



# **The abundance and distribution of British Greylag Geese on Orkney, August 2013**

**A report by the Wildfowl & Wetlands Trust to Scottish Natural Heritage**

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## Summary

1. A survey involving field counts of British Greylag Geese on the Orkney archipelago counted 20,242 birds.
2. A sample of 1,285 birds was aged and was found to contain 18.1% young. The mean brood size was 2.23 young per successful pair.
3. If the proportion of young and mean brood size is indicative of the whole population, then there were potentially 1,643 successful breeding pairs of Greylag Geese and 3,664 goslings on Orkney in summer 2013.
4. British Greylag Geese were found primarily on improved grass fields (64% of those counted, excluding those found on water or in flight). The geese showed a strong preference for improved grass and arable fields, used semi-natural grass fields and avoided moorland (mountain, heath and bog).

# 1 Introduction

During winter, Orkney supports Greylag Geese *Anser anser* from two discrete populations: i) the population that breeds in Iceland numbers c.105,000 individuals and a large proportion of this population (up to 70%) now winters on Orkney (Mitchell 2013); ii) the largely sedentary British Greylag Goose population which is increasing in abundance and distribution in Scotland, with breeding now occurring over much of the mainland, Western Isles and Northern Isles (Mitchell *et al.* 2010, Mitchell *et al.* 2012). The increases in abundance and distribution have led to some areas (notably Orkney, but also Shetland and the Moray Firth) supporting both populations in winter, making monitoring of the two populations during the winter very difficult as they are indistinguishable in the field. Large local increases in the number of British Greylag Geese have also led to an increase in reports of damage to agricultural interests and the implementation of population control by the Scottish Government on the Uists, Coll & Tiree and Orkney.

In order to effectively manage both Greylag Goose populations in Scotland, up to date information is needed on population delineation and the status and distribution of the geese. To support ongoing management of British Greylag Geese on Orkney, and help to underpin the development of an adaptive harvest management approach there, a 'look see' survey was organised and carried out, following the methods used in August 2012 (Mitchell *et al.* 2012), with the aim of assessing the abundance and breeding success of the British Greylag Goose population on Orkney in 2013.

## 2 Methods

### 2.1 Field counts

Following a Scotland-wide survey of British Greylag Geese in 2008/09 (Mitchell *et al.* 2010), when counts were undertaken at the time of the annual wing moult (early July), a methodology for Orkney was developed in 2012 that overcame difficulties with achieving full coverage during the moult when birds are at more inaccessible moulting areas (Mitchell *et al.* 2012). This involved field-based counts during late August when the geese have completed their moult and have moved to feeding areas on the main islands. This approach also provided data on the distribution of the geese in relation to agricultural and other habitats. In addition, counts of Greylag Geese are also undertaken at this time of year on Tiree & Coll and the Uists, and coordinating counts in Orkney with these areas is also beneficial.

WWT staff liaised with professional and volunteer goose counters on Orkney to arrange 'look-see' coverage of agricultural land and natural wetland habitats on Orkney on 30 August – 1 September 2013, covering the same areas checked during annual winter counts. Land was checked for geese by following the road network and stopping at suitable vantage points. Counters were also asked to walk to vantage points, where necessary, to check areas not visible from the road. In addition, accessible areas of moorland were also checked, especially where re-seeded fields were adjacent to moorland and areas of moorland held grass patches. No minimum time limit was set for each site and counters could spend as much time as necessary to thoroughly check surrounding areas for feeding geese. Counters were asked to record information on flock size, exact location and the broad habitat class that the geese were using. Smaller offshore islands were either visited or checked using telescopes from vantage points on larger islands if access to the islands proved difficult.

### 2.2 Age counts

A sample of Greylag Geese was aged as either adult or gosling (identified through plumage characteristics). Brood size of successful pairs, detected by watching the behaviour of associating geese, was also recorded.

## 3 Results

### 3.1 Field counts

A whole archipelago count was carried out between 30 August and 1 September and involved *c.* 27 person days of time (see Appendix 1). All areas checked during the bi-annual winter counts were checked and coverage was considered good. No counters reported that they felt that they had missed birds. Although count conditions were not favourable during the survey, with strong winds and heavy rain, it is not thought the weather reduced the accuracy of the census total.

A total of 20,242 Greylag Geese was recorded in 210 flocks, with the largest numbers found on Mainland, Stronsay and Sanday (Figure 1 & Table 1). Mainland held 48.8% (9,893 geese) of the total number of geese counted.



**Figure 1.** The distribution of Greylag Geese found during field surveys of Orkney between 30 August – 1 September 2013. White dots are proportional to flock size.

**Table 1.** The abundance and distribution (by major island) of Greylag Geese on Orkney during 30 August – 1 September 2013.

