GREYLAG GOOSE DAMAGE ON AGRICULTURAL LAND ON THE SHETLAND ISLES

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1 Introduction

1.1 The purpose of this report is to evaluate the amount of damage Greylag geese are causing to agricultural land on the Shetland Isles. Additionally, the report will evaluate existing methods currently used by farmers to control the geese and also assess farmers' opinions on possible methods which could be implemented in the future.

2 Background

2.1 There has been a change in the status of the Greylag Goose in Shetland over the last 30 years. Traditionally they were an Icelandic autumn migrant who passed through the isles in small numbers. Since the 1960s the number of migrants has increased and has resulted in an increase in the wintering population on the isles. In the 1970s a flock of 60 wintering geese were observed in the Spiggie Loch area. Over the years this number slowly increased and by the late 1990s the south mainland wintering population was 620 (Harvey et al. 2012). The wintering population consists of both migrant birds from Iceland and resident birds which nest in Shetland.

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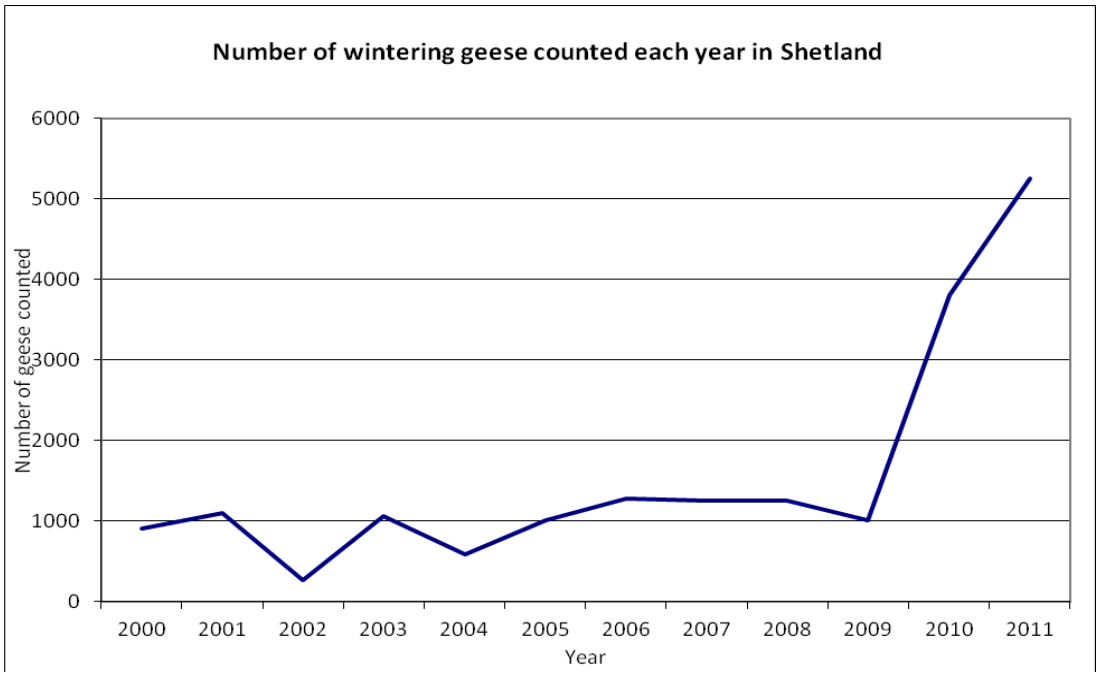

2.3 The graph shows the number of geese counted during winter counts (late November / early December) on Shetland from 2000 to 2011 (Hearn 2001, 2002, 2003, 2004; Rowell & Hearn 2005; Rowell 2005; Worden 2006; Newth

2007; Mitchell 2008, 2009, 2010, 2011). The wintering population has remained relatively steady form 2000 to 2009, but the last two years has seen a sharp increase in numbers.

