312626	
1	14	1512064	N	ZIU	A	F	22/02/2017	Carnain	Islay	NR312626	
1	15	1512065	N	ZIV	J	F	22/02/2017	Carnain	Islay	NR312626	
1	16	1512066	N	ZIX	A	F	22/02/2017	Carnain	Islay	NR312626	
1	17	1512067	N	ZIY	J	M	22/02/2017	Carnain	Islay	NR312626	
1	18	1512068	N	ZIZ	J	F	22/02/2017	Carnain	Islay	NR312626	
1	19	1512069	N	ZJA	A	F	22/02/2017	Carnain	Islay	NR312626	
1	20	1512070	N	ZJB	J	F	22/02/2017	Carnain	Islay	NR312626	
1	21	1512071	N	ZJC	A	F	22/02/2017	Carnain	Islay	NR312626	
1	22	1512072	N	ZJD	J	M	22/02/2017	Carnain	Islay	NR312626	
1	23	1512073	N	ZJF	J	F	22/02/2017	Carnain	Islay	NR312626	
1	24	1512074	N	ZJH	A	F	22/02/2017	Carnain	Islay	NR312626	
1	25	1512075	N	ZJI	J	F	22/02/2017	Carnain	Islay	NR312626	
1	26	1512076	N	ZJJ	J	F	22/02/2017	Carnain	Islay	NR312626	
1	27	1512077	N	ZJL	J	F	22/02/2017	Carnain	Islay	NR312626	
1	28	1512078	N	ZJP	J	M	22/02/2017	Carnain	Islay	NR312626	
1	29	1512079	N	ZJN	A	M	22/02/2017	Carnain	Islay	NR312626	
1	30	1512080	N	ZJS	J	M	22/02/2017	Carnain	Islay	NR312626	
1	31	1512081	N	ZJT	J	F	22/02/2017	Carnain	Islay	NR312626	
1	32	1512082	N	ZJU	J	M	22/02/2017	Carnain	Islay	NR312626	
2	33	1512001	N	ZHF	J	M	23/02/2017	Carnain	Islay	NR312626	

2	34	1512002	N	ZHH	A	M	23/02/2017	Carnain	Islay	NR312626	
2	35	1512003	N	ZHI	A	M	23/02/2017	Carnain	Islay	NR312626	
2	36	1512004	N	ZHJ	J	F	23/02/2017	Carnain	Islay	NR312626	
2	37	1512005	N	ZHL	A	F	23/02/2017	Carnain	Islay	NR312626	
2	38	1512006	N	ZHN	J	F	23/02/2017	Carnain	Islay	NR312626	
2	39	1512091	N	ZJV	J	M	23/02/2017	Carnain	Islay	NR312626	
2	40	1512092	N	ZJX	A	F	23/02/2017	Carnain	Islay	NR312626	
2	41	1512093	N	ZJY	A	F	23/02/2017	Carnain	Islay	NR312626	
2	42	1512094	N	ZJZ	A	M	23/02/2017	Carnain	Islay	NR312626	
2	43	1512095	N	ZFZ	J	F	23/02/2017	Carnain	Islay	NR312626	
2	44	1512096	N	ZFY	A	M	23/02/2017	Carnain	Islay	NR312626	
2	45	1512097	N	ZHA	A	F	23/02/2017	Carnain	Islay	NR312626	
2	46	1512098	N	ZHB	J	M	23/02/2017	Carnain	Islay	NR312626	
2	47	1512099	N	ZHC	J	M	23/02/2017	Carnain	Islay	NR312626	
2	48	1512100	N	ZHD	A	M	23/02/2017	Carnain	Islay	NR312626	
3	49	1512007	N	ZHP	A	M	24/02/2017	Carnain	Islay	NR312626	
3	50	1512008	N	ZHS	J	M	24/02/2017	Carnain	Islay	NR312626	
3	51	1512009	N	ZHT	A	F	24/02/2017	Carnain	Islay	NR312626	
3	52	1512010	N	ZHU	J	F	24/02/2017	Carnain	Islay	NR312626	
3	53	1512011	N	ZHV	A	M	24/02/2017	Carnain	Islay	NR312626	
3	54	1512012	N	ZHX	J	M	24/02/2017	Carnain	Islay	NR312626	
3	55	1512013	N	ZHY	J	M	24/02/2017	Carnain	Islay	NR312626	
3	56	1512014	N	ZHZ	J	F	24/02/2017	Carnain	Islay	NR312626	
3	57	1512015	N	ZLA	A	F	24/02/2017	Carnain	Islay	NR312626	
3	58	1512016	N	ZLB	J	M	24/02/2017	Carnain	Islay	NR312626	
3	59	1512017	N	ZLC	A	M	24/02/2017	Carnain	Islay	NR312626	
3	60	1512018	N	ZLD	J	M	24/02/2017	Carnain	Islay	NR312626	
3	61	1512019	N	ZLF	A	F	24/02/2017	Carnain	Islay	NR312626	
3	62	1512020	N	ZLH	J	M	24/02/2017	Carnain	Islay	NR312626	
3	63	1512021	N	ZLI	A	M	24/02/2017	Carnain	Islay	NR312626	
3	64	1512022	N	ZLJ	A	F	24/02/2017	Carnain	Islay	NR312626	
3	65	1512023	N	ZLL	J	F	24/02/2017	Carnain	Islay	NR312626	
3	66	1512024	N	ZLN	A	M	24/02/2017	Carnain	Islay	NR312626	
3	67	1512025	N	ZLP	A	M	24/02/2017	Carnain	Islay	NR312626	
3	68	1512026	N	ZLT	A	M	24/02/2017	Carnain	Islay	NR312626	
3	69	1512027	N	ZLU	J	M	24/02/2017	Carnain	Islay	NR312626	
3	70	1512028	N	ZLV	A	M	24/02/2017	Carnain	Islay	NR312626	
3	71	1512030	N	ZLS	J	M	24/02/2017	Carnain	Islay	NR312626	