Area 1	Count
Mainland <sup>2</sup>	9,893
Stronsay <sup>3</sup>	1,895
Sanday	1,780
Shapinsay	1,423
South Ronaldsay	1,370
Westray & Papa Westray <sup>6</sup>	1,223
Eday	1,221
Burray <sup>4</sup>	750
Hoy / South Walls	271
North Ronaldsay	132
Rousay <sup>5</sup>	113
Gairsay	80
Egilsay	36
Auskerry	30
Flotta	25
Copinsay	0
Graemsay	0
Wyre	0
<b>Total</b>	<b>20,242</b>

## Notes:

<sup>1</sup> Islands not checked for geese include Swona, Switha, Faray and Muckle Green Holm.

<sup>2</sup> Includes West Mainland, East Mainland and Deerness.

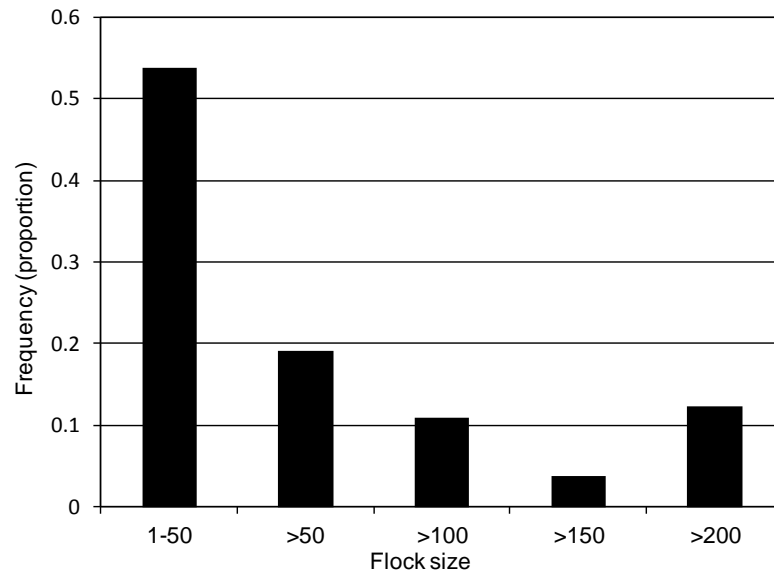
<sup>3</sup> Includes Stronsay, Papa Stronsay, Linga Holm and Holm of Hulp.

<sup>4</sup> Includes Burray, Hunda, Glims Holm and Lamb Holm.

<sup>5</sup> Includes Rousay and Eynhallow.

<sup>6</sup> Due to movement of birds on the day of the count Westray & Papa Westray counts have been combined.

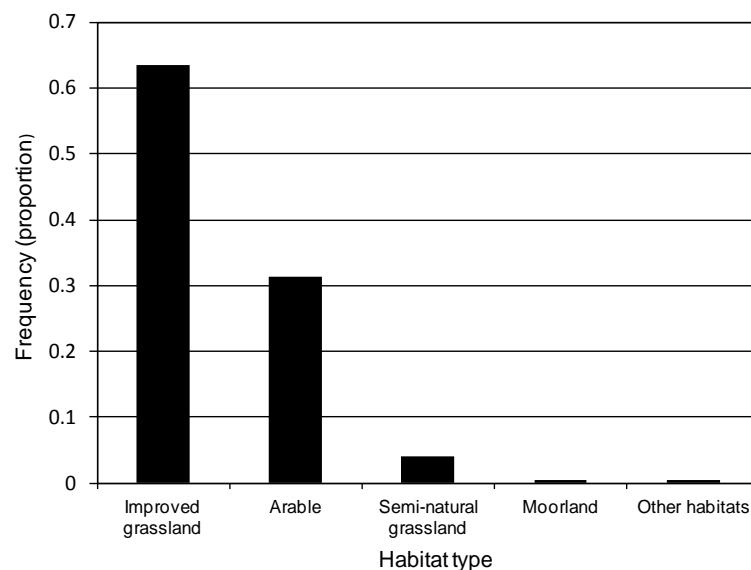
Of the 210 flocks recorded, 112 (53.8%) were of less than 50 birds, with 26 (12.3%) flocks containing over 200 birds, the largest flocks being 600, 745, 750, 800 and 930 birds (Figure 2).



**Figure 2.** Frequency of flock size of Greylag Geese encountered during field surveys on Orkney during 30 August – 1 September 2013.

