

**White-tailed Eagle Action Plan
2017-2020**

**Review of Actions Taken Under the Plan
July 2020**

1. Executive Summary

- The main delivery vehicle for management promoted by the White-tailed Eagle (WTE) Action Plan is the Sea Eagle Management Scheme (SEMS). It was launched in 2015 for a 3 year period and current management agreements are in place until December 2020.
- The scheme budget (funded by NatureScot) has increased from £72,000 in 2015 to £225,000 in 2020.
- The scheme was extended into 2019 and has been revised, from 2020, with the joint aims of focussing the available budget on areas of most need and to roll out some of the approaches identified through feedback from farmers and crofters and from the monitor farm work.
- As of July 2020, the scheme has 138 participants, and has engaged 164 holdings covering 156,489 hectares and 71,516 breeding ewes.
- A series of monitor farms and crofts have been established, on which a range of monitoring and management techniques are being tested.
- Whilst there remains few observations of sea eagle interactions with sheep, as it is possible that the presence of observers deters WTE activity, a significant body of circumstantial evidence has been collated through work with individual farmers.
- Licensed manipulation of nest sites has been carried out to try to reduce the impact of white-tailed eagles on nearby hill sheep. This work has included examining the available evidence that indicates agricultural damage, a key test for licensed management of white-tailed eagles.
- A range of research and monitoring work has been undertaken including PhD partnership projects (ongoing), post mortem and DNA analysis and nest clearances.
- Annexes to the Review include SEMS guidance documents, an overview of SEMS data and summary reports on monitor farm work.
- The next steps are for the National Sea Eagle Stakeholder Panel to comment on this document. Once this is completed a final version will be published.
- Recommendations for revisions to the WTE Action Plan are set out in section 5.

2. Background

The development of the White-tailed Eagle Action Plan followed an agreement between Scottish Natural Heritage and the National Farmers Union of Scotland to work together to find ways of minimising adverse impacts of white-tailed eagles (WTE) on Scottish farmers and crofters.

It was recognised that, with a now firmly established population, increasing in number and range, that we needed to review what actions are required to ensure conflicts are minimised to allow the population to recover its former range. The Action Plan was developed by a stakeholder group comprising representatives from Scottish Natural Heritage (SNH), National Farmers Union Scotland (NFUS), Royal Society for the Protection of Birds Scotland

(RSPB Scotland), Forestry Commission Scotland (FCS), Scottish Government Rural Payments and Inspections Division (SGRPID) and Scotland's Rural College (SRUC). The Scottish Crofting Federation (SCF) have also been closely involved with the plan for the past 2 years.

The overall objective of the Action Plan is to find ways of reducing impacts of WTE on farming and crofting interests whilst developing the right conditions for the sustainable co-existence between WTE and sheep farming in ways which benefit the biodiversity, economic and social interests of Scotland.

The Action Plan recognised that serious agricultural impacts can be caused by WTE predation on some hill sheep farms and crofts in Scotland. The Plan also recognised the high level of legal protection afforded to WTEs and the importance of their presence to local economies. The Plan set out a general direction of travel, supported by a number of key management actions that the key stakeholders intended to implement during the 3 year period, followed by a review in 2020 that will guide an approach for the subsequent 3 to 5 years.

The Plan was intended to be adaptive and able to respond and adjust to feedback on actions taken. The Plan has required the continuing close co-operation of stakeholders to lead or contribute on the delivery of the proposals.

3. Terms of Reference

The review will:

- Consider all of the objectives set out in the plan
- Summarise the actions implemented to deliver these objectives, including any additional actions included after the plan was agreed
- Provide an assessment of the effectiveness of actions taken
- Provide a draft set of recommendations for the development of the plan over the next 3-5 years.

This work will be brought to the National Panel in draft form. Stakeholders will be invited to discuss the draft with their members. Once feedback has been received and the review document has been finalised, the National Panel will lead on the development of the action plan to cover the next 3-5 year period.

4. Action Plan Objectives

A summary of the actions set out in the Action Plan, in 2017, is as follows:

1. Continue with the current Sea Eagle Management Scheme to provide support to farmers and crofters managing sheep in areas subject to impacts from white-tailed eagles
2. Consider extending the existing scheme for a further 3 year period
3. Introduce a number of trial sites (monitor farms) where new approaches to eagle management can be tried and tested (including active scaring)
4. Trial the issue of licences to manipulate nest sites outside the breeding season where there are considered to be conflicts with agriculture
5. Roll out these approaches to further suitable sites, if successful in reducing impacts of white-tailed eagle activity on farms/crofts within the plan period
6. Build up local resources to provide expert advice to farmers/crofters
7. Consider use of technology to reduce impacts

8. Support further research into the impacts of sea eagles

4.1 Sea Eagle Management Scheme 2015-2019

The Sea Eagle Management Scheme provides support for livestock farmers and crofters who suffer impacts across the sea eagle breeding range. It was launched in 2015 as one of the actions listed in the Joint Statement of Intent from NFU Scotland and Scottish Natural Heritage on – Sea Eagles and Sheep Farming in Scotland agreed in 2014 and forms the basis of support offered to farmers and crofters under the Action Plan.

The scheme supported management to help sheep managers manage their flocks in the presence of WTE. It included options for flock health management measures, such as fluke and tick treatments, which aimed to ensure that flocks were in good condition and to try to reduce incidences of weaker lambs which might be more prone to predation. It also included options for support to adjust or change management, including the development of lambing parks and improving ground through liming to better support grazing in certain places. The scheme provided the loan of scaring equipment such as gas guns and scary men scarecrows where appropriate.

The scheme process was as follows:

- Anyone experiencing issues with sea eagles and sheep contact SNH through the local office or a dedicated e-mail address.
- SNH ask independent call-off contractors, experienced in eagle behaviour and sheep management, to make contact with individuals to discuss the issues, provide advice on possible management or mitigation and provide guidance on the scheme if required.
- Individual farmers and crofters, or their agents, submit scheme applications.
- SNH seek advice on applications from regional stakeholder groups, and if application is successful, offer a management agreement.
- Management agreements initially ran for 3 years and were extended to the end of 2019 to facilitate the introduction of the revised scheme (n.b. agreements signed in 2017 and 2018 are still running).

The work of the call-off contractors focussed on gaining a better understanding of how individual farms and crofts manage their sheep, understanding sea eagle activity in the locality and advising on the most appropriate scheme options to farmers and crofters.

Between 2015 and 2019 the call off contractors engaged with 122 farmers and crofters who had reported issues with sea eagles and had expressed interest in the scheme. Of these 106 people participated in the scheme. Several others had taken up a loan of scaring equipment. NFUS and SCF have promoted the scheme to their members but it is known that a number of farmers and crofters who have reported sea eagle damage have not sought support through the scheme.

Payments under the scheme were calculated on an area basis and capped at up to £1500 per annum, although capital works could be rolled into a single payment of up to £4500 over 3 years. Whilst this allowed management of a limited scheme budget and ensured that the scheme was flexible enough to support applications at the number being received in the early days of the scheme, it became clear that at the lower end of the scale, payments on an area basis did not make entry into the scheme worthwhile for small land holdings such as crofts. At the higher end of the scale, the cap meant that it was difficult to support proposals for innovative management which might mitigate predation issues.

The budget for the scheme has increased from £72,500 in 2015 to £202,000 in 2019 as set out in Table 1. The increase in costs has been as a result of increasing interest in the scheme as a result of more farmers reporting impacts with sea eagles as their range expands.

2015/16	2016/17	2017/18	2018/19	2019/20
£72,000	£200,000	£200,000	£200,000	£202,000

Table 1. Sea Eagle Management Scheme budget

As part of the scheme, participants were asked to provide reports on flock management and sea eagle activity on an annual basis. The data returned was of variable quality, with some farmers and crofters providing very detailed information on their management and on sea eagle interactions and predation, whilst others provided very little data. A detailed overview of the data provided is set out in **Annex 1**, along with some recommended action points to enhance the quality of the data collection and reporting.

Following lessons learned from some feedback from the scheme returns, monitor farm work, which will be covered in Section 4.3, and through discussion with stakeholders, the Sea Eagle Management Scheme was revised for 2020 onwards. The revised scheme guidance is included at **Annex 2**.

4.2 Scheme extension & revision to roll out new approaches

The original Sea Eagle Management Scheme ran until 2018 and under this, 3 year agreements were offered. These agreements began to expire in March 2019. At this point SNH looked to roll out some of the approaches which had been trialled on monitor farms to SEMS participants and to try and focus the available budget on areas of most need.

In addition to this, SNH had a number of administrative issues to resolve, in particular, the way management agreement starting dates were often well before offer letters were sent out. This had an impact on farmers' ability to plan and SNH's ability to check compliance. To resolve the administrative issues, the agreements that had expired in March 2019 were offered extensions to the end of December 2019. All participants in this situation, along with any new applicants, were offered the opportunity to submit applications for the revised scheme, which started in January 2020. This approach meant that there was no gap in funding support for applicants continuing with the scheme. In future years of the scheme, management agreements will be offered by SNH in advance of a 1 January start date.

This scheme now operates on a rolling 1 year basis due to the current budget management process within SNH.

There are a number of key revisions to the scheme. These are:

- Setting a minimum payment of £500 per annum to address the issue of small holdings such as crofts, not qualifying for worthwhile payments due to the hectareage limits in the previous scheme.
- Maintaining the basic management options of the previous scheme, with the same hectareage limits on payments and capped at £1500 per annum.
- Introducing enhanced options, such as enhanced shepherding, which supports increased shepherding activity/human scaring but introduces an element of "citizen science" to build up knowledge of WTE interactions with sheep flocks. Payments for enhanced options can be up to £5,000 per annum.
- Introducing enhanced support for capital works which can mitigate the impact of WTE. This includes lambing sheds, fencing and liming and can be supported with a

60% contribution to a maximum grant of £10,000. The contribution is in line with similar schemes such as the Crofting Counties Agricultural Grant Scheme (CCAGS).

In 2020, under the revised approach to the Scheme, 18 Farms, Crofts and Sheep Stock Clubs across the Sea Eagle breeding range will be receiving support for enhanced or capital measures. This includes the trialling of enhanced shepherding on seven holdings across Argyll and Skye helping to support the employment of 14 shepherds in seasonal work.

The total financial contribution for those qualifying for an enhanced level of support in 2020 is estimated to exceed £83,000. This support has been targeted at areas where impacts from sea eagles are considered to be significant and where detailed applications have been submitted to the Scheme, with supporting justifications and prior discussion with call off contractors and SNH.

4.3 Monitor Farms

The establishment of Monitor Farms is one of the actions set out in the White-Tailed Eagle Action Plan. The purpose of Monitor Farms is to trial novel management methods and where appropriate, licenced manipulation of white-tailed eagles' behaviour and nest structures with the ability to intensively monitor their impact and success in reducing lamb predation by white-tailed eagles through trial and intense observation. The hope is that successful methods can be offered as part of a "tool kit" to help reduce predation from white-tailed eagles on other farms experiencing similar issues.

There are two reports summarising the implementation of some of the actions identified in the White-tailed Eagle Action Plan, which include active scaring methods, land management changes, licenced activities and diversionary feeding trials carried out on three Monitor Farms in Argyll over the first three years of the Monitor Farm program between 2017 and 2020.

The Argyll Monitor Farm summary is at **Annex 3** and the Skye Monitor Farm Summary is at **Annex 4**.

The Monitor Farm project relied on the co-operation and close collaboration from all parties involved. The trust and rapport between the call-off contractors, observers and farmers and crofters meant that full transparency was maintained and that all involved were able to provide important and meaningful input to the project and developing ideas at every stage. It was also extremely important to have FLS's involvement at every stage as neighbouring landowners and willing participants in hosting licencing trials, diversionary feeding and access.

4.4 Licensed manipulation of nest sites

One of the key pieces of work over the period of the Action Plan has been to trial the manipulation of a nest site with the aim of reducing damage to nearby sheep flocks. The hope was to encourage a nesting pair of white-tailed eagles to nest further from an area where there is known predation of lambs.

The work began by considering the licensing tests which would have to be met and the evidence required to meet these tests. There are two reasons for which licenses could be issued, to prevent serious agricultural damage or for research purposes.

Work was done on 2 monitor farms to look at the evidence available to support a possible application for a licence to prevent serious agricultural damage. This work concluded that damage was occurring and strong circumstantial evidence suggested that a pair of sea

eagles were likely to be responsible for that damage. It also concluded that, through participation in the SEMS and through human activity on the hill by farmers and observers, the farms had trialled and implemented all that could be reasonably expected of them in terms of scaring and deterring the birds. Livestock health information was checked by SRUC and found to be in good order and undertaken to a high standard. However, part of the licensing test is to consider that the actions being proposed will resolve the damage. Without knowing the impacts of the actions, it was agreed to use a research license to trial manipulation of a nest site to establish if that action would influence sea eagle activity and reduce agricultural damage.

4.4.1 Licensed nest removal

The first licence application was made by Forestry and Land Scotland (formerly Forest Enterprise Scotland), in October 2017, to fell two existing white-tailed eagle nests and any subsequent replacements in the forest adjacent to the monitor farm for research purposes. The nests had been used by the same pair over the previous two years so were protected under Schedule A1 of the Wildlife and Countryside Act. The licence was granted with the condition that the felling took place over winter while the nests were not occupied and no later than the 31st January 2018. This adhered to the guidance outlined in Forestry Commission's publication "Managing Forests for White-Tailed Eagles".