4	72	1501526	N		39	A	F	25/02/2017	Carnduncan	Islay	NR2466	
4	73	1501527	N		38	A	M	25/02/2017	Carnduncan	Islay	NR2466	
4	74	1501528	N		37	A	F	25/02/2017	Carnduncan	Islay	NR2466	
4	75	1501529	N		36	J	F	25/02/2017	Carnduncan	Islay	NR2466	
4	76	1501530	N		35	J	F	25/02/2017	Carnduncan	Islay	NR2466	
4	77	1501531	N		34	A	M	25/02/2017	Carnduncan	Islay	NR2466	
4	78	1501532	N		33	A	M	25/02/2017	Carnduncan	Islay	NR2466	
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5	85	1501619	N	6AN		A	F	02/03/2017	Carsamull	Tiree	NM069467	
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5	88	1501622	N	6AT		A	F	02/03/2017	Carsamull	Tiree	NM069467	
5	89	1501623	N	6AU		A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	90	1501624	N	6AV		A	F	02/03/2017	Carsamull	Tiree	NM069467	
5	91	1501625	N	6AX		A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	92	1501626	N	6AZ		A	F	02/03/2017	Carsamull	Tiree	NM069467	
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5	94	1501628	N	SLF		A	F	02/03/2017	Carsamull	Tiree	NM069467	
5	95	1501629	N	SLH		J	M	02/03/2017	Carsamull	Tiree	NM069467	
5	96	1501630	N	SLI		A	F	02/03/2017	Carsamull	Tiree	NM069467	
5	97	1501631	N	SLJ		A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	98	1501632	N	SLL		A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	99	1501633	N	SLN		A	F	02/03/2017	Carsamull	Tiree	NM069467	
5	100	1501634	N	SLP		J	F	02/03/2017	Carsamull	Tiree	NM069467	
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5	102	1501636	N	SLU		J	F	02/03/2017	Carsamull	Tiree	NM069467	
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5	107	1501641	N	SLZ		A	F	02/03/2017	Carsamull	Tiree	NM069467	
5	108	1501642	N	SSJ		A	F	02/03/2017	Carsamull	Tiree	NM069467	
5	109	1501643	N	SSL		A	F	02/03/2017	Carsamull	Tiree	NM069467	