### 3.2 Habitat preferences of Greylag Geese

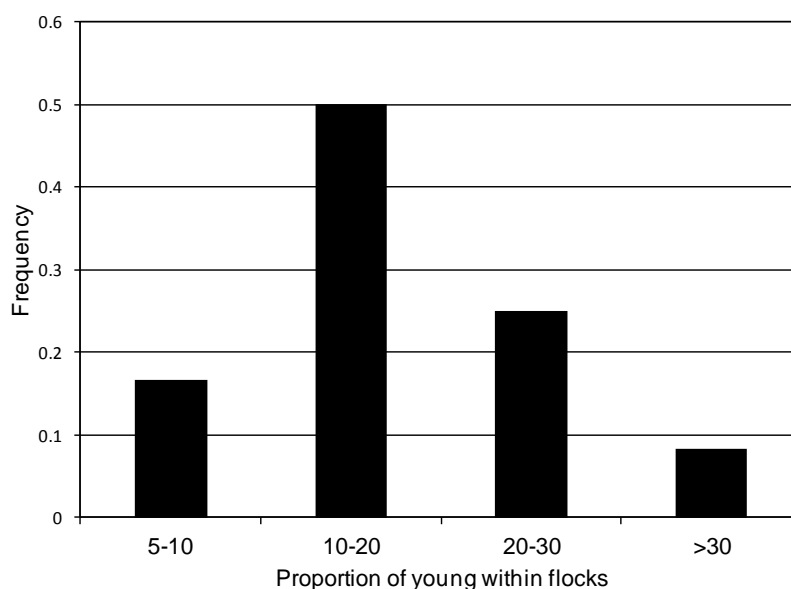
Habitat type was recorded for 18,035 geese during the survey period (excluding birds on water or in flight) (Figure 3). In all, 11,465 geese (63.6%) were found on improved grassland, 5,479 geese (30.4%) using stubble fields with 725 geese (4.2%) recorded on semi-natural grassland, 178 geese (0.9%) on barley fields, 90 geese (0.5%) on moorland and 98 geese (0.4%) on other habitats (*i.e.* birds on mud, shoreline). A large proportion of the habitat on Orkney is moorland (see Figure 3 in Mitchell *et al.* 2012) which, although providing suitable habitat for breeding Greylag Geese, holds few birds outside of the breeding period, with the geese preferring the surrounding agricultural farmland.



**Figure 3.** Frequency of habitat type used by Greylag Geese encountered during field surveys on Orkney during 30 August – 1 September 2013.

### 3.3 Age counts

A sample of 1,285 geese was aged at 12 localities on Mainland and Westray, of which 233 (18.1%) were young. In total 1,116 geese were aged on Mainland (17.2% young) and 169 were aged on Westray (25.4% young). The sample represented 6.3% of the 2013 census total. Brood size information was collected from Mainland. The mean brood size was 2.23 ( $n=29$ ) young per successful pair. Assuming the proportion of young recorded was indicative of the whole population on Orkney, then there were approximately 3,664 goslings in the whole population. The mean brood size was 2.23 goslings, suggesting that, as an approximation, there were potentially 1,643 successful pairs of Greylag Geese on Orkney in summer 2013.



**Figure 4.** Frequency of proportion of young within Greylag Goose flocks encountered during age assessments on Orkney during 30 August – 1 September 2013.

## 4 Discussion

The 2013 survey was the second archipelago-wide post-breeding count to be carried out on Orkney. The number of British Greylag Geese recorded (20,242) was slightly lower than in 2012, when a total of 21,367 was recorded (Mitchell *et al.* 2012). This was expected given that shooting (licensed and during the open season) of 4,743 birds took place in 2012/13 (3,102 were shot in August / September 2012 and an estimated 1,641 birds were shot later in the winter). A further, currently unknown, number were shot in August 2013 prior to this survey being completed.

The coverage of the archipelago was almost complete and those areas not counted are considered to have a low probability of holding geese. The islands of Swona, Faray and Muckle Green Holm were counted in 2012 but not in 2013, however as either very few or no birds were found in 2012 there is little basis for adjusting the 2013 census total.

Greylag Geese can have particularly high annual rates of breeding success (Mitchell *et al.* 2012). In 2013, however, there was 18.1% young in the sample aged on Orkney, a relatively low proportion for this population and lower than that recorded in Orkney in 2012 (24.9%, Mitchell *et al.* 2012). All age assessment counts were carried out on Mainland, except one count undertaken on Westray, by a single observer. Whilst the spatial range of the data collected is not representative of the overall distribution and relative abundance of the population, more extensive data collection would require the training of other counters to collect age ratio data.

The preference for improved grass fields was also noted during the August 2012 survey (50.1% of geese) and was also similar to the habitat preferences found in February 2012, when both Iceland and British Greylag Geese were present (Mitchell *et al.* 2012). The autumn harvest appeared late during 2013 and had only just commenced prior to the survey starting; this could reflect the number of birds recorded on improved grass. Geese also favoured arable crops with birds being found on stubble or in barley fields. Although a small percentage of geese was recorded on moorland type habitats this was not the preferred habitat type. Twenty-five records were received of birds in flight, with 959 geese counted on water bodies. These were excluded from the habitat analyses found in this report.

The distribution of the geese across individual islands suggests that there has been some redistribution since August 2012. Most notable were increased numbers of geese on Stronsay (1,895 compared to 951 in 2012) and Westray (1,223 compared to 840 in 2012), whereas on Mainland there was a slight decline from 10,625 geese (51% of the total) in 2012 to 9,893 (49%) in 2013. The cause of this apparent shift away from Mainland to surrounding islands is not known but it is possible that this is a consequence of the intensive shooting effort that has taken place on Mainland in 2012 and prior to the survey in 2013. This redistribution of geese may have implications for the management of geese away from Mainland and is an issue that warrants closer attention.

## 5 Acknowledgments

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Baz Hughes, Richard Hearn and Carl Mitchell kindly read an earlier draft of this report and made useful comments.