Before the implementation of the licenced nest removal, intensive observations of the birds' hunting behaviour on the farm took place so that the impact of the nest removal (if any) on the birds could be documented. A long run of lambing data, started prior to the presence of sea eagles, was also available. Whilst observers did not record any livestock predation incidents directly, the lambing data suggests that there are impacts from sea eagles and maintaining the run of data was important to try to establish impacts of nest removal.

On the 30th November 2017, the original nest was felled along with a more recently used nest that was discovered and occupied for the first time in 2017. Only the original nest had shown recent signs of occupancy prior to felling, with feathers and down found in the vicinity of the nest trees. Two observers continued to monitor the area for new attempts at nest building between November and January before the last day of the licence. A new nest structure was found close to the original nest on 11th of January, and a pair of white-tailed eagles had been seen carrying sticks and using that part of the forest. This new nest tree was also felled on the 31st January 2018; the final day for which the licence was valid.

On 22nd February 2018, the resident WTE pair were found to have built another new nest approximately 500m from their original nest and slightly closer to the boundary with the farm. This nest was allowed to remain and its progress monitored throughout the season. The pair's hunting behaviour and flight lines across the farm were documented to record any change as a result of the nest manipulation. The pair successfully raised a single chick in 2018, and a similar level of predation was recorded on the farm despite the nest removal.

Over 200 hours of observations of WTE behaviour and flights have been recorded on this farm in each year since 2017.

Despite the limited success of the nest removal trial in 2018, it was emphasised by the farmers that momentum should be maintained with regards to manipulating the WTEs and their nest sites. During the winter of 2019, discussions about the next step in the nest manipulation trial took place at a National Panel level.

It was agreed that the nest trees should be removed again, but at a much later date, closer to egg laying. The aim was to act so late in the breeding cycle that it would deter the birds

from rebuilding another nest. The attempt to fell the nests in 2017/2018 had left the birds with ample time to rebuild another nest before the beginning of the laying period.

Based on historical breeding data for this pair, it was possible to estimate their lay date quite accurately, and it was agreed to apply a deadline for removing any nesting attempts of the 10th of March 2020. This would ensure that the nest was removed before any eggs were likely to be laid.

SNH granted a licence to FLS to carry out this trial in 2020. The licence was granted to remove existing nest structures and any new nesting structures. It was not possible to fell nest trees because of their location in windblown areas of the forest making access with machines or chainsaws difficult or dangerous, so the solution was to climb the trees and remove the nest structures by hand.

Both the 2018 and 2019 nests were removed, and the nest trees made unsuitable for rebuilding by the removal of supporting branches and substantial alternative branches within the same tree. A concerted effort was made to locate any new nesting attempts before the 10th March 2020 without any success. On the 9th March 2020, an adult male WTE was seen flying from the forest and flying some distance away. It is possible that the WTE pair had relocated away from the forest; however, it was not possible to follow up on this due to the movement restrictions implemented because of the Covid-19 pandemic.

To date, the farms have reported very few WTE sightings and an excellent lambing season, possibly due to good weather.

It has yet to be confirmed whether the birds have indeed relocated or whether they did not proceed with a nesting attempt in 2020. If they have relocated to the suspected location, it would not be very efficient for them to travel the distance involved to predate on lambs on the monitor farms. It may be that they have an alternative and more desirable prey source closer to their new nest. It is also unclear why the birds re-located so far away from the core of their territory after having been established in the forest for so long. It may be that the cumulative scaring efforts on the farm, coupled with the manipulation that has taken place in the forest since 2017, has made it a less desirable site for them to nest.

4.4.2 Satellite tagging

It was also recognised in 2019/20 that being able to satellite track the resident pairs of adult WTE near monitor farms in North Argyll would provide a considerable addition to the information already gathered by farmers and observers on these farms over the past three seasons. It would help fill in gaps in observations and also help explain why, despite the very few flight lines being recorded, predation was still being reported on neighbouring farms. In addition, by using regular data downloads we might be able to detect incidents of livestock predation in real time. With the type of manipulation to the birds nest sites being considered by the national panel, including consideration of egg manipulation, it was argued that a more thorough level of study into the behaviour of the birds should be carried out and that this could only be achieved through the use of satellite telemetry. In order to achieve this it would be necessary to trap the adult WTEs and fit them with transmitters.

Nobody is known to have successfully trapped an adult WTE in the UK to date, so experience is extremely limited. The most relevant experience comes from work carried out with golden eagles where they are trapped using a bow net so that similar transmitters can be fitted. There are also very few people in the UK with experience in fitting transmitters to eagles. The individual with the most relevant experience in this field was willing to assist the project and agreed that the objective to trap and fit satellite transmitters to the resident adult WTE pair was indeed feasible.

The advice given was to establish a pre-bait site to help to focus trapping expertise and time on sites most likely to result in eagle capture. It was decided that after 10th March 2020, trapping attempts would cease as it would be too close to the probable lay date of the resident pairs. Due to time constraints associated with acquiring tags and securing BTO consents, trapping effort time was constrained in winter 2019-2020.

However, in January 2020, a feeding site adjacent to the North Argyll monitor farms was established using roe deer as bait and using trail cameras to establish whether or not the WTEs were attending the site. The location of the site was decided by individuals experienced in trapping and establishing bait sites as well as local call-off contractors who were able to provide input on the location of the nest and pair behaviour. The site needed to be visible to the WTEs and located near the nest, without being too close to cause disturbance. The site also needed to be accessible quickly from a road, with a clear line of sight so that the trap could be activated and the trappers access the trap as quickly as possible should an eagle be caught. The bait site was checked regularly, but no eagles visited this bait.

By early February 2020 it was clear that this baited site was not attractive to WTEs for unknown reasons. There were also no observations of eagles in the vicinity. Due to the lack of success at this site, it was decided that trail cameras should not be used in case they were deterring WTE, and that additional sites should be established that might attract WTE from areas adjacent to another monitor farm. Two new sites were set up in North Argyll, and baited with whole roe deer and deer gralloch. At both of these additional baiting sites there were immediate signs of eagle activity with evidence of feeding, and by the presence of feathers and down.

Efforts to trap the adult WTEs was focussed on the second of the North Argyll sites throughout February. The original site in North Argyll continued to be monitored but there was no evidence of eagles visiting. WTE also stopped coming to the second North Argyll bait site.

A trap was installed at the primary site in North Argyll where WTE continued to feed, and was monitored for several days before being manned by the experienced eagle trapper. Six full days were spent watching the trap in order to attempt to catch the visiting WTE. Other lengthy vantage point observations of the trap site were also carried out by an observer, but no eagles visited.

By March 10th 2020 it was clear that this attempt to catch adult WTEs in north Argyll had been unsuccessful.

Consideration will be given to trapping birds in 2021 with a longer lead in time to bait sites and hopefully have a better chance of trapping the birds. Further discussions need to take place on nest site manipulation now that it appears the initial site proposed for this has moved.

4.5 Local resources and advice

The team of SNH call-off contractors was consolidated and extended during the Action Plan period. There is now increased coverage for mid and south Argyll with a total of 5 call-off contractors covering all SEMS work and 3 observers/field workers contributing to additional work on monitor farms. SNH are in the process of identifying contractors who can provide advice in the Outer Hebrides.

Work has started to develop an information leaflet for farmers and crofters which will provide advice on predation and how to identify possible causes. This follows on from a relatively basic leaflet on predation and scavenging produced by SASA and will pull together information from other countries. It is hoped that this can be completed by the end of 2020.

SRUC Portree staff secured funding through the Farm Advisory Service to produce an advisory video for farmers and crofters on the Sea Eagle Management Scheme. SRUC Portree staff and a local filmmaker have worked with farmers and crofters, SNH, call off contractors, RSPB and SRUC Veterinary Department to produce a draft video. Work is ongoing to complete this video which will be hosted on the Farm Advisory Service website.

SNH maintain a pool of scaring equipment available for loan to farmers and crofters.

4.6 Use of technology to reduce impacts

Over the period of the plan, SNH has explored of the use of technology both to reduce impacts and to better understand impacts.

SNH considered the use of lasers as scaring devices and drafted a protocol to test and monitor effectiveness of their use in scaring eagles. However, before using a laser, SNH had to address significant health and safety issues associated with their use. Lasers powerful enough to operate in daylight conditions pose very serious safety risks to the user, air traffic and the general public. Operators need specific laser safety training and protocols include not pointing the laser into the air. There is a risk of causing blindness in the birds. In taking all of these issues into account, it was decided that, at this stage, lasers could not be trialled as a scaring device.

Some low-tech scaring devices were trialled on some of the monitor farms and crofts, including helium balloons, self-launching kites and revolving reflectors. In summary, there are issues with self-launching devices, if not used on poles, as they do not work well in our climate (too much rain and or wind causes them to drop) resulting in ineffective scaring and risk of lines getting tangled with stock. In large hill areas, these devices are too small to have an effect. They may work well on smaller lambing parks and croft sized enclosures and further trials are being considered.

Gas guns and scary men scarecrows have been loaned to a number of farmers. In some locations, farmers have reported that they have some effect and continue to use them each year, in other areas, they do not appear to have had an effect in scaring eagles.

The use of mobile phone apps is emerging as a technology for recording and mapping impacts. One group of farmers and observers have used WhatsApp to report observations and the data from this is used in the annual reporting process. The use of a mapping app called ViewRanger has also been introduced to help farmers using the enhanced shepherding option to record eagle activity. All of these apps help develop a consistent approach to recording and sharing data and bring a citizen science element into the process.

4.7 Further research

- **Post mortem results:** Between 2015 and 2019, 12 lamb carcasses were sent for post-mortem analysis by SRUC vets in Inverness. Of these: 3 were too decomposed to identify a cause of death, 1 was likely predated by corvids, 1 was likely predated by foxes, 1 was likely predated but was too decomposed to identify the species responsible, and 6 were likely to have been predated by either white-tailed or golden

eagles. Of the carcasses analysed, 2 were found to have symptoms indicating systemic parasitic infections.

In 2019 part of a sheep carcass was sent for DNA analysis and this was confirmed as likely to have been killed by a fox.

- **A PhD on Conservation Conflict and Adaptive Management: the Example of White-tailed Eagle Re-introduction in Scotland** is underway. The work aims to better understand management mechanisms and to look at how the management conflicts have arisen in order to establish shared goals and develop better solutions. The PhD is a partnership project between the University of Aberdeen and SNH and others. The PhD is currently suspended due to the personal circumstances of the student but will recommence in 6 months.
- **A PhD Investigating Causes of Lamb Loss on Highland Farms and Crofts** is in its first year. This PhD seeks to define more accurately what is meant by the term black loss, identify the underlying factors leading to black loss, and quantify the part that white-tailed eagles play in losses. The PhD is a partnership project between SRUC and the University of Edinburgh with input from Scottish Natural Heritage.

5. Draft recommendations for extended Action Plan

The intention of this document is to set out the progress made since the adoption of the Action Plan in 2017 and to put forward a draft set of recommendations for consideration by the National Sea Eagle Stakeholder Panel for inclusion in a revised plan to cover the next 3-5 years. The draft recommendations are as follows:

- 5.1 Continue support for farmers and crofters through delivery of the revised Sea Eagle Management Scheme (including making further revisions, if necessary)
- 5.2 Increase call-off contractor coverage on the Outer Hebrides and expand into other areas as WTE expand their range.
- 5.3 Enhance the quality of the data collected through SEMS to better understand the issues and inform solutions.
- 5.4 Explore the development of AECS options and future agri-environment schemes to support sea eagle management
- 5.5 Continue monitor farm projects, where appropriate, with support through SEMS and additional monitoring support, to test management approaches, including Integrated Land Management Planning and management to increase natural prey species.
- 5.6 Attempt to capture and tag adult birds to provide additional information to support management and monitor farm work.
- 5.7 Continue consideration of licensed activities to reduce agricultural damage in situations where all other options have been unsuccessful. Include development of guidance which sets out requirements for licences.
- 5.8 Consider adaptive actions as a result of PhDs, other research work and feedback from scheme members, especially those reporting on enhanced shepherding. Consider additional research into WTE interactions with other wildlife.
- 5.9 Develop a Communications plan to promote the work that is being done to find solutions to the problems caused by sea eagles.

6. Next steps

- 6.1 National Stakeholder Panel to discuss draft review document and provide SNH with feedback by mid-September 2020
- 6.2 National Stakeholder Panel to agree objectives for the revised Action Plan end October 2020
- 6.3 SNH to draft revised plan by end December 2020
- 6.4 National Stakeholder Panel to agree and adopt plan by end January 2021

7. Acknowledgements

The delivery of the work detailed in this Action Plan Review has been made possible due to the input of many people and their willingness to work in partnership with others to try to find solutions to an extremely complex problem. Thanks go to the stakeholder representatives on the national and local groups and to the team of contractors and observers who have provided advice, supported applicants to the scheme and carried out many hours of observations in remote locations. Particular thanks go to the individual farmers and crofters on monitor farms who have generously provided their time, knowledge and access to their land to develop trials of new approaches.