5	110	1501644	N	SSN	A	F	02/03/2017	Carsamull	Tiree	NM069467	
5	111	1501645	N	SSP	A	F	02/03/2017	Carsamull	Tiree	NM069467	
5	112	1501646	N	SSS	A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	113	1501647	N	SST	A	F	02/03/2017	Carsamull	Tiree	NM069467	
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5	115	1501649	N	SNA	A	F	02/03/2017	Carsamull	Tiree	NM069467	
5	116	1501650	N	SNB	J	F	02/03/2017	Carsamull	Tiree	NM069467	
5	117	no metal	N	SNC	J	M	02/03/2017	Carsamull	Tiree	NM069467	
5	118	no metal	N	SND	A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	119	no metal	N	SNI	J	M	02/03/2017	Carsamull	Tiree	NM069467	
5	120	no metal	N	SNF	A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	121	no metal	N	SNH	A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	122	no metal	N	SNJ	J	F	02/03/2017	Carsamull	Tiree	NM069467	
5	123	no metal	N	SNL	A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	124	no metal	N	SNN	A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	125	no metal	N	SNP	J	M	02/03/2017	Carsamull	Tiree	NM069467	
5	126	no metal	N	SNS	A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	127	no metal	N	SNT	A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	128	no metal	N	SNU	A	M	02/03/2017	Carsamull	Tiree	NM069467	
5	129	no metal	N	SNV	J	M	02/03/2017	Carsamull	Tiree	NM069467	
5	130	no metal	N	SNX	J	M	02/03/2017	Carsamull	Tiree	NM069467	
6	131	1285201	N	SDA	A	M	14/03/2017	South Walls	Orkney	ND3089	
6	132	1285202	N	SDB	A	M	14/03/2017	South Walls	Orkney	ND3089	
6	133	1285203	N	SDC	A	M	14/03/2017	South Walls	Orkney	ND3089	
6	134	1285204	N	SDD	A	F	14/03/2017	South Walls	Orkney	ND3089	
7	135	1503059	N	SBA	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	136	1503060	N	3FZ	J	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	137	1503061	N	3FY	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	138	1503062	N	3FX	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	139	1503063	N	3FV	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	140	1503064	N	3FU	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	141	1503065	N	3FT	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	142	1503066	N	3FS	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	143	1503067	N	3FP	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	144	1503068	N	3FN	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	145	1503069	N	3FL	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	146	1503070	N	3FJ	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	147	1503071	N	3FI	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	

7	148	1503072	N	3FH	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	149	1503073	N	3FF	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	150	1503074	N	3FD	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	151	1503075	N	3IA	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	152	1503076	N	3IB	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	153	1503077	N	3IC	J	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	154	1503078	N	3ID	J	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	155	1503079	N	3IF	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	156	1503080	N	3IH	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	157	1503081	N	3II	J	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	158	1503082	N	3IJ	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	159	1503083	N	3IL	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	160	1503084	N	3IN	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	161	1503085	N	3IP	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	162	1503086	N	3IS	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	163	1503087	N	3IT	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	164	1503088	N	3IU	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	165	1503089	N	3IV	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	166	1503090	N	3IX	J	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	167	1503091	N	3IY	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	168	1503092	N	3IZ	J	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	169	1503093	N	3JA	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	170	1503094	N	3JB	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	171	1503095	N	3JC	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	172	1503096	N	3JD	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	173	1503097	N	3JF	J	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	174	1503098	N	3JH	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	175	1503099	N	3JI	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	176	1503100	N	3JJ	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	177	1503101	N	3JL	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	178	1503102	N	3JN	J	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	179	1503103	N	3JP	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	180	1503104	N	3JS	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	181	1503105	N	3JT	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	182	1503106	N	3JU	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	183	1503107	N	3JV	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	184	1503108	N	3JX	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	185	1503109	N	3JY	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	