## 6 References

Mitchell, C., L. Griffin, M. Trinder, J. Newth & C. Urquhart. 2010. The status and distribution of summering Greylag Geese in Scotland, 2008/09. *Bird Study* 58: 338–348.

Mitchell, C. 2013. *Status and distribution of Icelandic-breeding geese: results of the 2012 international census*. Wildfowl & Wetlands Trust Report, Slimbridge. 28pp

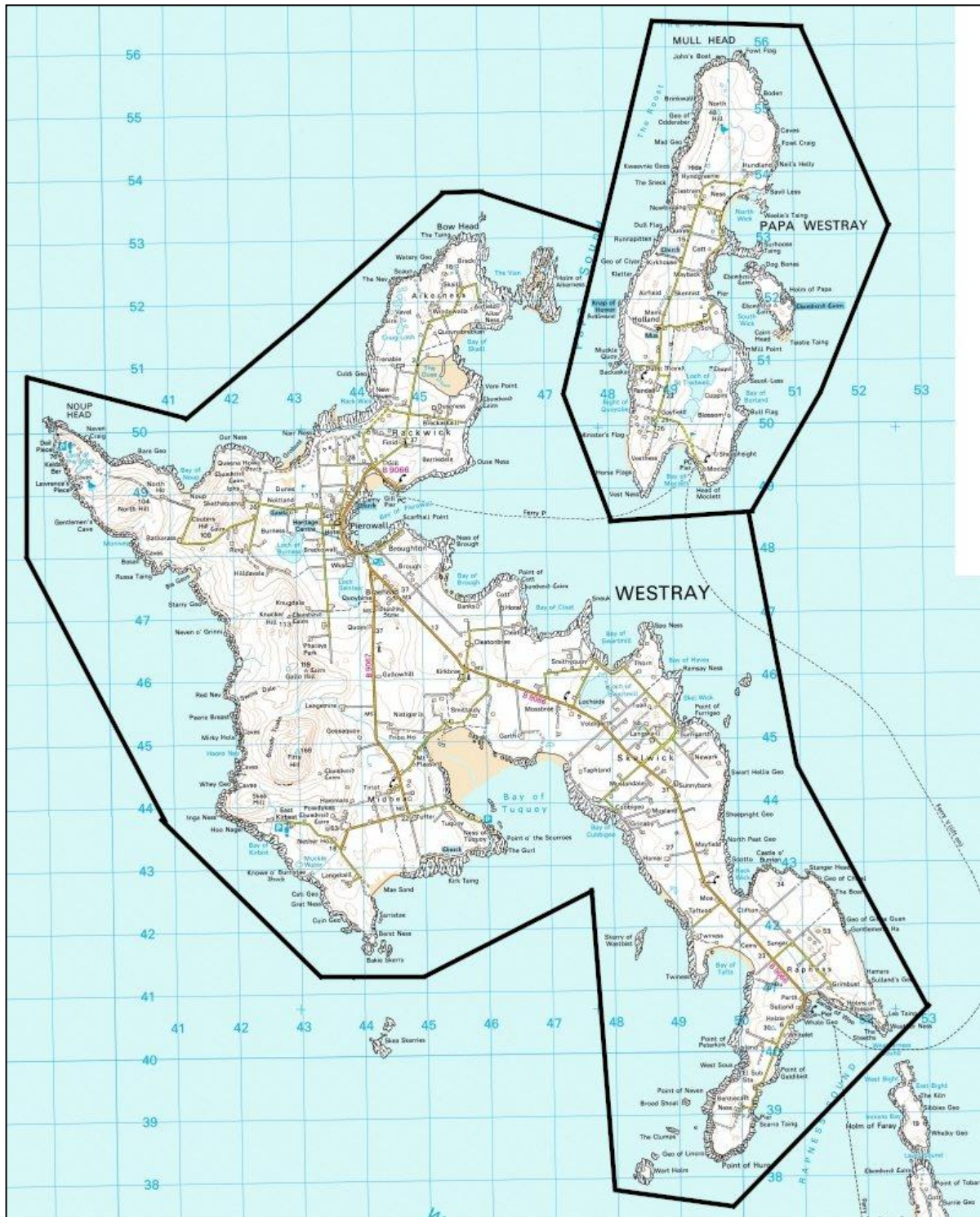
Mitchell, C., A.J. Leitch, K. Brides & E. Meek. 2012. *The abundance and distribution of British Greylag Geese on Orkney, August 2012*. Wildfowl & Wetlands Trust Report, Slimbridge. 33pp