Annex 1 - Overview of SEMS data

Annex 2 - Current SEMS Guidance

Annex 3 - Summary report for Argyll Monitor Farms

Annex 4 - Summary report for Skye Monitor Farms

Annex 1

Overview of Sea Eagle Management Scheme Visit Reports and Flock Management Returns

1. Introduction

This Annex provides an overview of data collected at initial site visits by call off contractors and data submitted by farmers and crofters in their annual Flock and Record of Management Measures returns.

2. Data from site visit reports

As part of their initial site visit, call off contractors or, in some locations SNH staff, will spend time with farmers and crofters discussing a range of factors in order to gain an understanding of their management system and tailor advice to their specific situation.

Information on the size of area being managed, flock numbers, lambing location, availability of in-bye, flock health treatments and predator control etc. are all discussed in order to inform potential management measures that could help address issues that are being experienced with WTEs.

The factors that are discussed at site visits and the level of information collected and reported on will vary from site to site due to factors such as land manager time constraints, openness, level of record keeping and more recently the method of discussion, with phone consultations rather than site visits having to be carried out due to Covid-19 restrictions.

As of July 2020, call off contractors have engaged with land managers on 163 holdings who have registered an interest in the SEMS covering 156,489 hectares and 71,516 breeding ewes. The extent of these holdings varies widely from Crofts of under 20 hectares to farmed estates extending to over 9000 hectares, reflecting the different management systems in the areas of Scotland where the Scheme is active. Figure one below outlines the geographical location of these 163 holdings.

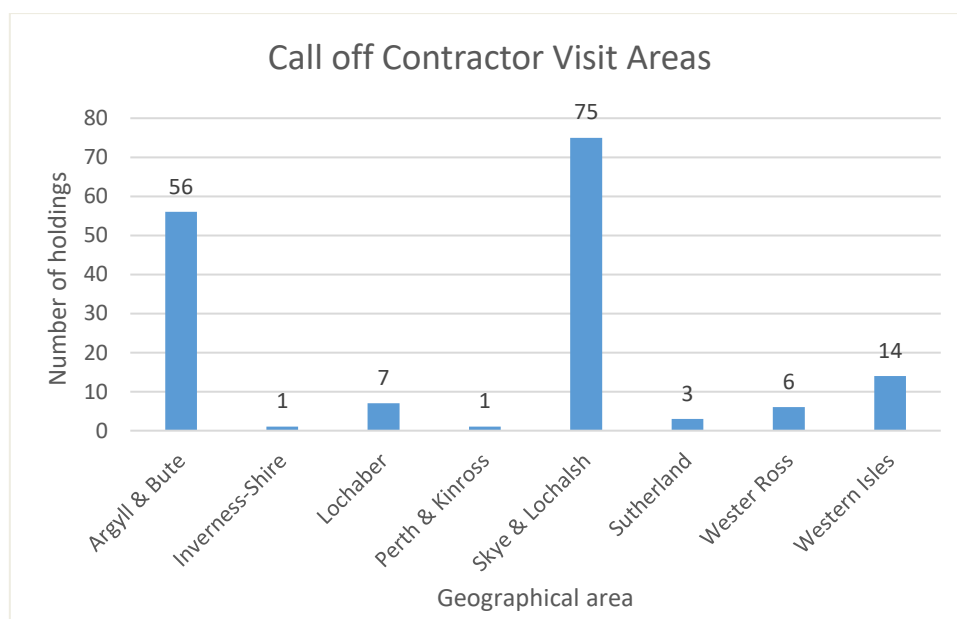


Figure 1: Location of holdings visited by call off contractors

Figure 1 above clearly demonstrates that the majority of site visits carried out have been to farmers and crofters in Skye & Lochalsh and Argyll & Bute, with a recent but smaller proportion of visits to the Western Isles.

Across the geographical areas where site visits have been completed the type of management system varies which is demonstrated in Figure 2 below.

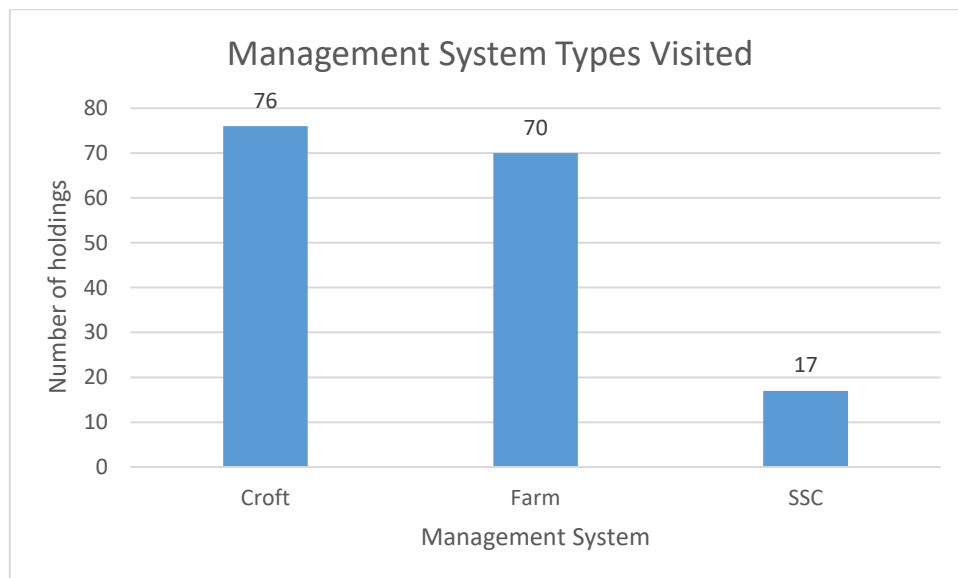


Figure 2: Type of management system visited

Figure 2 demonstrates that there is nearly an equal split between farms and crofts in terms of number of visits, with 17 Sheep Stock Clubs (SSCs) visited by call off contractors. The majority of SSCs visited (14) are located in Skye & Lochalsh.

As mentioned previously, during site visits call off contractors will discuss with land managers their management system to gain a better understanding of how their area is managed and tailor their advice to fit that specific system. One of the factors discussed is whether or not land managers scan their flocks. This is to determine whether historic lambing percentage figures are available and whether they have noticed changes since the arrival of WTEs. Figure 3 below outlines whether scanning takes place on the holdings that have been visited.

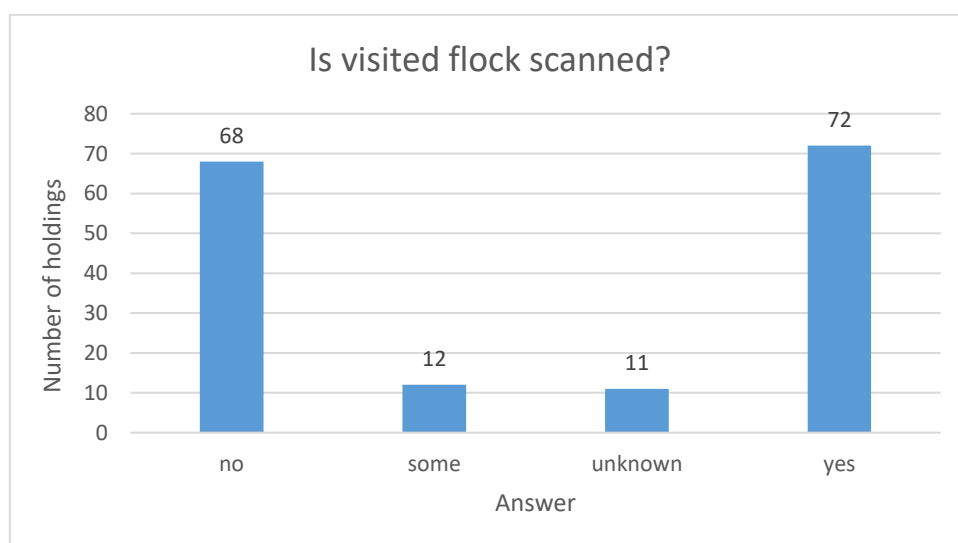


Figure 3: Overview of scanning on visited flocks

From Figure 3, it is evident that there is nearly an equal split of those who carry out scanning as part of their management system and those who don't presently. There are a number of reasons cited for not carrying out scanning but the principal reason is that land managers, especially on extensive systems, often don't have the ability to separate ewes bearing twins to other areas and it is therefore not cost effective to introduce scanning.

The SEMS can support the introduction of scanning at £0.80 per ewe for separation of those with twins. However it is recognised, as above, that availability of in-bye and/or other areas to separate twins is not always possible for land managers and this rate only supports the actual scanning itself and not the costs of labour to gather extensive hill areas for scanning to take place.

The "unknown" data in Figure 3 above reflects holdings where a visit report is to be completed or where scanning has not been mentioned in the report. This will be followed up with the relevant land managers in order to collect this information.

Another management measure that the SEMS can potentially support is supplementary feeding of ewes and this is another factor discussed at site visits with land managers. Figure 4 provides an overview of whether land managers supplementary feed their flocks or not.

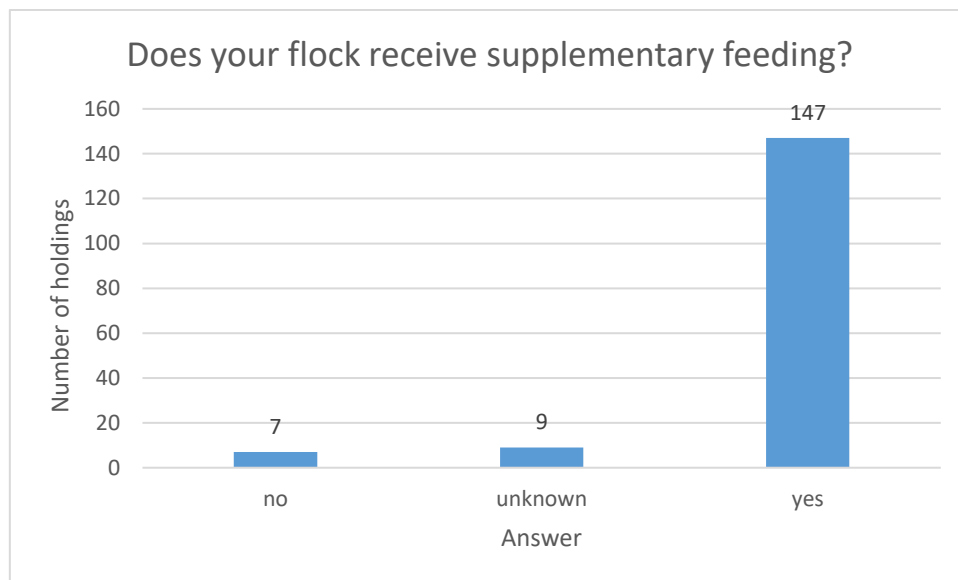


Figure 4: Overview of supplementary feeding on visited flocks

It is evident from Figure 4 that the vast majority of land managers provide supplementary feeding to their flocks and have done so as either historic management practice or in some cases have introduced this management measure with support from the SEMS. There are a very small number of land managers who don't supplementary feed, and for those the Scheme could potentially support this measure if they felt it appropriate to their situation. As above the "unknown" data reflects where supplementary feeding has not been mentioned in the visit report but will be followed up with the land manager in order to collect this information.

An element of the SEMS support for supplementary feeding of ewes (£4 per ewe) is the potential provision of mineral blocks under this standard measure. The provision of mineral supplements is another aspect discussed with land managers at site visits as it is a standard measure that can be supported. Figure 5 provides an overview of whether mineral supplements are provided to the flocks managed by those visited.

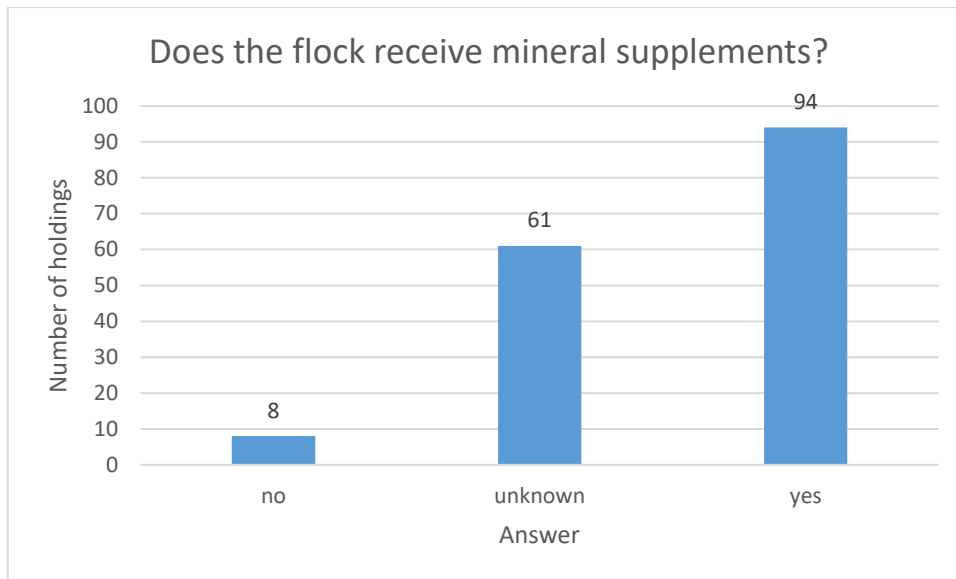


Figure 5: Overview of mineral supplements on visited flocks

Figure 5 demonstrates that for the majority of land managers who SNH have data for, mineral supplements are provided to the flock and have been as either historic practice or in some cases have been implemented with support from the SEMs. There is a small number where this is not being implemented presently but the Scheme could potentially look to support this if it was felt appropriate by the land manager, especially in extensive hill systems where soils are generally mineral deficient.