7	186	1503110	N	3JZ	A	F	25/03/2017	Balnakeil Farm	Durness	NC390683	
7	187	1503111	N	4TB	A	M	25/03/2017	Balnakeil Farm	Durness	NC390683	
8	188	1292943	R	4VV	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	Retrap. Originally ringed 3CD
8	189	1295146	C	ZDA	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	Control. Originally ringed Islay
8	190	1503112	N	4TA	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	191	1503113	N	4TC	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	192	1503114	N	4TD	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	193	1503115	N	4TF	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	194	1503116	N	4TH	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	195	1503117	N	4TI	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	196	1503118	N	4TJ	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	197	1503119	N	4TL	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	198	1503120	N	4TN	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	199	1503121	N	4TP	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	200	1503122	N	4TS	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	201	1503123	N	4TT	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	202	1503124	N	4TU	J	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	203	1503125	N	4TV	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	204	1503126	N	4TX	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	205	1503127	N	4TY	J	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	206	1503128	N	4TZ	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	207	1503129	N	4UA	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	208	1503130	N	4UB	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	209	1503131	N	4UC	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	210	1503132	N	4UD	J	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	211	1503133	N	4UF	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	212	1503134	N	4UJ	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	213	1503135	N	4UI	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	214	1503136	N	4UH	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	215	1503137	N	4UL	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	216	1503138	N	4UN	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	217	1503139	N	4UP	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	218	1503140	N	4US	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	219	1503141	N	4UT	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	220	1503142	N	4UV	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	221	1503143	N	4UU	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	

8	222	1503144	N	4UY	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	223	1503145	N	4UX	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	224	1503146	N	4UZ	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	225	1503147	N	4VA	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	226	1503148	N	4VC	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	227	1503149	N	4VD	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	228	1503150	N	4VB	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	229	1511651	N	4ZB	J	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	230	1511652	N	4ZC	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	231	1511653	N	4ZD	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	232	1511654	N	4ZI	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	233	1511655	N	4ZH	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	234	1511656	N	4ZF	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	235	1511657	N	4ZJ	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	236	1511658	N	4ZL	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	237	1511659	N	4ZN	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	238	1511660	N	4ZP	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	239	1511661	N	4ZS	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	240	1511701	N	4VF	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	241	1511702	N	4VH	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	242	1511703	N	4VL	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	243	1511704	N	4VI	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	244	1511705	N	4VJ	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	245	1511706	N	4VN	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	246	1511707	N	4VP	J	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	247	1511708	N	4VS	J	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	248	1511709	N	4VT	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	249	1511710	N	4VU	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	250	1511711	N	4VX	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	251	1511712	N	4VY	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	252	1511713	N	4VZ	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	253	1511714	N	4XA	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	254	1511715	N	4XB	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	255	1511716	N	4XC	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	256	1511717	N	4XD	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	257	1511718	N	4XF	J	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	258	1511719	N	4XH	J	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	259	1511720	N	4XI	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	

8	260	1511721	N	4XJ	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	261	1511722	N	4XL	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	262	1511723	N	4XN	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	263	1511724	N	4XP	J	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	264	1511725	N	4XS	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	265	1511726	N	4XU	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	266	1511727	N	4XT	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	267	1511728	N	4XV	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	268	1511729	N	4XX	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	269	1511730	N	4XY	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	270	1511731	N	4XZ	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	271	1511732	N	4YA	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	272	1511733	N	4YB	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	273	1511734	N	4YC	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	274	1511735	N	4YD	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	275	1511736	N	4YF	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	276	1511737	N	4YH	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	277	1511738	N	4YI	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	278	1511739	N	4YJ	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	279	1511740	N	4YL	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	280	1511741	N	4YN	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	281	1511742	N	4YP	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	282	1511743	N	4YT	J	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	283	1511744	N	4YS	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	284	1511745	N	4YU	A	M	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	285	1511746	N	4YV	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	286	1511747	N	4YX	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	287	1511748	N	4YY	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	288	1511749	N	4YZ	J	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
8	289	1511750	N	4ZA	A	F	26/03/2017	Balnakeil Farm	Durness	NC390683	
9	290	1511751	N	YYC	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	291	1511752	N	YYD	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	292	1511753	N	YYF	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	293	1511754	N	YYH	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	294	1511755	N	YYI	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	295	1511756	N	YYJ	J	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	296	1511757	N	YYL	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	297	1511758	N	YYN	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right