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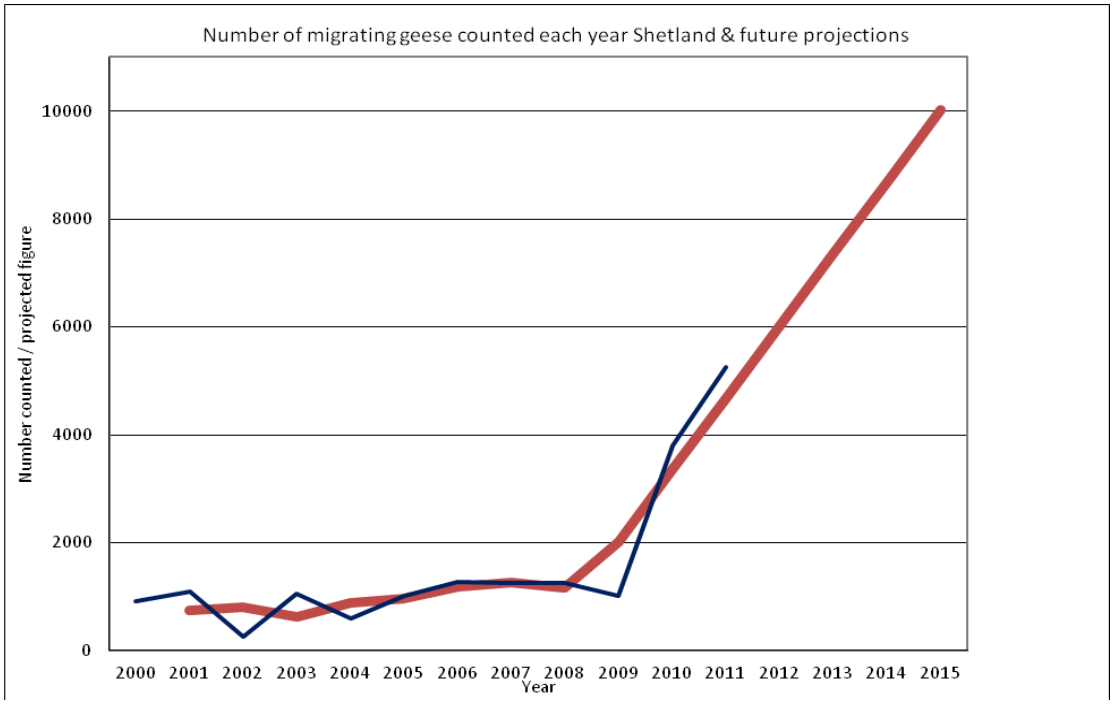


2.5 Using a three year mean average to project the future population, there could be 10,000 birds wintering in Shetland by 2015.

2.6 As well as increases in the number of Icelandic migrant birds, there has also been an increase in the breeding population on Shetland over the past 30 years. The first breeding record was on Unst in 1985 and by 1999 there had been confirmed breeding on Fetlar, Yell and in the north, west, central and south Mainland. Now the breeding population is estimated at 750 to 1,000 breeding pairs, with a post breeding population of around 5,250 birds.

2.7 Previous research has shown that the majority of geese are counted on agricultural land on Shetland. (Mitchell et al. 2000) reported that 50.9% of geese counted in August 1997 were on agricultural land. By August 2008/2009 this figure had increased to 77% of flocks sighted on agricultural land on Shetland (Mitchell et al. 2010). So there has been an increase in the proportion of birds being counted on agricultural land, and also an increase in the goose population in Shetland in recent years.

2.8 The Wildlife and Countryside Act (1981) states that “quarry species” (including the Greylag Goose) can be shot during the open season. The open season in Britain (including Scotland) falls between September 1st and January 31st for inland areas and between September 1st and February 20th for areas below the high water mark. There is no bag limit for the open season but ‘the British

Association for Shooting and Conservation' recommends bag limits of two Greylag geese per hunter per day.

2.9 To gain a license out of season, it must be shown there has been serious damage to agricultural crops and that other, non-lethal, solutions have been tried and are ineffective. These licenses are not to be used for population control, instead they are used to support non-lethal scaring techniques. Out of season licenses carry a bag limit. The bag limit for Greylag Geese in the Northern Isles is 10 (Crabtree et al 2010).

2.10 The increased numbers of geese in summer and winter has created a conflict with the agricultural community of Shetland. There have been reports of damage to agricultural land through geese grazing and foraging for root crops but there has been no attempt to quantify the damage. This report will evaluate how much damage the geese are causing and gauge farmer's attitudes towards the geese. The report will also evaluate existing control methods currently being used by the farmers and ask for their opinions on other possible control methods which could be implemented in the future.

3 Results

3.1 Local farmers were interviewed and questionnaires were sent out for self-completion. There were 24 returnees of the questionnaire. Fourteen of these were from the South Mainland where the majority of the commercial crops (turnips, carrots, potatoes and cabbage) are grown.

3.2 92% of the returnees said their business has been adversely affected by wild geese in the last three years. The other 8%, the unaffected businesses farmed sheep and did not grow any crops.

3.3 The farmers were asked to quantify the actual damage grazing wild geese had on their land over the last three years. There has been a total of £109,770 of damage per year on the 22 affected farms, making a mean damage of £4990 per farm per year. This figure includes damages to barley, oats, rape, cabbage, carrots, potatoes and turnips. It was more difficult to quantify damages to grazing pasture as this is not yielded, and to silage as the yields vary largely year to year. Therefore financial damages to grazed pasture and silage were not included in this figure.