There is a large proportion of “unknowns” in this category and this reflects that this aspect has not been specifically mentioned in visit reports. This is something that has been raised as an action point as well as gathering more information on what form mineral supplementation takes, whether that be through individual boluses to livestock, or through the provision of mineral blocks or licks in targeted areas.

Gathering this information and cost comparisons could help to inform the development and revision of standard measures costs in the Scheme going forward.

An important factor which is discussed at site visits with land managers to try and understand and address issues is their lambing location. Figure 6 below provides an overview of lambing locations on holdings which were visited.

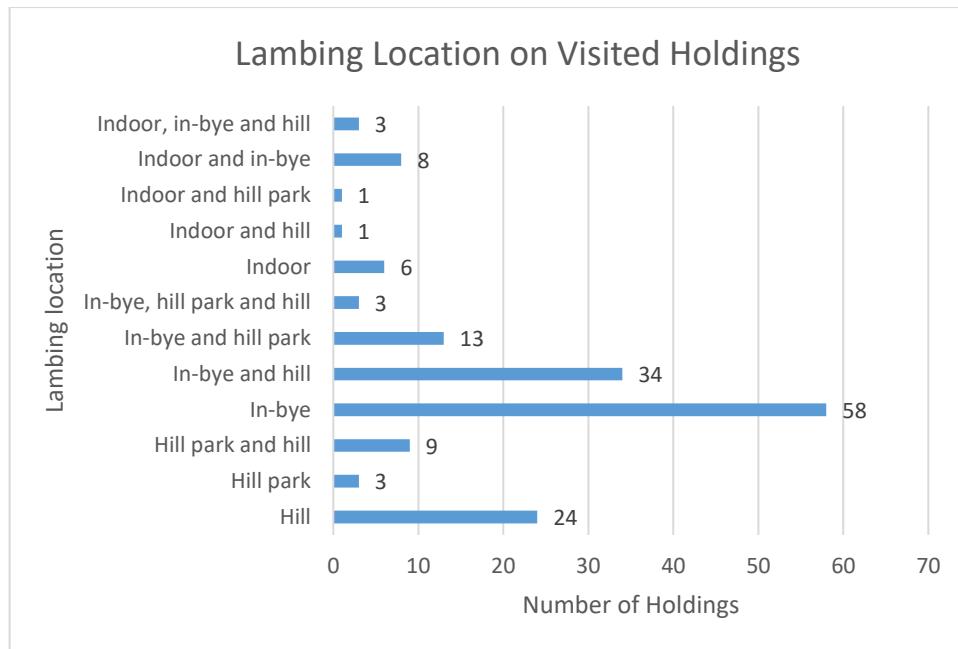


Figure 6: Overview of lambing location on visited holdings

From Figure 6 it is clear that the majority of lambing on visited holdings takes place on in-bye, hill and a combination of both. Figure 6 also demonstrates the wide variety of different management systems in place across holdings that were visited, with many land managers having separate in-bye and hill flocks.

It should be noted that a number of individuals at the time of a first site visit were operating solely hill systems but have subsequently adapted their management system, bringing lambing closer to in-bye ground or indoors due to reporting increasing losses from WTEs.

The SEMS, through the revisions that have recently been made, has been engaging with individuals in this position to address some of the additional costs that have been incurred to those businesses as a result of a change in management, including increased labour, feed, bedding and water costs where appropriate. This is only possible where a detailed prior discussion, detailed application and supporting justification has been provided. In 2020 we are applying this approach to 5 of the 18 holdings that are receiving an enhanced level of support through the Scheme.

Another important factor which is discussed at site visits is the availability and abundance of other WTE prey species and also any issues experienced with other predators such as corvids and red foxes. SNH have collected information on whether individuals carry out fox control and this is outlined in Figure 7 below:

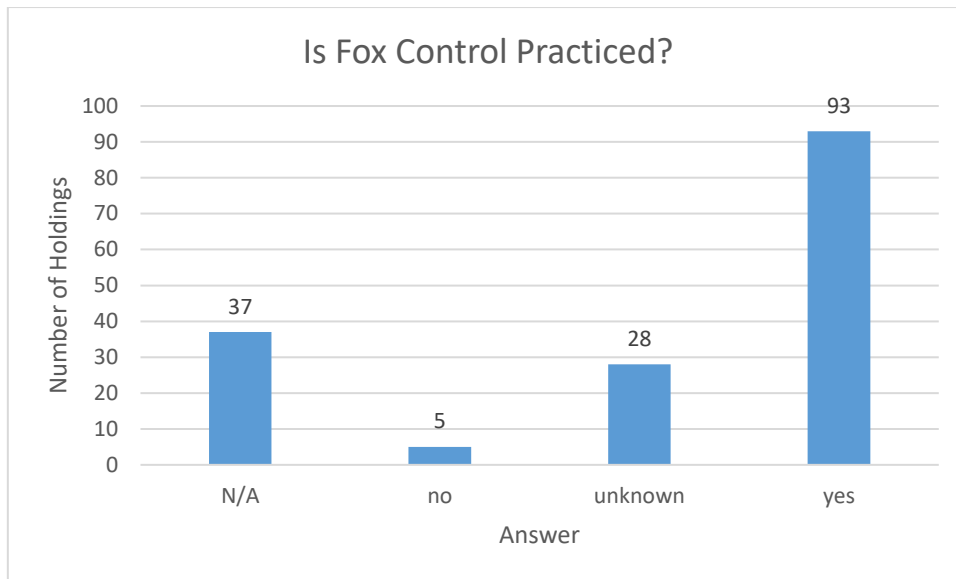


Figure 8: Overview of fox control on visited holdings

From Figure 8 it is evident that fox control is practiced on the majority of holdings where red foxes are present. The methods of control (visiting dens, lamping or thermal imaging) and whether fox control is practiced by the individual, contractor or by a fox control club varies. The “N/A” data represents holdings where red foxes are absent such as the Western Isles, Mull and Raasay. There is only a small number of holdings where fox control is not practiced and it is unlikely that these holdings would receive enhanced support through the Scheme until that situation changes.

It is also evident from Figure 8 that there is a significant proportion of “unknowns” and a further action point is to collect information to address this.

As a result of the recent revisions to the SEMS, an enhanced measure that can now be supported is away-wintering where this has not been a historic management practice, or is over and above the normal level where this is an established practice. The Scheme can now support away-wintering at the rate of £20.67 per head which has been applied using existing Agri-Environment Climate Scheme (AECS) rates. Figure 9 below provides an overview of whether away-wintering is practiced on holdings that were visited.

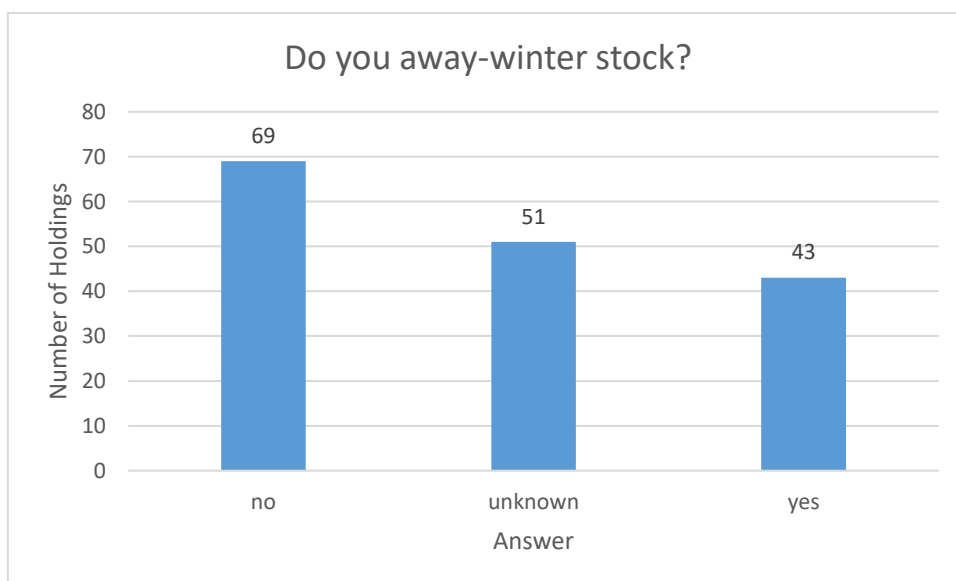


Figure 9: Overview of away-wintering on visited holdings

From Figure 9 it is evident that for the holdings SNH have information for on this factor, the majority do not away-winter stock. The enhanced measure that can now provide support for this management practice could be a potential option for some in this category to try and help address issues. It should be noted that in this category there will be holdings that might have available in-bye ground to winter stock at home, or logistically this might not be considered a feasible option for some.

The “unknown” data for this factor is significant and there is a further action point to gather data on this factor as it could be the majority of those in this category do away-winter stock which would influence whether this is practiced by the majority or minority of holdings that were visited.

3. Data from Flock and Record of Management Measures Returns

The return of an annual Flock and Record of Management Measures Log is part of the Management Agreement (MA) conditions of those holding a SEMS MA with SNH. This log requests information on scanning results (where applicable), number of ewes lambing, timing of lambing and recording of livestock predation incidents as well as other relevant information. The information returned varies in detail from very detailed information to very basic information.

In one part of the Flock and Record of Management Measures Log, land managers are asked to provide as accurate as possible, a record of sheep/ lamb numbers and losses at the end of key stages of the year (birth-marking, marking-clipping, clipping-weaning). Observations on the weather during each stage is also sought.

As above the level of information returned from land managers for this section of the Log varies widely from very detailed records, including comparisons with historic lambing percentages and the inclusion of scanning results, to no detail being provided in this section.

The information that has been provided in this section from 2015-2019 has been collated and a summary of this provided below. Of the 106 participants in the Scheme during this period SNH have some lambing performance data from 59 participants (**56%**).

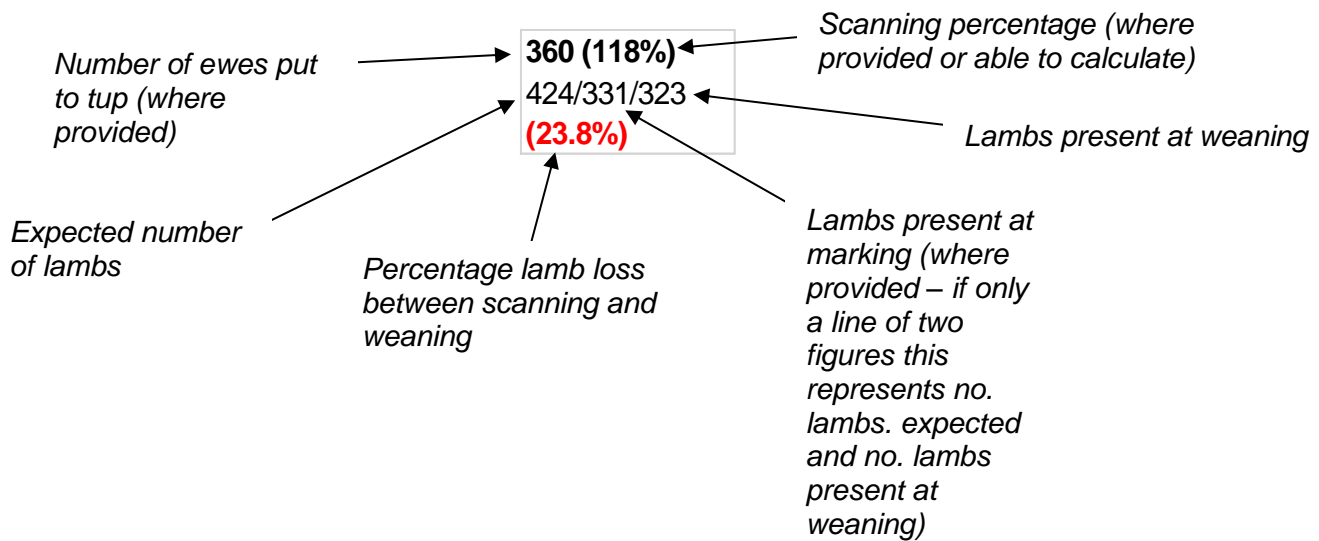
SNH encourage individuals applying to the Scheme to provide as much information as possible in their applications, including detail on historic and more recent lambing performance and loss records. When Scheme application information is collated and added to the above, SNH have some lambing performance data from 64 of a possible 138 holdings (**46%**).

The data below has been anonymised and only the broad geographical locations of holdings has been included. Information on lambing location has been included as this can influence the levels of loss that might be expected in different management systems.

Table 1 below outlines percentage levels of lamb loss between scanning and weaning for those land managers who have provided this information between 2015 and 2019.

This table also details the number of ewes put to the tup, the scanning percentage and expected number of lambs at the start of each season. Figures for the number of lambs then present at marking and weaning are also detailed where this information has been provided.