9	298	1511759	N	YYP	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	299	1511760	N	YYS	J	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	300	1511761	N	YYT	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	301	1512029	N	ZTX	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	302	1512031	N	ZNA	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	303	1512032	N	ZNC	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	304	1512033	N	ZND	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	305	1512034	N	ZNF	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	306	1512035	N	ZNB	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	307	1512036	N	ZNH	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	308	1512037	N	ZNI	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	309	1512038	N	ZNJ	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	310	1512039	N	ZNL	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	311	1512040	N	ZNS	J	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	312	1512041	N	ZNP	J	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	313	1512042	N	ZNN	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	314	1512043	N	ZNT	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	315	1512044	N	ZNU	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	316	1512045	N	ZNV	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	317	1512046	N	ZNX	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	318	1512047	N	ZNY	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	319	1512048	N	ZNZ	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	320	1512049	N	ACR	J	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	321	1512050	N	HUK	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	322	1512087	N	ZTY	A	M	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	323	1512088	N	ZLX	A	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	324	1512089	N	ZLY	J	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
9	325	1512090	N	ZLZ	J	F	25/10/2017	Carnain	Islay	NR312626	Orange ring/metal on right
10	326	1511757	R	YYL	A	F	13/02/2018	Carnain	Islay	NR312626	Retrap. Orange/metal on left
10	327	1511762	N	6IA	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on right
10	328	1511763	N	6IB	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	329	1511764	N	6IC	J	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	330	1511765	N	6ID	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on right
10	331	1511766	N	6IF	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	332	1511767	N	6IH	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on right
10	333	1511768	N	6II	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	334	1511769	N	6IJ	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left

10	335	1511770	N	6IL	J	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	336	1511771	N	6IN	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	337	1511772	N	6IP	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	338	1511773	N	6IS	J	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	339	1511774	N	6IT	J	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	340	1511775	N	6IU	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	341	1511776	N	6IV	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	342	1511777	N	6IX	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	343	1511778	N	6IY	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	344	1511779	N	6IZ	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	345	1511780	N	6NA	J	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	346	1511781	N	6NB	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	347	1511782	N	6NC	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	348	1511783	N	6ND	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	349	1511784	N	6NF	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	350	1511785	N	6NH	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	351	1511786	N	6NI	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	352	1511787	N	6NJ	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	353	1511788	N	6NL	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	354	1511789	N	6NN	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	355	1511790	N	6NP	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	356	1511791	N	6NS	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	357	1511792	N	6NT	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	358	1511793	N	6NU	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	359	1511794	N	6NV	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	360	1511795	N	6NX	A	F	13/02/2018	Carnain	Islay	NR312626	metal on right only
10	361	1511796	N	6NY	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	362	1511797	N	6NZ	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	363	1511798	N	6PA	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	364	1511799	N	6PB	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	365	1511800	N	6PC	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	366	1511801	N	6PD	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	367	1511802	N	6PF	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	368	1511803	N	6PH	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	369	1511804	N	6PI	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	370	1511805	N	6PJ	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	371	1511806	N	6PL	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	372	1511807	N	6PN	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on right

10	373	1511808	N	6PP	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	374	1511809	N	6PS	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	375	1511810	N	6PT	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	376	1511811	N	6PU	A	F	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
10	377	1511812	N	6PV	A	M	13/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	378	1511813	N	6PX	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	379	1511814	N	6PY	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	380	1511815	N	6PZ	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	381	1511816	N	6SA	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	382	1511817	N	6SB	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	383	1511818	N	6SC	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	384	1511819	N	6SD	J	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	385	1511820	N	6SF	J	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	386	1511821	N	6SH	J	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	387	1511822	N	6SI	J	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	388	1511823	N	6SJ	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	389	1511824	N	6SL	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	390	1511825	N	6SN	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	391	1511826	N	6SP	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	392	1511827	N	6SS	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	393	1511828	N	6ST	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	394	1511829	N	6SU	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	395	1511830	N	6SV	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	396	1511831	N	6SX	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	397	1511832	N	6SY	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	398	1511833	N	6SZ	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	399	1511834	N	6TA	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	400	1511835	N	6TB	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	401	1511836	N	6TC	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	402	1511837	N	6TD	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	403	1511838	N	6TF	J	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	404	1511839	N	6TH	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	405	1511840	N	6TI	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	406	1511841	N	6TJ	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	407	1511842	N	6TL	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	408	1511843	N	6TN	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	409	1511844	N	6TS	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	410	1511845	N	6TP	A	M	14/02/2018	Carnain	Islay	NR312626	Violet/metal on left