3.4 Damage to turnip crops was the most financially substantial totalling £54,575 per year, roughly half of the total damage. This damage occurred on a total of 12 farms, 8 of which are located in the South Mainland. The damage was predominantly in the winter months. 86% of respondents who suffered turnip damage had damage in December, 86% in January and 72% in February.

Half of the turnip growers experienced damage to 90-100% of their crop and on average growers lost 70% of their crop to goose damage.

3.5 There was also substantial damage to other vegetable crops, notably carrots, potatoes and cabbage. There was £32,500 worth of damage to carrots, £8,795 to potatoes and £9,500 to cabbage. On average about half of the total crop area had been damaged by geese. Local suppliers are unable to guarantee a supply of locally produced vegetables due to the increase in damage to their crops in recent years. One of the main suppliers of carrots has completely given up on growing after losing an entire crop to geese one year. Another respondent said, “it has now got to a point where there is a shortage of locally grown vegetables in shops. Supermarkets now only stock Shetland potatoes, while in the past it was possible to buy Shetland grown carrots, cabbage and turnips.”

3.6 Damage to silage and grazing pasture has affected the respondents in different ways. As well as grazing on permanent and re-seeded grassland, geese also damage vegetation and soil by foot paddling and leaving droppings. 13 out of the 22 affected farms have had damage in the last 3 years. 2 have had to reduce stock numbers to suit the reduction in grazing pasture. Another farmer commented that he had to keep animals indoors for longer due to a lack of outdoor grazing caused by geese damage. One man said that silage fields which he had used for winter grazing sheep had been decimated and this resulted in higher imported feed costs.

3.7 Droppings have been damaging to grazing pasture, but concerns were also raised about the possible damage they have on local waterways. 2 respondents felt that research should be conducted to see if there is a link between the rise in goose numbers and the rise of diffuse pollution in the Spiggie Loch.

3.8 The returnees were asked to rate the effectiveness of methods they had used to scare geese on a scale from 0 (no effect) to 10 (highly effective). The table below shows the percentage of returnees who have used each method and the corresponding mean effectiveness rating.

3.9

Methods to scare geese	% of returnees who have used the method	Mean rating of the method
Shooting	86%	3.2
Visual scarers	82%	2.4
Auditory scarers	45%	2.1
Selecting fields for cropping	59%	1.1

3.10 The four methods to control geese were all rated poorly. The highest being shooters, with an effectiveness scoring of 3.2/10, which is still a low score. Users of visual and auditory scarers say that these methods do work, but only for a short period of time. Once the geese become accustomed to the sights and sounds of the scarers they will return. Those who have selected fields for cropping say that it has made no difference as the geese merely move on to the new field. It is also difficult to select fields for cropping in Shetland as holdings are typically small and there is limited arable land for growing crops.

3.11 89% of respondents said that their cropping plan had changed because of geese. As well as reducing or stopping growing crops, farmers have had to increase the amount of re-seeding of grass leys. One man was so fed up with re-seeding that he has completely given up on re-seeding his ground.