An example of how to interpret this data is shown below along with the legend that should be used for Tables 1 and 2:



Legend for Tables 1 and 2

Area

A&B – Argyll & Bute
 INV – Inverness-shire
 LO – Lochaber
 P&K – Perth & Kinross
 S&L – Skye & Lochalsh
 S – Sutherland
 WI – Western Isles
 WR – Wester Ross

Lambing Location

H – Hill
 HP – Hill Park
 I - Indoors
 IB – In-bye

Area	Holding	Lambing Location	2014	2015	2016	2017	2018	2019
A&B	1	IB, H	No data	No data	360 (118%) 424/331/323 (23.8%)	350 (113%) 395/310/289 (26.8%)	350 (110%) 385/200/172 (55.3%)	No data
A&B	2	IB	No data	No data	No data	245 (118%) 288/230/225 (21.8%)	250 (104%) 260/255/230 (11.5%)	No data
S&L	3	IB	No data	No data	395 (116%) 458/412/348 (24%)	398 (115%) 457/416/364 (20.3%)	368 (132%) 485/416/382 (21.2%)	350 (113%) 395/393/356 (9.8%)
P&K	4	HP, H	No data	375/360/290 (22.6%)	343/323/273 (20.4%)	No data	No data	No data
S&L	5	IB	No data	No data	286 (106%) 303/261/240 (20.7%)	278 (104%) 289/260/220 (23.8%)	314 (99%) 310/278/263 (15.1%)	No data
S&L	6	I, IB	No data	No data	240 (140%) 336/290/225 (33%)	250 (125%) 312/243/224 (28.2%)	307 (103%) 316/227/184 (41.7%)	330 (101%) 333/302/276 (17.1%)
S&L	7	I	No data	No data	No data	257 (96%) 247/169/167 (32.3%)	No data	No data
S&L	8	I, IB, H	No data	No data	500 (87.8%) 439/286/233 (46.9%)	420 (105%) 441/318/250 (43.3%)	690 (118%) 816/586/506 (37.9%)	No data
S&L	9	I	No data	No data	No data	60 (113%) 68/62/60 (11.7%)	60 (108%) 65/60/59 (9.2%)	No data
S	10	IB, HP	No data	No data	No data	908 (101%) 917/855/709 (22.6%)	914 (101%) 923/821/569 (38.3%)	No data
A&B	11	IB, H	620/566/541 (12.7%)	612/549/519 (15.1%)	625/526/460 (26.4%)	632/526/448 (29.1%)	616 (85%) 521/374/284 (45.4%)	No data

S&L	12	IB, H	No data	No data	No data	No data	No data	290 (115%) 333/270/260 (21.9%)	No data
A&B	13	I	No data	No data	No data	No data	187 (169%) 316/228/228 (27.8%)	No data	No data
A&B	14	I	No data	No data	No data	No data	81 (130%) 105/90/87 (17.1%)	No data	No data
S&L	15	I, IB	No data	800 (104%) 832/622 (25.2%)	820 (115%) 943/708 (24.9%)	792 (100%) 792/594 (25%)	800 (96%) 768/512* (33.3%)	No data	No data
S&L	16	HP, H	No data	No data	No data	No data	330 (123%) 406/314/308 (24.1%)	340 (138%) 469/345/355 (24.3%)	No data
S&L	17	IB	No data	No data	No data	510 (120%) 612/520/510 (16.6%)	510 (120%) 612/530/510 (16.6%)	520(125%) 650/564/514 (20.9%)	No data
A&B	18	IB, HP	No data	No data	No data	No data	355 (102%) 365/182/137 (62%)	No data	No data
A&B	19	IB, HP	No data	No data	No data	No data	543 (100%) 543/282/245 (54.8%)	536 (98%) 530/349/310 (42.1%)	No data

Table 1: Overview of scanning-weaning data from SEMS

There are 47 holdings that scan their flocks and who participated in the SEMS between 2015 and 2019, submitting a Flock Management return. Of these 47 holdings SNH have some lamb loss records between scanning and weaning for 18 (**38%**) as detailed in Table 1 above, although it is clear there are a number of “no data” entries. One holding, Holding 15 is included in Table 1 as although they didn’t participate in the SEMS during this period, they have recently joined in 2020 and provided a detailed application with figures on historic levels of lamb loss. If both historic and recently joined participants who scan their flocks (64 holdings) are considered, the 19 holdings that SNH have some information for represents **30%** of the possible total.

Table 2 below outlines the number of lambs present at marking and weaning for those holdings where SNH have this information and the percentage levels of lamb loss between these stages. This table includes information from those holdings that are also represented in Table 1 above and the holdings have been cross-referenced and numbered to reflect this.

Area	Holding	Lambing Location	2015	2016	2017	2018	2019
A&B	1	IB, H	No data	331/323 (2.4%)	310/289 (6.7%)	200/172 (14%)	No data
A&B	20	IB, H	No data	No data	1129/986(12.6%)	806/754(6.4%)	No data
A&B	2	IB	No data	No data	230/225(2.1%)	255/230(9.8%)	No data
A&B	21	IB, H	683/672 (1.61%)	813/799 (1.7%)	839/802 (4.4%)	699/593(15.1%)	No data
S&L	3	IB	No data	412/348 (15.5%)	416/364 (12.5%)	416/382 (8.1%)	393/356(9.4%)
P&K	4	H, HP	360/290 (19.4%)	323/273 (15.4%)	260/220 (15.3%)	281/216*(23.1%)*	290/245(15.5%)
S&L	5	IB	No data	261/240 (8%)	263/233 (11.4%)	278/263 (5.3%)	No data
S&L	22	IB, HP	No data	800/650* (18.7%)*	820/728 (11.2%)	750/600* (20%)*	720/612 (15%)
S&L	6	I, IB	No data	290/225 (22.4%)	243/224 (7.8%)	227/184 (18.9%)	302/276 (8.6%)
S&L	7	IB	No data	195/168 (13.8%)	169/167 (1.1%)	186/158 (15%)	No data
S&L	23	I, IB, H	No data	1344/1158(13.8%)	1245/1109(10.9%)	No data	No data
S&L	8	I, IB, H	120/80* (33.3%)*	286/233 (18.5%)	318/250 (21.3%)	586/506 (13.6%)	No data
S&L	9	I	No data	No data	62/60 (3.2%)	60/59 (1.6%)	No data
S	10	IB, HP	No data	No data	855/709 (17%)	821/569 (30.6%)	No data
S&L	24	IB	No data	No data	152/126 (17.1%)	155/142 (8.3%)	No data
S&L	12	IB, H	No data	No data	200/193 (3.5%)	114/85 (25.4%)	270/260 (3.7%)
S&L	25	IB, H	No data	No data	No data	550/450 (18.1%)	410/320(21.9%)
A&B	13	I	No data	No data	No data	228/228 (0%)	269/262 (2.6%)
A&B	14	I	No data	No data	No data	90/87 (3.3%)	108/105 (2.7%)
WR	26	I	No data	No data	No data	143/116 (18.8%)	112/101 (9.8%)
S&L	27	IB	No data	No data	No data	80/75 (6.2%)	No data
S&L	16	HP, H	No data	No data	302/290 (3.9%)	314/308 (1.9%)	345/335 (2.8%)
S&L	17	IB	No data	No data	520/510 (1.9%)	530/510 (3.7%)	564/514 (8.8%)
A&B	18	IB, HP	No data	No data	167/138 (17.3%)	182/137 (24.7%)	365/355 (2.7%)
A&B	28	IB, H	No data	No data	741/708* (4.4%)*	No data	645/629*(2.4%)*
A&B	19	IB, HP	No data	No data	No data	282/245 (13.1%)	349/310(11.1%)
A&B	29	IB	No data	No data	956/950(0.6%)	No data	No data

A&B	30	IB, HP	No data	No data	No data	No data	136/118(13.2%)
A&B	31	H	No data	163/141 (13.4%)	142/128 (9.8%)	143/125 (12.5%)	No data
A&B	32	H	No data	No data	134/128 (4.4%)	106/96 (9.4%)	No data
A&B	33	IB, H	No data	No data	877/729 (16.8%)	605/550 (9%)	700/628(10.2%)
A&B	34	H	No data	No data	181/152 (16%)	135/121 (10.3%)	165/133(19.3%)
A&B	35	IB	No data	56/47 (16%)	No data	No data	No data
S&L	36	HP, H	No data	390/359 (7.9%)	435/413* (5%)*	429/412* (3.9%)*	No data
S&L	37	H	No data	No data	No data	No data	205/180(12.1%)
S&L	38	H	No data	758/567 (25.1%)	No data	480/357 (25.6%)	No data
S&L	39	H	No data	103/99 (3.8%)	No data	No data	No data
S&L	40	H	No data	No data	399/387* (3%)*	450/360 (20%)	No data
S&L	41	H	No data	179/176 (1.6%)	212/203 (4.2%)	198/196 (1%)	No data
A&B	42	IB	No data	176/169 (3.9%)	174/168 (3.4%)	215/207 (3.7%)	No data
WR	43	IB	No data	168/120 (28.9%)	184/155 (15.7%)	No data	No data
S&L	44	IB, H	298/275 (7.7%)	265/258 (2.6%)	136/126 (7.3%)	349/294 (15.7%)	290/252(13.1%)
S&L	45	IB	No data	No data	108/95 (12%)	83/54 (34.9%)	125/78 (37.6%)
S&L	46	H	No data	No data	No data	268/225 (16%)	385/320(16.8%)
S&L	47	IB, H	No data	No data	No data	No data	367/298(18.8%)
S&L	48	IB	No data	No data	No data	38/31 (18.4%)	46/37 (19.5%)
S&L	49	IB, H	No data	No data	No data	757/657 (13.2%)	No data
S&L	50	I	No data	No data	No data	62/48 (22.5%)	60/49 (18.3%)
S&L	51	IB, H	No data	104/97* (6.7%)	97/81* (16.4%)	100/96* (4%)	49/39* (20.4%)*
WI	52	I, IB	No data	No data	No data	29/27 (6.8%)	No data
S&L	53	H	No data	No data	16/14 (12.5%)	13/11 (15.3%)	No data
LO	54	IB	No data	No data	60/57 (5%)	68/58 (14.7%)	No data
S&L	55	IB	No data	No data	No data	650/595 (8.4%)	No data
S&L	56	IB	No data	No data	No data	64/52 (18.7%)	No data
S&L	57	IB, H	No data	No data	140/118 (15.7%)	110/80 (27.2%)	No data
INV	58	IB	No data	No data	548/505* (7.8%)*	400/362* (9.5%)*	400/323*(19.2%)*
S&L	59	IB, H	No data	226/226 (0%)	350/330 (5.7%)	No data	No data
S&L	60	IB, H	No data	No data	180/173 (3.8%)	175/150 (14.2%)	180/165 (8.3%)
A&B	61	HP, H	No data	No data	No data	No data	322/322* (0%)*

Table 2: Overview of marking-weaning data from SEMS

From Table 2 it is evident that SNH have more information from SEMs participants and new applicants on lamb losses between marking and weaning which is expected given that not everyone scans their flock. There are however still a significant proportion of “no data” entries as Table 2 demonstrates.

There are a further 4 holdings which have provided marking and weaning data for a longer period than 2015-2019 which are detailed in Table 3 below:

Area	Holding	Lambing Location 2020	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
A&B	62	IB	576/577	578/572 (1%)	610/606 (0.6%)	600/598 (0.3%)	615/599 (2.6%)	561/560 (0.1%)	609/585 (3.9%)	529/518 (2%)	549/541 (1.4%)	539/527 (2.2%)	512/505 (1.3%)	516/515 (0.1%)
A&B	63	H	No data	486/480 (1.2%)	507/471 (7.1%)	426/409 (3.9%)	374/373 (0.2%)	380/375 (1.3%)	402/351 (12.6%)	371/341 (8%)	329/339	464/437 (5.8%)	385/373 (3.1%)	388/380 (2%)
A&B	64	IB, H	No data	No data	738/733 (0.6%)	828/815 (1.5%)	700/677 (3.2%)	592/532 (10.1%)	695/621 (10.6%)	538/469 (12.8%)	646/572 (11.4%)	563/439 (22%)	342/286 (16%)	447/376 (15.8%)
A&B	11	IB, H	No data	No data	No data	No data	No data	No data	566/541 (4.4%)	549/519 (5.4%)	526/460 (12.5%)	526/448 (14.8%)	374/284 (24%)	No data

Of the 138 holdings currently participating in the SEMs, SNH have marking-weaning data for 64 holdings (46%). Given that the majority of holdings should have this information available, it would be useful if this information could be submitted for an increased proportion of land managers. The more information SNH has from land managers the better placed they are to try and understand and address issues and examine patterns of loss, particularly in areas where WTE have recently re-established.

There are only really two holdings at present, holdings 62 and 64, where there is an understanding of lamb loss before and after the re-establishment of WTE in these areas. This has been possible as detailed records have been provided by the land managers and WTE have only recently re-established within the last 10 years in these areas. A comparison can be made for these Farms unlike in other areas, where detailed records might be available but WTEs have been re-established for a number of decades, in places such as Mull and Skye for example.