11	411	1511846	N	6TT	A	F	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
11	412	1511847	N	6TU	A	M	14/02/2018	Carnain	Islay	NR312626	Orange/metal on left
12	413	1511601	N	4AC	A	M	15/02/2018	Oronsay Farm	Oronsay	NR352884	
12	414	1511602	N	4AH	A	F	15/02/2018	Oronsay Farm	Oronsay	NR352884	
12	415	1511603	N	4AI	A	M	15/02/2018	Oronsay Farm	Oronsay	NR352884	
12	416	1511604	N	4AF	A	F	15/02/2018	Oronsay Farm	Oronsay	NR352884	
12	417	1511605	N	4AJ	A	F	15/02/2018	Oronsay Farm	Oronsay	NR352884	
13	418	1291298	R	6TY	A	F	16/02/2018	Carnain	Islay	NR312626	White/metal on right
13	419	1295256	N	6UB	A	M	16/02/2018	Carnain	Islay	NR312626	Orange/metal on left
13	420	1295257	N	6UC	A	M	16/02/2018	Carnain	Islay	NR312626	Orange/metal on left
13	421	1295258	N	6UD	A	M	16/02/2018	Carnain	Islay	NR312626	Orange/metal on left
13	422	1295259	N	6UF	A	M	16/02/2018	Carnain	Islay	NR312626	Orange/metal on left
13	423	1295260	N	6UH	A	M	16/02/2018	Carnain	Islay	NR312626	Orange/metal on left
13	424	1295277	N	6TZ	J	F	16/02/2018	Carnain	Islay	NR312626	Orange/metal on left
13	425	1295278	N	6UI	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	426	1295279	N	6UJ	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	427	1295280	N	6UL	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	428	1295281	N	6UN	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	429	1295282	N	6UP	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	430	1295283	N	6US	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	431	1295284	N	6UT	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	432	1295285	N	6UU	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	433	1295286	N	6UV	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	434	1295287	N	6UX	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	435	1295288	N	6UY	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	436	1295289	N	6UZ	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	437	1295290	N	6XA	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	438	1295291	N	6XB	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	439	1295292	N	6XC	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	440	1295293	N	6XD	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	441	1295294	N	6XF	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	442	1295295	N	6XH	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	443	1295296	N	6XI	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	444	1295297	N	6XJ	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	445	1295298	N	6XN	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	446	1295299	N	6XP	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	447	1295300	N	6XS	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	448	1295301	N	6XT	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left

13	449	1295302	N	6XU	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	450	1295303	N	6XV	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	451	1295304	N	6XX	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	452	1295305	N	6XY	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	453	1295306	N	6XZ	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	454	1295307	N	6ZA	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	455	1295308	N	6ZB	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	456	1295309	N	6ZC	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	457	1295310	N	6ZD	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	458	1295311	N	6ZF	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	459	1295312	N	6ZH	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	460	1295313	N	6ZI	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	461	1295314	N	6ZJ	A	F	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	462	1295315	N	6ZL	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	463	1295316	N	6ZN	A	M	16/02/2018	Carnain	Islay	NR312626	Pale Blue/metal on left
13	475	1511848	N	6TV	A	F	16/02/2018	Carnain	Islay	NR312626	Orange/metal on left
13	476	1511849	N	6TX	A	M	16/02/2018	Carnain	Islay	NR312626	Orange/metal on left
13	477	1511850	N	6UA	A	M	16/02/2018	Carnain	Islay	NR312626	Orange/metal on left
13	474	1511761	R	YYT	A	F	16/02/2018	Carnain	Islay	NR312626	Retrap. Orange/metal on left
13	478	1512045	R	ZNV	A	F	16/02/2018	Carnain	Islay	NR312626	Retrap. Orange/metal on left
13	479	1512091	R	ZJV	A	F	16/02/2018	Carnain	Islay	NR312626	Retrap. Green/metal on left
14	464	1511606	N	4AL	A	M	16/02/2018	Oronsay Farm	Oronsay	NR351888	
14	465	1511607	N	4AN	A	F	16/02/2018	Oronsay Farm	Oronsay	NR351888	
14	466	1511608	N	4AP	A	F	16/02/2018	Oronsay Farm	Oronsay	NR351888	
14	467	1511609	N	4AS	A	M	16/02/2018	Oronsay Farm	Oronsay	NR351888	
14	468	1511610	N	4AT	A	M	16/02/2018	Oronsay Farm	Oronsay	NR351888	
14	469	1511611	N	4AV	A	M	16/02/2018	Oronsay Farm	Oronsay	NR351888	
14	470	1511612	N	4AY	A	M	16/02/2018	Oronsay Farm	Oronsay	NR351888	
14	471	1511613	N	4AZ	A	F	16/02/2018	Oronsay Farm	Oronsay	NR351888	
14	472	1511614	N	4BA	A	M	16/02/2018	Oronsay Farm	Oronsay	NR351888	
14	473	1511615	N	4BB	A	M	16/02/2018	Oronsay Farm	Oronsay	NR351888	
15	480	1501538	N	ZPT	A	M	25/02/2018	Cornabus	Islay	NR339464	
15	481	1501539	N	ZPU	A	M	25/02/2018	Cornabus	Islay	NR339464	
15	482	1501540	N	ZPV	A	F	25/02/2018	Cornabus	Islay	NR339464	
15	483	1501541	N	ZPX	J	F	25/02/2018	Cornabus	Islay	NR339464	