## Appendix 1. Person-days used to count Greylag Geese on Orkney during 2013.

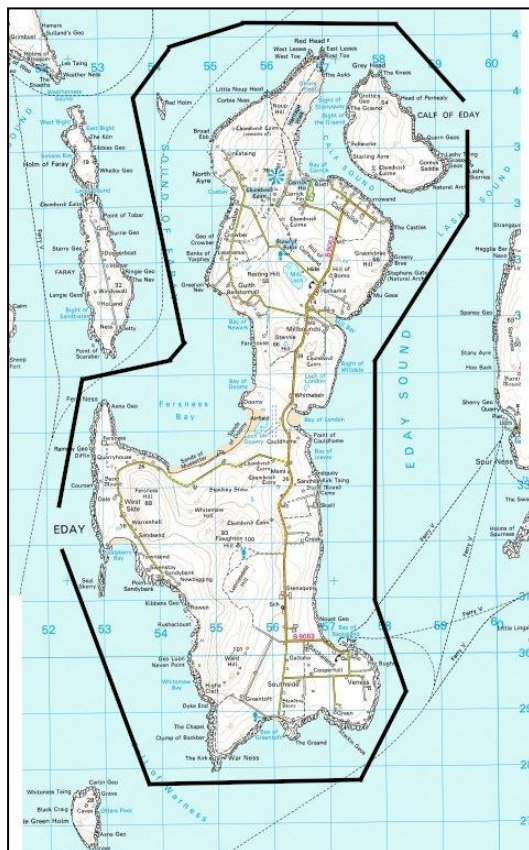
Area	Person-days	Transport needed
Mainland	9	5-3 cars
Sanday	1	1 car
Shapinsay	1	1 car
South Ronaldsay	3	1 car
Eday	1	1 car
Stronsay	1	Ferry plus one car
Westray & Papa Westray	1	Ferry plus one car
Burray	0.5	1 car
Rousay	2	1 car
North Ronaldsay	1	1 car
Hoy & S. Walls	1	1 car
Flotta	0.5	1 car
Gairsay	0.5	?
Auskerry	0.5	?
Egilsay	1	1 car
Wyre	1	1 car
Copinsay	1	?
Graemsay	1	Ferry
<b>Total</b>	<b>27</b>	

[illegible]