There are a number of factors which influence levels of loss and these figures should not be used in themselves to associate all changing patterns of lamb loss with WTE predation (although they are a useful indicator of trends). There are years such as 2018 with the associated “Beast from the East” storm at the start of spring that will have had significant impacts on the levels of loss experienced and that is reflected in some of the percentages from that year.

With the recent revisions to the SEMS and the attempt at a more targeted approach at trying to address issues, the above information will be a useful tool in identifying holdings and targeting resources against the backdrop of a more competitive scheme.

It is recommended that support for enhanced measures through the revised approach is targeted at holdings where record keeping and reporting is of a high standard and where there are patterns of increasing lamb loss. This will ensure that SEMS resources are targeted at those experiencing the most significant impacts associated with WTE presence.

4. Recommendations for Future Data Collection

The following recommendations are suggested as a result of the collation of data from the SEMS from 2015 to date.

1. It is evident from a review of available information that there is a proportion of “unknowns” for some of the key factors that are discussed at site visits and reported on. Attempts should be made during follow-up visits or discussions with land managers to collect this information. A standard set of questions or recording criteria should be considered for future reporting forms.

2. It is evident that there is a significant proportion of “no data” entries relating to the return of Flock Management Log information. A review of this form for those carrying out standard measures will be carried out to determine if there are factors inhibiting the return of this information.

Discussions with NFUS and SCF representatives should take place to encourage more detailed reporting to the Scheme by all members. Consideration of Management Agreement payment processing only once the minimum standard of reporting has been achieved should be discussed.

3. The reporting form for those carrying out enhanced or capital measures has recently been developed, a review of the ease of use and effectiveness of this will take place at the end of the 2020 season when the first returns are submitted.

4. Consider as a minimum requirement the recording and reporting of annual marking-weaning data in SEMS Flock Management returns, as for the majority of holdings this information should be available.

SEA EAGLE MANAGEMENT SCHEME 2020

Information for Applicants

1. INFORMATION

The Sea Eagle Management Scheme (SEMS), which has been in place since 2015, has been revised for 2020 to provide more flexibility for farmers and crofters who wish to implement management to mitigate against the impacts caused by sea eagles across their breeding range in Scotland.

Following work done under the Sea Eagle Action Plan to develop a toolbox of management measures, the revised scheme aims to roll out support for farmers and crofters wishing to undertake these measures.

The aim of the scheme is to reduce the impacts of sea eagles on affected farms and crofts.

The Sea Eagle Management Scheme is managed by local stakeholder groups set up across the sea eagle range and administered, on their behalf, by Scottish Natural Heritage (SNH).

The stakeholder groups are represented on a national stakeholder group comprising representatives from SNH, National Farmers Union Scotland (NFUS), RSPB Scotland, Forestry and Land Scotland (FLS), Scottish Government Rural Payments and Inspections Directorate (SGRPID), Scottish Crofting Federation (SCF) and Scottish Raptor Study Group (SRSG). Stakeholder groups have been set up in Argyll & Lochaber and Skye & Lochalsh. Other groups may be established where the demand arises.

2. HOW DOES THE SCHEME WORK

The scheme will operate from 2020 onwards, subject to budget approval. Practical support under the Scheme is available through:

- Provision of one-to-one advice from experienced contractors to land managers experiencing sea eagle impacts
- Co-ordination of recording/ logging of sea eagle activity and flock management information at a farm/ croft level
- Loan of scaring equipment
- Payments to land managers who undertake management measures which mitigate sea eagle impacts as part of their livestock management, through Management Agreements.

3. WHAT AREA DOES THE SCHEME COVER

The Scheme is available at all locations where sea eagles breed within Scotland. The core areas for breeding sea eagles are currently the Inner and Outer Hebrides including Mull and Skye, and also parts of mainland Argyll, Lochaber and Wester Ross.

4. HOW TO APPLY

Anyone who is experiencing sea eagle impacts and would like to participate in the Scheme should either:

- 1) Complete a 'Register of Interest' (RoI) form downloaded from the website or requested from SNH, and return it to SNH Cameron House, Albany Street, Oban, Argyll, PA34 4AE or email it to seaeaglescheme@nature.scot
- 2) Contact their local SNH office (contact details <https://www.nature.scot/about-snh/contact-us/area-offices>) who will inform a member of the Sea Eagle Management Team.
- 3) SNH or their contractors will supply you with an application form following a site visit. It can also be downloaded at <https://www.nature.scot/professional-advice/land-and-sea-management/managing-wildlife/sea-eagle-management-scheme>

Completed application forms should be sent by email to the Sea Eagle Management Scheme Mailbox - SEAEAGLESCHEME@nature.scot or sent by post to SNH Oban Office – SNH Oban, Cameron House, Albany Street, Oban, Argyll & Bute, PA34 4AE

Application forms should be completed with as much detail as possible and must include a map of your holding and details of management proposals. **Forms with insufficient information will be returned to you and may not be assessed or may only qualify for a basic level of funding (£500).**

5. WHAT THE SCHEME CAN OFFER

SNH staff will arrange for an advisor to respond to Registers of Interest and investigate on behalf of the local stakeholder group.

Scheme advisors will contact you directly* and:

- Investigate, as far as possible, what sea eagle activity is occurring in the vicinity of the farm.
- Help gather evidence of sea eagle impacts and the recording of any livestock losses due to sea eagles or other causes.
- Advise on measures to mitigate against sea eagle impacts.
- Arrange to loan equipment, where applicable, to use as deterrents or other mitigation.
- Make recommendations to SNH and the local stakeholder group on support for longer term management agreed with, and carried out by, the livestock manager.

Funding is available to support a range of measures to help support farmers and crofters manage land and livestock to mitigate the impacts of sea eagles.

*In preparation for a discussion with an advisor it will be helpful for you to have any records of sea eagle interactions with livestock available. It will also be helpful to discuss your management regime with the advisor.

6. MANAGEMENT AGREEMENTS

You can apply for funding to carry out certain measures if you manage sheep and other livestock in the presence of breeding sea eagles. Management measures should ideally be discussed/agreed with SNH staff or call-off contractors before applications are submitted. Management supported under any previous SEMS agreements will be taken into consideration when assessing your application.

The measures you can opt for are

1. Standard sheep management measures -See Para. 7 for more details.
2. Enhanced management measures – See Para. 8 for more details.
3. Capital measures – See Para. 9 for more details

Options 1 and 2 can be combined up to a maximum annual payment of £5000 but Option 3 cannot be combined with the other options.

If including Options 1 and 2, Applicants with a successful Application will be offered a **one** year SEMS Agreement with SNH.

If applying for Option 3, successful Applicants will be offered a **three** year SEMS Agreement with SNH. Payment for capital measures will be made in the 1st year of a 3 year Agreement only.

Proposals for enhanced management or capital measures must be discussed and agreed with SNH prior to the submission of an application.

Management Agreements are limited to 1 SEMS Agreement per agricultural business unless you manage two or more distinct flocks which are affected by different pairs of Sea Eagles.

7. STANDARD SHEEP MANAGEMENT MEASURES AND PAYMENT RATES

A range of standard measures is listed below. Your application should set out the measures you propose to carry out, and how these will help reduce the risk of sea eagle predation on livestock. Other measures will also be considered if supported by a justification.

Standard Sheep Measures	Payment Rates
Labour and shepherding costs at key times (e.g. lambing).	£8.18/hour
Treatment of tick and fluke to improve sheep health	£4.50/ewe
Supplementary feeding and nutrition/mineral blocks	£4.00/ewe
Scanning of ewes for separation of those with twins	£0.80/ewe

Measures are subject to area and financial limits as detailed below

PAYMENT LIMITS FOR STANDARD SHEEP MANAGEMENT MEASURES

There are limits to the amount you can claim for standard sheep measures. These are based on the area of land involved and the levels of sea eagle activity in your area.

The **maximum** possible allowance for standard sheep management measures on your holding is **£1500**, with the **minimum** being **£500**. This can be calculated as follows

- First 10 hectares: £15/ha
- 11 - 100 hectares: £7.50/ha
- 101 - 1000 hectares: £0.75/ha

Examples:

- for 100ha, the limit is £825/yr (10ha @ £15, plus 90ha @ £7.50).
- for 500ha, the limit is £1125/yr (10ha @ £15, plus 90ha @ £7.50, plus 400ha @£0.75).
- for 1000ha, the limit is £1500/yr (10ha @ £15, plus 90ha @ £7.50, plus 900ha @£0.75).

8. SUPPORT FOR ENHANCED MANAGEMENT MEASURES

Support of up to £5,000 per annum for enhanced management measures may be available. If the proposed enhanced management costs are below £5,000 you can apply for standard measures to work alongside enhanced management up to the **maximum level of £5,000 per annum where a detailed supporting justification is provided.**

This can apply where:

- there is considered to be significant impacts from sea eagles
- the application sets out a clear rationale on why the proposal will reduce the impacts
- the application is supported by the Local Stakeholder Group.

Examples of enhanced management measures include;

- additional shepherding that includes a monitoring and scaring element with a methodology and reporting format agreed with SNH;
- other measures agreed by SNH e.g. sponging of ewes

Please see the Supporting Annex Document for further information

Applications for enhanced management measures must be discussed and agreed with SNH in advance.

PAYMENT RATES FOR ENHANCED MANAGEMENT MEASURES

Enhanced Management Measures	Payment Rates
Enhanced Shepherding - to provide a scaring and monitoring element (with an agreed plan)	£12.80/hour
Away wintering of sheep	£20.67/per head
**Other—Management necessary to manage sheep around Sea Eagles	Contribution to actual cost

** These items do not have a standard rate. Payments will be based on actual costs and applications must be discussed in advance with SNH.

9. CAPITAL MEASURES

SNH will support capital measures which are aimed at reducing sea eagle impacts on livestock in certain circumstances. SNH will pay 60 % of the actual costs, up to a maximum of £10,000, as a contribution towards capital works.

Payment for capital measures will be made in the 1st year of a 3 year Agreement only.

Capital measures can be supported where:

- there is considered to be significant impacts from sea eagles
- the application sets out a clear rationale on why the proposal will reduce the impacts
- the application is supported by the Local Stakeholder Group.

Examples of capital measures include;

- purchase of scaring devices
- creation of lambing parks to allow vulnerable stock to be moved away from sites at risk of predation at key times;
- development of lambing sheds or polytunnels;

Capital measures must be discussed and agreed in advance with SNH.

Please see Supporting Annex Document for further information

Capital Measures	Payment Rates
Improving fertility of the ground through lime/slag application in order to enhance condition of stock and reduce the vulnerability of lambs to predation. Only semi-improved land will be eligible. No unimproved ground can be incorporated into this measure.	60% contribution to actual cost
Re-seeding of core hay/silage/grazing fields in order to enhance condition of stock and reduce the vulnerability of lambs to predation. (Specific fields to be agreed with scheme administrators).	60% contribution to actual cost
Stock Fencing (only new fencing is eligible) *	60% contribution to actual cost or 60% contribution to total cost if using standard rate of £5.50 per metre for those carrying out work themselves.
Contribution towards the creation of new hill parks	60% contribution to actual cost
Development of lambing sheds or shelters and/or polytunnels	60% contribution to actual cost
Purchase of scaring/deterrent devices	Contribution to actual cost
Other—Management necessary to manage sheep around Sea Eagles **	60% contribution to actual cost

The contribution offered will be in line with other schemes such as CCAGS and will be capped at 60% of the actual cost. Two quotes are required for capital items and SNH will use the cheapest quote provided in line with our Management Agreement Policy.

* If your holding is a Registered Croft you cannot apply for stock fencing through the SEMS as support is available through CCAGS and your SEMS Application should instead target other options.

10. POSITIVE MANAGEMENT TO BENEFIT SEA EAGLES

You can apply to carry out management which is likely to benefit sea eagles. There is no set menu of options and each proposal will be considered on its merits.

Proposals could include improving availability of the sea eagles' preferred natural prey, which is a combination of water birds, wildfowl and fish (for example, by creating fish ponds or habitat for wildfowl). Supplementary feeding with approved carcass material might be appropriate in some circumstances and through following a detailed methodology agreed by SNH & RSPB (for example, in late winter in order to help birds to preferred sites). Measures to improve nest sites, or sites regularly used for roosting by adult or immature birds, might include selective felling and restructuring of forestry, or other woodland management. Work to reinforce nests, or provide nest platforms, may also be eligible, particularly if supported by a nest site management plan agreed with FLS and SNH (under FLS's guidance for woodland management and sea eagles).

Payment will be based upon a discretionary percentage of actual costs. You must discuss your proposals with your local SNH office before sending in an application.

11. OTHER REQUIREMENTS

Other requirements of a Management Agreement include the following:

- **Record keeping:** you must maintain a Flock Management & Sea Eagle Incident Log, which should be submitted annually to SNH. A template will be provided.
- **State Aid rules:** for State Aid purposes, some payments received under the scheme will be considered as Agricultural De Minimis funding. We will advise you of these elements when we offer you a management agreement. The total amount you can receive in Agricultural De Minimis funding in any three-year period is the sterling equivalent of 20,000 Euros. If you already receive Agricultural De Minimis funding from other schemes, this may affect the amount you can receive through the Sea Eagle Management Scheme. If you intend entering the scheme you will be asked to declare any other Agricultural De Minimis funding you receive. Other payments under the scheme will be considered to fall under the Agricultural Block Exemption Regulation.
- **Double Funding:** You will need to demonstrate that any other public funding received for the same projects does not constitute double funding.