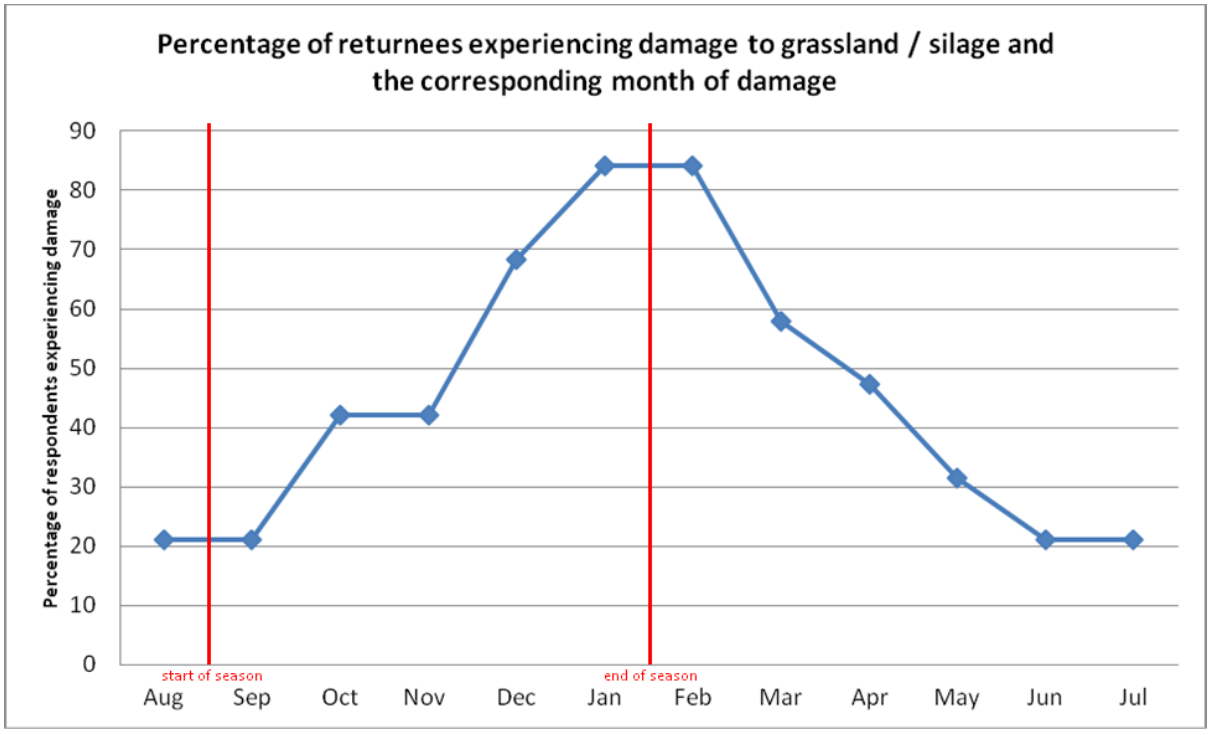
3.12 The next section of the questionnaire asked the returnees which factors were limiting their ability to limit goose damage to their crops. 95% said that the sheer number of geese was limiting their ability to limit the damage to their crops. Flock sizes that were causing the damage were reported to be from 30 to 2500 geese. The mean flock size reported was 400. 57% of returnees felt that legislation was limiting their ability to limit goose damage. The issues returnees had with the legislation were the length and timing of the open season and also that the size of the bag limit in the close season is too small. 40% of returnees felt the availability of shooters limited their ability to limit goose and damage and 10% felt that their lack of knowledge of control methods limited their ability to limit goose damage.

3.13 The returnees were asked to rate out of 10 (0 being the lowest and 10 being the highest) possible methods of goose management according to how helpful they would be to their business. The table below shows the method of

management and the corresponding mean rating out of 10 (1 being the lowest and 10 being the highest).

Possible future control method	**Mean rating of helpfulness**
Extending the current open season on goose shooting	8.6
Introduction of egg oiling to restrict population	8
Remove legal restriction on sale of wild goose meat	7
Moves to encourage commercial and private shooting	7
Availability of compensation funding for goose damage	6
Availability of funding for goose scaring	5
Inclusion of goose management funding in the SRDP	5

3.14 The extension of the current open season on goose shooting would be most helpful to the farmers' business. The graph showing the percentage of respondents who have been experiencing goose damage to grazing pasture and silage by month.



3.15 In August, 20% of the respondents reported goose damage. This rises throughout September, October, November, December and January. In

January and February, 84% of respondents reported goose damage to their grazing pasture or silage. The open season for shooting is from September 1st to January 31st. 48% of damage to grazed pasture and silage occurs within the open season and 52% out with. Most farmers believe that an extension in the shooting season would help them better protect their crops in Spring when damage is still high. One man summed it up by saying "(on his holding) most crop damage occurs in the months of February, March and April. An extension of the shooting season to cover these months would help keep geese off newly sown crops and give the root systems time to establish so that they cannot be pulled out by geese."

3.16 An estimate of the population was taken using a combination of two previous external surveys, one conducted in the summer and one conducted in the winter. An estimation of the population was given as 8400. The respondents were asked what they thought would be a sustainable long term goose population. The most frequent response was 2000, a quarter of the current population, and the mean response was 974, roughly a ninth of the current population and a return to what the population was during the 2000s.

4 Conclusions

4.1 All 21 of the respondents who answered the question "What would you consider to be a sustainable long term (goose) population?" said the population would have to be reduced. Growers now feel overwhelmed by geese and have had to change their cropping plan to fit accordingly. Those who have grown commercial crops in the past have now given up due to crop decimation by geese in the winter and spring months. This is having a direct effect on the availability of locally grown produce in Shetland.

4.2 A total of £109,770 worth of damage per year has occurred, giving a mean damage of £4990 per farm per year. On average, geese have damaged 70% of the turnips crops on the farms surveyed costing local farmers a total of £54,575 per year.

4.3 The current control methods being used on the farms are proving to be ineffective. The respondents felt that the best way forward is to extend the current open season on goose shooting, introduce egg oiling, remove legal restrictions on the sale of wild goose meat and to encourage commercial and private shooting.

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