15	484	1501542	N	ZPY	A	M	25/02/2018	Cornabus	Islay	NR339464	
15	485	1501543	N	ZPZ	A	F	25/02/2018	Cornabus	Islay	NR339464	
15	486	1501544	N	ZSA	A	M	25/02/2018	Cornabus	Islay	NR339464	
16	487	1285205	N	SDZ	A		03/03/2018	South Walls	Orkney	ND306894	
16	488	1285206	N	SDY	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	489	1285207	N	SDX	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	490	1285208	N	SDV	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	491	1285209	N	SDU	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	492	1285210	N	SDT	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	493	1285211	N	SDS	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	494	1285212	N	SDP	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	495	1285213	N	SDN	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	496	1285214	N	SDL	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	497	1285215	N	SDJ	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	498	1285216	N	SDI	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	499	1285217	N	SDH	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	500	1285218	N	SDF	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	501	1285219	N	SFD	J	F	03/03/2018	South Walls	Orkney	ND306894	
16	502	1285220	N	SFH	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	503	1285221	N	SFI	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	504	1285222	N	SFJ	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	505	1285223	N	SFL	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	506	1285224	N	SFN	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	507	1285225	N	SFP	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	508	1285226	N	SFS	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	509	1285227	N	SFT	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	510	1285228	N	SFU	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	511	1285229	N	SFV	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	512	1285230	N	SFX	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	513	1285231	N	SFY	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	514	1285232	N	SFZ	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	515	1285233	N	4IB	J	M	03/03/2018	South Walls	Orkney	ND306894	
16	516	1285234	N	4IC	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	517	1285235	N	4ID	J	F	03/03/2018	South Walls	Orkney	ND306894	
16	518	1285236	N	4IF	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	519	1285237	N	4II	A		03/03/2018	South Walls	Orkney	ND306894	
16	520	1285238	N	4IH	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	521	1285239	N	4IJ	A	M	03/03/2018	South Walls	Orkney	ND306894	

16	522	1285240	N	4IL	J	M	03/03/2018	South Walls	Orkney	ND306894	
16	523	1285241	N	4IN	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	524	1285242	N	4IP	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	525	1285243	N	4IS	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	526	1285244	N	4IT	J	M	03/03/2018	South Walls	Orkney	ND306894	
16	527	1285245	N	4IA	A	M	03/03/2018	South Walls	Orkney	ND306894	
16	528	1285246	N	4IU	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	529	1285247	N	4IZ	A	F	03/03/2018	South Walls	Orkney	ND306894	
16	530	1285248	N	4IY	J	F	03/03/2018	South Walls	Orkney	ND306894	
16	531	1295242	C	YVT	A	F	03/03/2018	South Walls	Orkney	ND306894	Control. Originally ringed Islay.Green/metal on right

Notes:

¹ Refers to catch numbers given in Table 1

² Metal ring number - issued by the British trust for Ornithology

³ N = newly ringed; R = re-trapped (originally ringed at same site); C = control (originally ringed at another site)

⁴ White plastic leg ring engraved with black characters

⁵ A = adult; J = first winter

⁶ M = male; F = female

ANNEX 2: SIGHTINGS OF MARKED GREENLAND BARNACLE GEESE UNTIL SPRING 2019

Spreadsheet available from SNH on request.

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