The full terms and conditions of the scheme will be included in every Management Agreement.

12. HOW TO CLAIM

Claim forms will be provided by SNH. These should be completed and returned to your local SNH office.

Annual works such as shepherding should be claimed at the end of each year. A claims schedule will be provided in your management agreement.

You can claim for capital works once they are completed. For any actual cost capital works, payment will be based on actual costs quoted by suppliers. You will need to provide proof that the work has been done and submit receipted invoices when you submit a claim. We may carry out on-site inspections to verify claims prior to payment being made.

Annex 3

Sea Eagle Management Scheme – Summary of the Argyll Monitor Farm Project 2017-2020

1. Introduction

The purpose of the Monitor Farms is to trial novel management methods and where appropriate, licenced manipulation of white-tailed eagles' behaviour and nest structures with the ability to intensively monitor their impact and success in reducing lamb predation through trial and intense observation. The hope is that successful methods can be offered as part of a "tool kit" to help reduce predation from white-tailed eagles on other farms experiencing similar issues.

This report summarises the implementation of some of the actions identified in the White-tailed Eagle Action Plan, which include active scaring methods, licenced activities and diversionary feeding trials carried out on three Monitor Farms in Argyll over the first three years of the Monitor Farm program between 2017 and 2020.

Three Argyll farms volunteered to participate as Monitor Farms, with the intention that different trials would take place on each farm depending on what was felt to be most effective in each case. Two of the farms are on mainland Argyll, and one on the Isle of Mull.

For each farm, a program of thorough observations took place by trained observers to monitor the presence and the impact of WTE on lambing parks, and to monitor the effect of each trial on the WTE and subsequent predation levels at each site. During the first two years, observations were also carried out less formally on an Estate on the Isle of Mull to attempt to establish whether it was viable to introduce a trial on areas of the farm.

The Monitor Farm program started in spring 2017 with annual observation work being carried out on each farm during the lambing period since.

This report summarises the trials and activity that took place on each of the monitor farms since 2017 and a discussion on the progress made.

2. Summary

Field work in the form of vantage point (VP) observations started on Monitor Farms in April 2017 in response to the objectives outlined in the White-tailed Eagle Action plan. Field workers were recruited in consultation with some of the farmers participating in the Monitor Farm project.

Data sheets were designed to standardise the information collected between sites. Observers were asked to record the following:

- 1) The timed presence of eagles of both species and flight lines,
- 2) Full detail of interactions with livestock,
- 3) The reaction of birds to scaring techniques.

Field work commenced in agreement with farmers when lambs were turned out to the hill around the 3rd week of April. To begin with, field workers were asked to carry out four hour VP observations from a fixed position on each farm and to document any WTE activity or any other predator activity taking place during their shifts. One early, mid and late shift was

carried out each week on each farm plus one extra shift which would alternate each week so that over the course of the season, an equal amount of time had been spent on the farms during each part of the day. This was to try to determine when WTE were more active over the farms.

In 2018, following a bad winter and a lot of WTE activity being reported from the farmers, the observers were asked to take on a more active scaring role during their shifts by patrolling the lambing parks whilst still observing and reporting on WTE activity. This gave observers the opportunity to record any other evidence of predation that may not have been detected by farmers such as pluckings or carcasses. The durations of the shifts were also increased to five hours. A WhatsApp group for observers and farmers to share information was also set up in 2018 which enabled more flight lines and evidence of predation to be recorded out with the observers' shifts. The same format continued in 2019 with shifts extending further to six hours.

Different trials were carried out on each farm, and on Mull especially, the format of field work changed to accommodate the type of trial taking place. This is summarised below. Weather conditions each year varied, which may also have had a bearing on the success of lambing, alternative prey availability for WTE and the productivity of WTE, which in turn affected how much they impacted each monitor farm.

2017 was a mild winter with very favourable conditions for lambing during spring and early summer. 2018 however, was contrasting in that a long and extremely hard winter was experienced which left many higher areas under snow well into the spring. This resulted in a very short growing season for grass which meant that some farms had to supplementary feed ewes much longer to compensate for this. The winter leading into lambing in 2019 was relatively dry with a warm spring giving favourable conditions once again for lambing.

Each monitor farm and the trials that took place will be discussed separately below.

2.1 Farm A

2017 – The first year of observations at Farm A formed the baseline for WTE activity on the hill ground and allowed observers to familiarise themselves with the farm. A single vantage point was recommended by the farmer that would allow observers to see most of the hill ground and the area worst affected by WTE. Four shifts per week were carried out as detailed above and field work commenced on the 20th of April when lambs were turned out onto the hill.

During 2017 a licence application was submitted by FLS to SNH to remove WTE nests and alternative nests in the adjacent forest. By carrying out observations prior to the nests being felled we were then able to document any changes in their hunting behaviour once the nests had been removed. Inflatable scary men units were in place on the hill ground as had been the case previously on this farm. Through thorough observation, the location of the WTE nest was confirmed after the pair had moved from their usual nest site. They fledged a single chick. 212 hours of observation were carried out on this farm between 20th April and 31st of July and 89 WTE flight lines were recorded during these shifts.

The farmers noted that lambing percentages were much improved this year (2017) despite the observed high level of WTE activity. They felt that the presence of observers on the hill had deterred the WTE somewhat and reduced the amount of predation they would normally experience. Unfortunately, the neighbouring farm had reported larger losses than usual from WTE, so it was concluded that the observers had effectively pushed the problem next door.

2018 – The condition of the licence that was granted to FLS to fell all WTE nests and alternatives was that work adhered to the guidance note “Managing Forests for WTE” and was completed by the end of January 2018. The 2017 nest was felled along with nests used in previous years in a different part of the forest. Two fieldworkers continued to monitor the pair to see where they might establish a new nest, with their previous alternatives having been felled. The pair built a new nest 500m away from one of their original nests and slightly closer to the farm boundary.

Observations started as they had the previous year on the 23rd April. This year, the neighbouring farm was incorporated into the programme of observations as they had been badly affected by WTE in 2017. It had also been decided to trial diversionary feeding in the adjacent forest near the new WTE nest. A trail camera was used to document whether the birds attended the feed site, but unfortunately they did not take an interest in the food.

After a month of observations, farmers reported an unsustainably high level of predation on their lambs, therefore it was decided to increase the length of shifts to 5 hours, and stationary observations were changed to active patrols of the lambing parks and hill ground. 270 hours of observations were carried out between 23rd of April and 31st July, and 81 flight lines were recorded. The farmer and observers also had an option to use bird scaring rockets, following an agreed protocol, in an attempt to deter WTE from the hill park if they were seen. Rockets were fired on two occasions, and the birds reacted to both attempts and flew away. It was not documented whether those individuals then returned to the area after the rocket activity had ceased. In addition to the flights recorded by the observers, a further 30 flights were recorded by the farmer and shared in the WhatsApp group, as well as five carcasses and seven “pluckings” where wool had been plucked from a lamb but there was no carcass left.

The WTE nesting in the adjacent woodland raised a single chick. FLS staff fitted a satellite transmitter to the chick when it was 9-10 weeks old. This enabled FLS to track its dispersal once it had fledged. The juvenile didn't stay in the area long before dispersing to the Inner Hebrides.

Despite the increase in hours, additional shepherding effort and scaring on the farm, the farmers felt that the 2018 lambing season resulted in some of the most significant lamb losses to WTE predation to date. The neighbouring farm was concerned that another year like 2018, between weather and WTE predation, would be an end to their hill flocks as again they didn't have enough ewe hogs to sustain the hill flock or wedder lambs to sell. This year at weaning, the farm was missing 38 lambs since marking in June which the farmer felt was mainly down to WTE predation.

2019 – This year the length of shifts increased again to six hours to include more extensive walk overs and recording of signs of predation such as carcasses and pluckings as well as flight lines.

Observations started on the 19th of April. Helium filled bird scaring balloons were installed at four fixed positions on the farm as scaring devices. The balloons were tethered to shackles drilled into boulders. They looked very obvious due to the shiny material catching the light and because of how they moved in the wind. They may have been effective as WTE scarers but the trial was halted because of the significant risk of injury to livestock posed by the tethers especially when rain or a drop in temperature caused the balloons to drop to the ground. The balloons were replaced by four whirling devices which spun around and reflected light. Unfortunately these devices proved to be too fragile for hill conditions and all disintegrated rapidly.

Diversionsary feeding also continued in the adjacent FLS Forest between September 2018 and June 2019. A ground site and a platform were used with a variety of prey, however the WTE did not take an interest in it at all. 271.5 hours of observation took place here between both farms, but only 14 WTE flight lines were recorded. The WTE nesting in the forest failed during incubation so this may have accounted for the fact that so few flights were recorded. Observations ended on 31st July after clipping. The farmer also recorded 49 additional flights over the farm. No lamb remains were found, but two lamb remains were recorded on a neighbouring farm and reported via the WhatsApp group.

Farmers on the monitor farm recorded no substantial losses to WTE. They noted that there were fewer sightings of WTE and fewer losses with only six lambs found dead out of 521 turned out onto the hill. The farmers believe that there is a possible link between the nest failing and fewer lambs being lost, and therefore strongly support the notion of manipulating the productivity of the birds in future years to reduce predation.

The neighbouring farmer to the east of the Monitor Farm, Farm B, suffered greater losses this year with 96 lambs unaccounted for in one hirsel and 124 from another. This occurred despite the formation of hill parks to allow extra shepherding. This farmer reported a greater number of WTE sightings on lower hills. His stock numbers have been further reduced due to lack of suitable replacements.

Year	Number of hours of observation	WTE sightings
2017	212	89
2018	270	81
2019	271.5	14

Farm A/Farm B – Hours of observation and WTE sightings

Year	Turn Out	Found Dead	June Marking	Found Dead	July Clipping	Found Dead	September Spanning
2017	545	4	539 -2	0	534 -5	0	527 -7
2018	550	7	512 -31	0	512	0	505 -7
2019	521	5	516	1	515	0	515

Farm A's lambing figures during the study period. Numbers highlighted in red indicate losses that are unaccounted for that have not been found dead.

Due to the limited success of the trials that had taken place to date on the farm, it was emphasised by the farmers that momentum should be maintained with trialling nest manipulation. During the winter of 2019, discussions about the next step in nest manipulation took place at a National Panel level. The possibility of removing eggs from the nest to deliberately cause nest failure was discussed. However there was disagreement amongst members of the panel about the best course of action to take and it was felt that more time was needed to clarify the options with input from SNH licencing team. It was felt that egg manipulation was a step too far considering that other less intrusive options had not yet been trialled, for example a more thorough attempt at diversionsary feeding, and felling the coupe containing the nest tree.

As an alternative in the interim, it was suggested that the nest trees were removed again but this time at a much later date and closer to the laying date where it might deter the birds completely from rebuilding another nest. The attempt to fell the nests in 2017/2018 had allowed the birds' ample time to rebuild another nest before the beginning of the breeding season.

A licence was granted to remove nest trees and new nesting attempts before 10th of March 2020 (before the anticipated lay date based on previous years' data), however the birds didn't appear to be nesting in the forest this year.

Based on the field work carried out by two observers, there were suspicions that the birds had relocated a significant distance away to the other side of the nearby Loch.

Farmers have provisionally reported a good lambing year in 2020 with no predation reported and barely any sightings of WTE.

2.2 Farm C

2017 – As with Farm A, the first year of observations at Farm C also formed the baseline for WTE activity and allowed observers to familiarise themselves with the farm. A single vantage point was recommended by the farmer that would allow observers to see most of the glen and the area worst affected by WTE. Four shifts per week were carried out and field work commenced on the 20th of April. 264 hours of observation took place and during this time, 52 WTE flights were recorded. It was thought that the WTE pair affecting this farm on a nearby offshore island had raised a chick but because of access complications, the nest was not properly monitored.

The farmer at this site used bird scaring rockets to deter WTE from the glen, but their effect was not documented by observers in 2017. Observations ended on 31st of July after clipping.

2018 – Observations started on the 23rd of April, and after a month of observations the length of shifts increased to five hours due to the reported high level of predation occurring. The nature of the observations changed to active patrol of the glen which enabled observers to record other evidence of predation. 257 hours of observation and patrolling was carried out and 32 WTE flights were recorded, including one observation of a lamb being carried westwards in the direction of the nest. The farmer recorded 26 additional WTE flights through the WhatsApp group as well as four carcasses and seven pluckings.

A number of attempts to use bird scaring the rockets, following agreed protocols, took place in the Glen to deter WTE. When this took place, the reactions of the birds were recorded in order to gauge whether they made a difference or whether the birds would habituate to them. One scary man unit was also in use in the glen but was left in situ and consequently was ineffective.

The farmer stated that this year had been very difficult in terms of the effects on the flock due to the severe weather over winter followed by a poor summer. This was compounded by initial fox predation issues, with more serious issues associated with WTE following, which the farmer felt had a more serious effect on the flock. He also thought that having the observers move around the hill helped keep the birds away when they are there and likewise the rockets. However he said that the WTE just come back and after 13 years, his flock has continued to suffer the effects of year on year predation and continue to terminally decline.