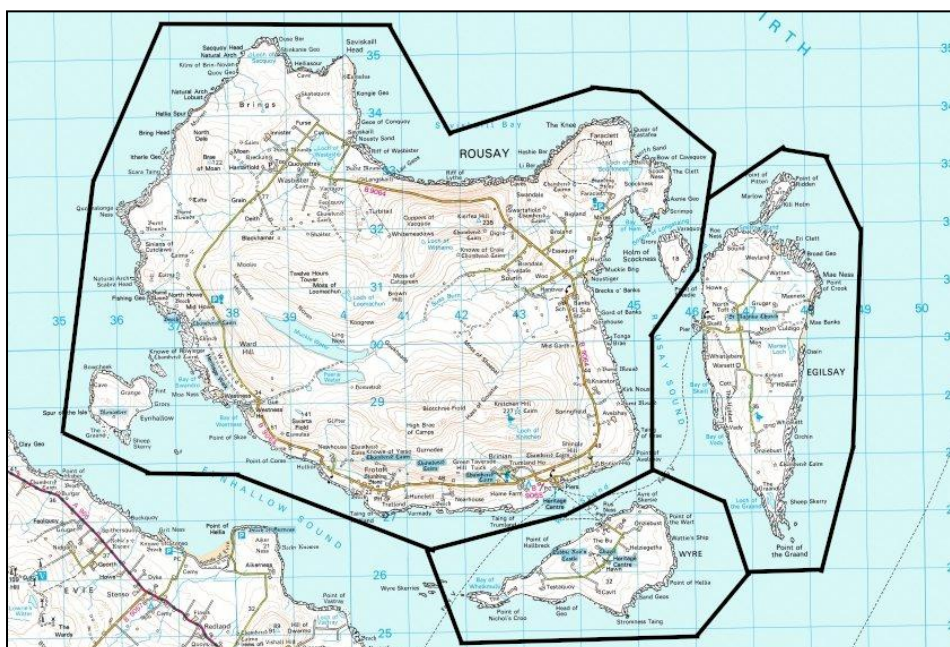
### 3. Papa Westray and Westray



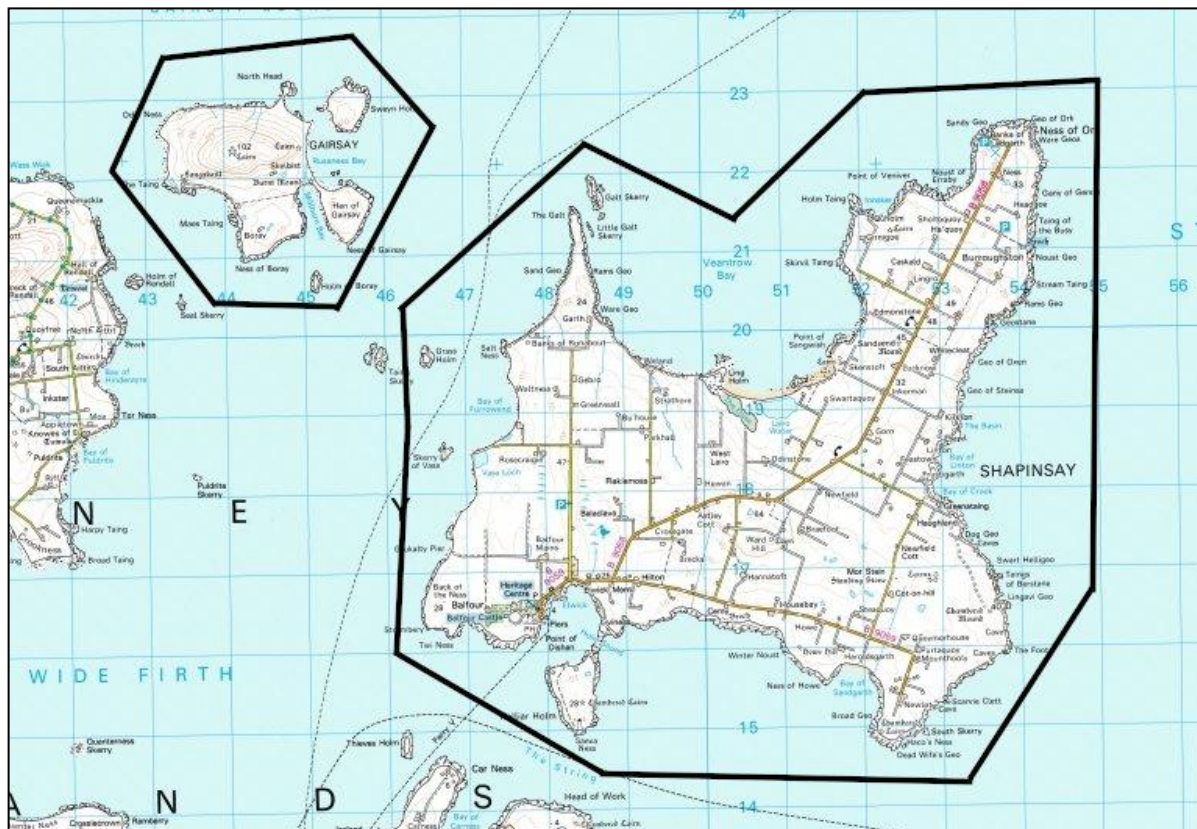
## 4. Eday



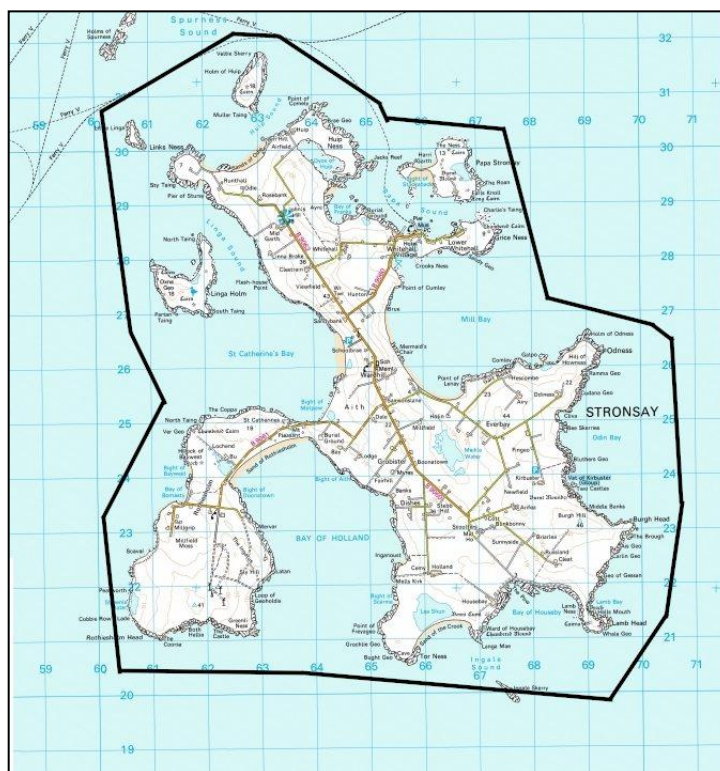
## 5. Rousay, Egilsay and Wyre



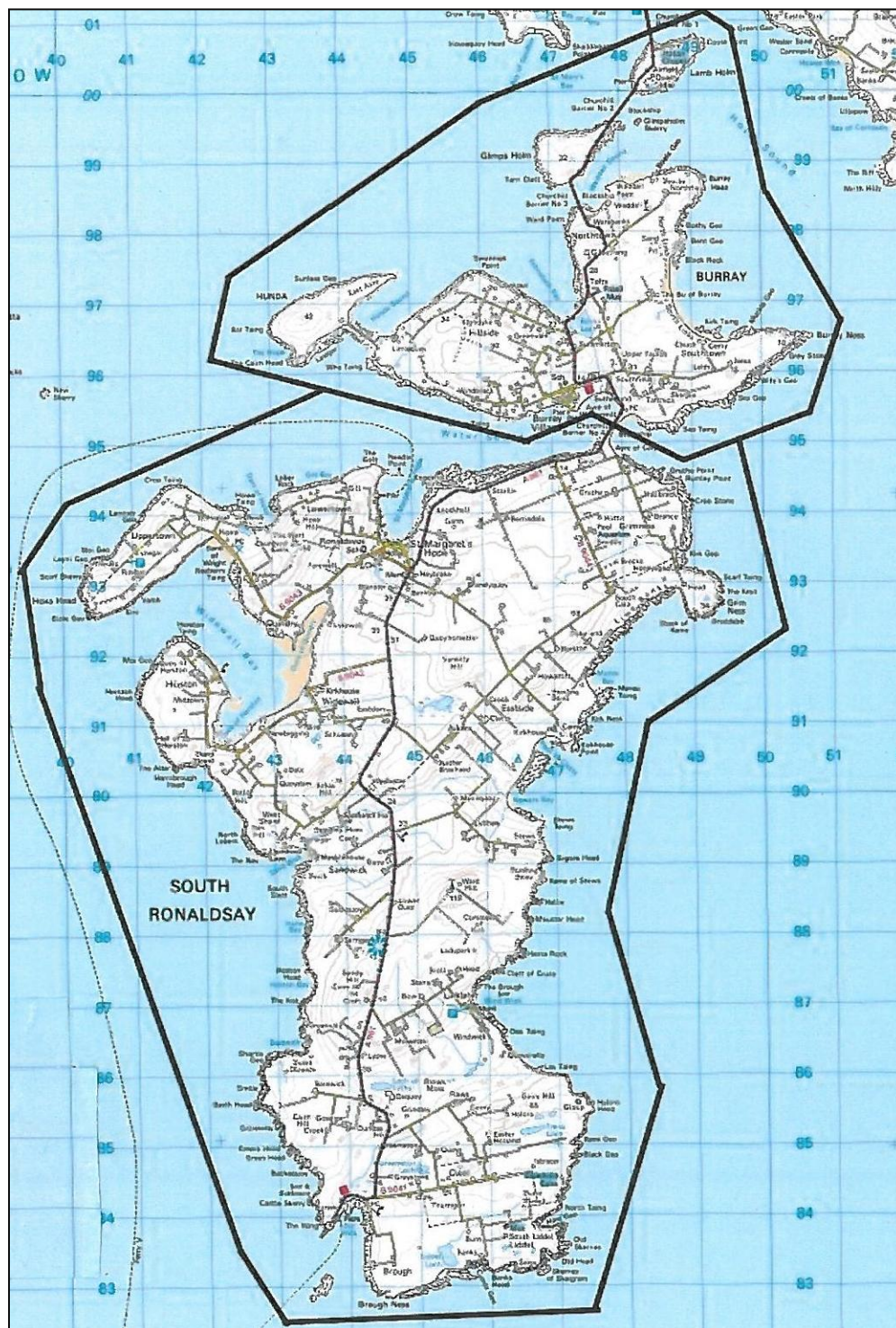
## 6. Shapinsay and Gairsay



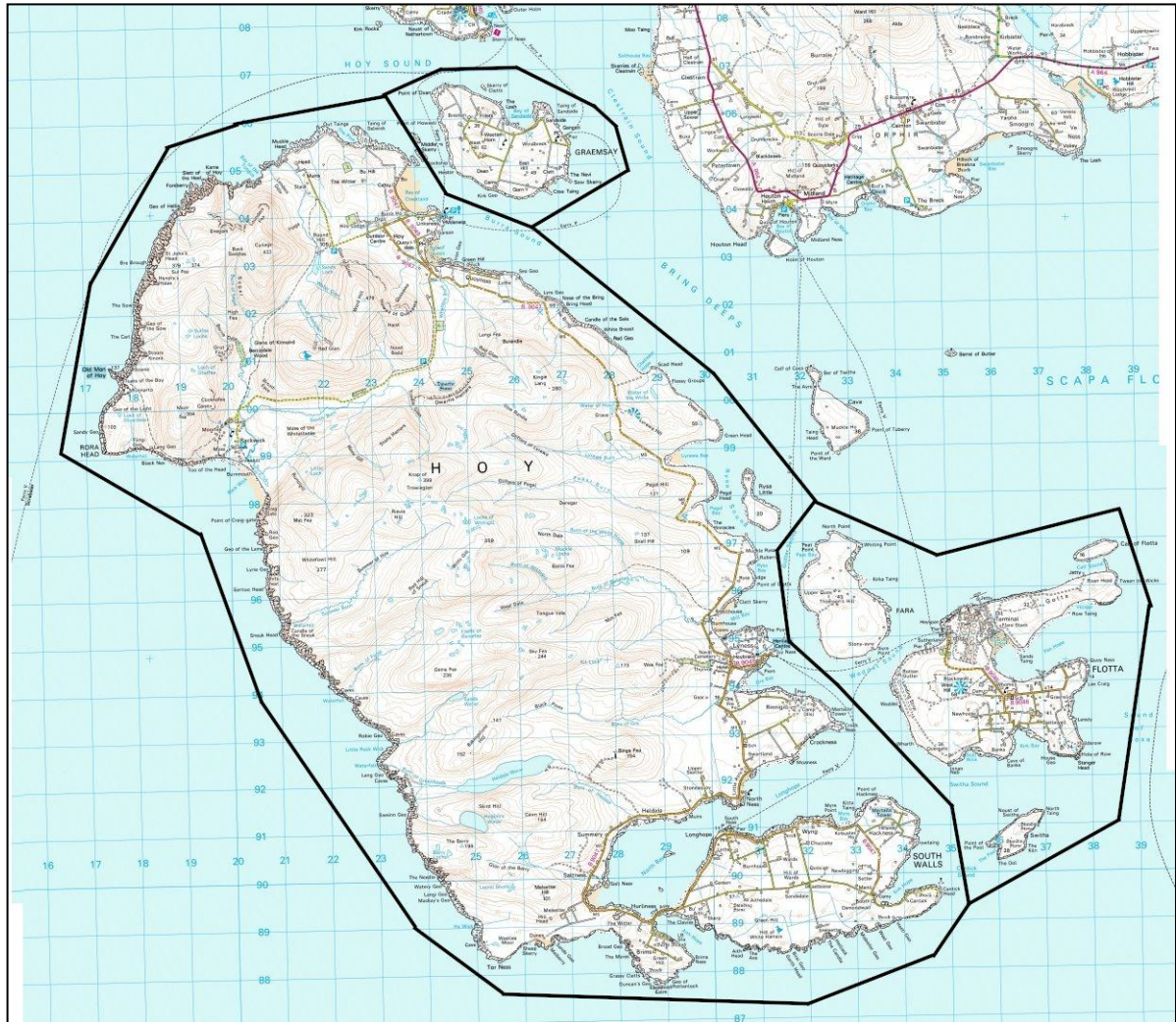
## 7. Stronsay



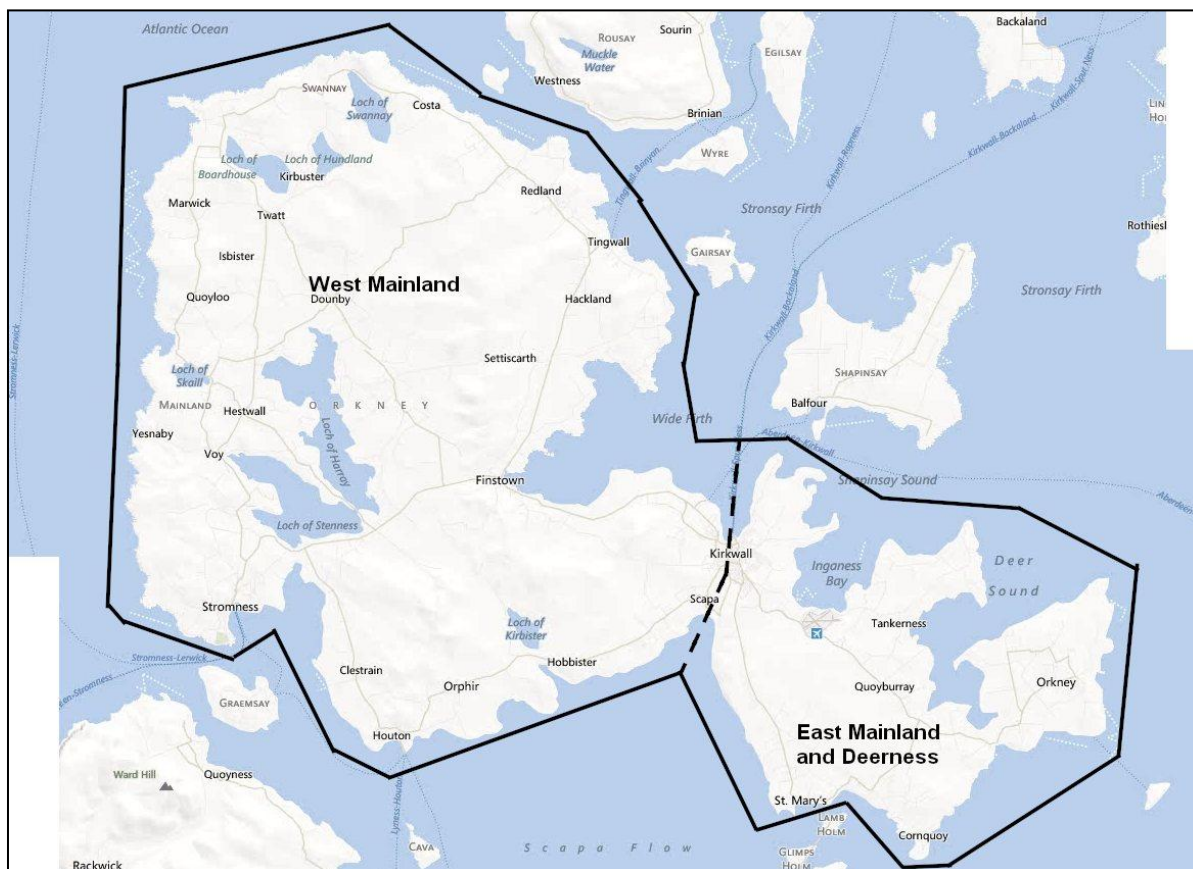
## 8. South Ronaldsay and Burray



## 9. Hoy, Graemsay and Flotta



## 10. Mainland



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