2019 – The length of the shifts was also increased here to 6 hours to include more extensive walk overs and recording of signs of predation such as carcasses and pluckings, as well as flight lines.

Observations started on the 19th of April. Helium filled bird scaring balloons were also installed here at 4 fixed positions on the farm. As with Farm A, the balloons were removed from Farm C due to the significant risk of injury to livestock posed by the tethers, especially

when rain or a drop in temperature caused the balloons to drop to the ground. The balloons were replaced by 6 whirling devices in the glen. Unfortunately these devices proved to be too fragile for hill conditions and all disintegrated rapidly.

363 hours of observations took place, which included observations extending onto the neighbouring hirsle on Farm C's hill. Despite this only four WTE flights were recorded by observers. The farmer recorded 44 flights via the WhatsApp group and 18 lamb remains/pluckings were recorded.

No rockets were fired in the glen by observers this year due to lack of flights observed, but the farmer fired a few when he saw the birds in the area. A diversionary feeding site was also set up on the WTE's flight line into the glen from the offshore island nest. Unfortunately there was no evidence of the birds using this despite a trail camera being installed to document this.

Access restrictions remained in place for the island nest site making it difficult to monitor the WTE pair, however it was confirmed by fieldworkers that the WTE pair on the island raised a single chick in 2019.

112 lambs were unaccounted for out of 406 scanned or born across three farms in the area in 2019, including the monitor farm itself. A large proportion of these were assumed to have been taken by WTE. This was despite many hours of additional shepherding by farm staff as well as observers. 130 hours of fox control also took place on these farms.

Year	Number of hours of observation	WTE sightings
2017	264	52
2018	257	32
2019	363	4

Farm C – Hours of observation and WTE sightings

2.2 Farm D

2017 – The proposed plan for this monitor farm was to carry out an intensive trial of diversionary feeding as had been done successfully by RSPB in 2013. It was agreed with the farmer that feeding would commence once hatching had been confirmed at the WTE nest. Should the WTE not hatch, it had been decided to postpone diversionary feeding at the risk of keeping the WTE near the lambing park if they might otherwise disperse. Both pairs of WTE affecting this farm failed in 2017 so it was agreed with the farmer that diversionary feeding should not go ahead this year. Observations took place anyway to establish a baseline for activity at the farm and to see how much the WTEs use the area if they fail.

Unfortunately due to the lack of suitable volunteers on Mull, and ferry logistics, only 3 shifts per week were carried out here unlike the 4 on the mainland monitor farms. Despite this, 100 hours of observation took place and 56 WTE flights were observed. Observations ceased at the end of June after marking in agreement with the farmer as not much activity was being witnessed.

2018 – This year the resident WTE moved to one of their alternative nest sites further away from the lambing park. The WTE hatched young so with agreement from the farmer and the private forestry where they were nesting, diversionary feeding commenced on a knoll within sight of the nest. Damaged salmon was donated to the project by Scottish Sea Farms. The second WTE nest affecting this farm had also moved to an alternative site slightly further away from the lambing park. It had been suggested that diversionary feeding took place at this nest also, however the landowner did not grant permission for this to take place.

Feeding started at the nest nearest the farm on the 30th of April and was provisioned every other day until the chick was ringed on the 29th of May. Evidence of the adult WTE taking salmon from the feed site was captured on a trail camera located nearby. Salmon remains were also found in the nest when the chick was ringed. On top of visits to stock the feed site, 104 hours of observation were carried out and 23 WTE flights were recorded. Local RSPB staff assisted with stocking the feed site and carrying out observations. Four scary men units were also in use on the farm.

2019 - The resident WTE pair relocated again this year back to the nest nearest the lambing park. The farmer and landowner were happy for diversionary feeding to resume again this year. Feeding started earlier in mid-March to ensure the birds habituated to using the feed site before the chicks hatched and lambing had started. The pair were fed on a knoll near the nest and fed consistently at the same time of day. They were fed fish from fishmongers on Mull, and local RSPB staff helped in putting fish out and carrying out observations too. The birds were observed taking the fish almost daily. Observations took place every day after the fish had been put out to see whether it was being taken. This continued until the 17th of June when the chicks were ringed, with the frequency of feeding then reduced before ceasing on the 15th of July.

This year 240 hours of observation were carried out at this site, and 339 sightings of WTE were recorded. The high number of sightings was due to the fact that the off duty perch for the nest is visible from the observation location and the WTE were coming in regularly to take food from the feed site.

The farmer noted an increase in his lambing percentage this year, and claimed that this was probably the best experienced on this farm in 10 years. This applied to most of his hirsels. He felt that the diversionary feeding had reduced the losses previously experienced from WTE.

Year	Number of hours of observation	WTE sightings
2017	100	56
2018	104	23
2019	240	339

Farm D – Hours of observation and WTE sightings

2.4 Estate A

During 2017 and 2018 some observations were also carried out less formally and with less of a structure on Estate A on the Isle of Mull. The purpose of this was to gain a better understanding of WTE activity there in order to suggest some trials that could be carried out on the farm. However due to the location, scale of the area and the nature of the hill flock, it would be difficult to carry out a trial in this area and monitor its success.

However, the farmers had started trialling scary men in some locations on the estate and found them to be useful in reducing predation, so they continued using them in subsequent years. A new golden eagle territory was also discovered during the observations carried out in one of the areas.

3. Discussion/ Conclusion

3.1 Weather

It appears that there are many variables influencing whether a year is considered successful or not with regards to reducing WTE predation. The weather in the winter before lambing and during lambing obviously had a part to play in ewe and lamb health and survival. In 2018

following a hard winter and difficult spring with the “beast from the East” bringing heavy snowfall, predation on lambs was reported to be higher. This could have been because lambs were more vulnerable during the period of difficult weather conditions, or because poor weather also influenced the availability of alternative prey for WTE.

Monitor farms were able to supplementary feed their ewes through winter to ensure better survival and lambs were strong before being turned out to the hill. It may be that pressure from predators was greater this year as the weather had also taken a toll on alternative food sources.

3.2 WTE Productivity

The productivity of nearby WTE pairs seemed to have a mixed influence on lamb predation. It appears from the combination of Farm A's lamb data and observations that when a pair fails to hatch a chick, there is a reduction in predation as there is no need to provision a chick. However this seems to be contradicted by the reports of high predation on the neighbouring farm even during years when the WTEs here have failed.

The trend appeared to be similar on Mull, where in 2017 the birds failed and predation on lambs by WTE did not appear to be much of an issue. In subsequent years this trend has been difficult to observe because diversionary feeding has been successful and the impact on lambs has been reduced because of this – this was especially apparent in 2019 when the resident WTE pair raised twins whilst barely having any impact on lambs. It has been difficult to apply this theory at Farm C as it has not been clear whether the WTEs here have been successful in each year of the trials.

3.3 The “observer effect”/extra human presence on the hill

There is no doubt that the presence of the observers on the hill makes a difference to how much predation takes place. In 2017 during the first year of the trial, the mainland Argyll farmers noted a reduction in predation which was put down to the fact that there was extra human presence on the hill. However, in 2018 despite an increased number of hours spent on the hill, observers recorded fewer flight lines but data from the farms showed that predation was higher that year. This may have been because the WTE had learnt to avoid hunting on the farms when observers were present. The data gathered by the observers was useful to the farmers in terms of detecting evidence of predation that might have otherwise been missed. It was hoped that a pattern might have become apparent of areas of the hill or times of day that were worse affected than others however this has not been detected.

3.4 Scarers

Scary men units were in use on all monitor farms. It has become apparent that they have minimal effect on hill ground but can be effective on the in-bye provided they're moved around and maintained properly.

The use of bird scaring rockets seems to have had a mixed effect on deterring birds and driving them away from areas of the hill. Between 2018 and 2019, thirteen rockets were fired and the effects on the WTE's behaviour recorded (many more rockets were fired but 13 were fired and recorded properly by observers). Of the 13 fired, nine of them had little or no effect on the birds' behaviour, and only four of them caused the bird to change course or caused a fright reaction. This is a controversial and intrusive scaring technique that appears to be ineffective therefore it should be reconsidered as a management tool in future.

The scaring balloons and whirling devices that were trialled in 2019 had many issues associated with them. Mainly the risk they pose to livestock and their lack of longevity in hill conditions. There may be room for further experimentation with similar devices taking the lessons learnt in 2019 into consideration. This might come at some cost, but it might be

something that can be offered as part of a management agreement to farmers in future should a suitable solution be found.

3.5 Nest Site Manipulation

It is also difficult to judge whether the licenced manipulation of nest sites has been a success or not. After the first occurrence of this in 2017/2018, the birds simply built a new nest nearby. This had no effect on the birds' hunting behaviour – if anything they moved a bit closer to the forest edge and nearer the lambing park. When the licence was granted to fell the nest in March prior to the 2020 season (much closer to the egg laying date) fieldworkers were unable to locate any new attempts at constructing a nest in the forest. By this point the birds might have already relocated to the other side of the Loch and left the forest altogether.

This has not yet been verified due to restrictions in fieldwork and access as a result of Covid-19. There is a chance that the cumulative effects of nest site manipulation and scaring/patrolling efforts on the farm have made the forest less desirable for the birds but this can only be speculated. It may be that the birds simply relocated due to better natural prey availability elsewhere. Some aspects of nest site manipulation have yet to be tested such as removal of the entire coupe which would create a landscape scale change in the birds' nesting environment.

3.5 Diversionsary Feeding

For some sites, diversionsary feeding can be a very useful tool when done thoroughly with good understanding of the WTE's habits and hunting behaviour. For it to be done effectively, an enormous investment in time and resource is needed. This would not be sustainable for contractors to carry out in the long term, or on multiple farms at the same time. It may be an option for famers to carry this out with support from the scheme and with initial input and advice from experienced contractors. As we discovered on mainland Argyll, not every pair of WTE will respond to diversionsary feeding. The factors which influence this are not understood, but WTE are naturally more suspicious and cautious of feed sites than other raptor species such as golden eagle. The availability of natural prey in their environment might also influence their willingness to take food from an artificial feed site. With proper understanding of the local pair's feeding behaviour, diversionsary feeding could be a consideration at other trial sites in future.

In order to help with better analysis of the successes and failures of trials, taking into account variables such as weather and WTE productivity, it would be useful for all farms involved in the monitor farm project to keep accurate records of lambing from scanning onwards as was done by most in 2019.

Annex 4

Sea Eagle Management Scheme – Summary of the Skye & Raasay Monitor Areas Project 2017-2020

1. Introduction

The purpose of Monitor Farms is to trial novel management methods and where appropriate, licenced manipulation of white-tailed eagles' behaviour and nest structures with the ability to intensively monitor their impact and success in reducing lamb predation through trial and intense observation. The hope is that successful methods can be offered as part of a "tool kit" to help reduce predation from white-tailed eagles on other farms experiencing similar issues.

This report summarises the implementation of some of the actions carried out on three Monitor Areas on Skye and Raasay over the first three years of the Monitor Farm project between 2017 and 2020. The three areas that are currently engaged in the Monitor Farm project on Skye and Raasay joined the project at different stages and the approach taken on these areas to date has differed from the structured, continued observations that have taken place in mainland Argyll.

A summary of the work that has taken place on each of these Monitor Areas and a discussion on the effectiveness of the management measures trialled follows.

2. Monitor Areas

There are currently three Monitor Areas on Skye and Raasay extending to over 4,500 hectares and encompassing 3,171 breeding ewes. The term Monitor Area instead of Monitor Farm is used as unlike the Monitor Farm project in Argyll, the project in Skye and Raasay is currently engaged with two sheep stock clubs (SSCs) and one farm. For the purposes of this report these areas are referred to as SSC A, SSC B and Farm E.

2.1 SSC A

SSC A joined the Monitor Farm project in 2019 after discussions with representatives about how best to target resources to try and address issues with WTE predation that had been reported individually by crofters in this area of Skye for a number of years.

The project had originally established a monitor area on one of the crofts reporting issues and supported the application of lime on in-bye fields there. The aim of the liming work was to allow the retention of stock on in-bye areas for longer before ewes and lambs were then returned to the hill, the area worst affected by WTE predation.

Ewes from the heft worst affected by WTE predation were retained on the in-bye for longer and the project also supported some of the additional feed and dosing costs associated with this change in management.

Feedback on this management measure from the crofters on the initial monitor area was positive and there were clear benefits to the in-bye fields, allowing stock to be retained there for longer. However as the availability of in-bye was limited, there were limits to the number of stock that could be held in these areas and significant WTE impacts were still being experienced in the wider township, in particular on the open hill areas of the common grazing used by SSC A.

In consultation with the crofters on the initial monitor area, it was felt by all that the best way to target project resources going forward in this area was not on an individual croft level but at the larger scale of SSC A, which the majority of the crofting township were members of.

Support on an individual croft level would still be available through the Sea Eagle Management Scheme (SEMS) and individuals could decide whether to apply for measures such as in-bye improvements which had worked successfully on the initial monitor area.

SSC A has an exceptionally high density of eagles of both species and variable age classes. Several territorial pairs of both species of eagle are resident and impacts on livestock have been sustained and recorded on numerous occasions over the past three years. Post mortems have confirmed large raptor strike on several occasions and SSC A have been keen to find adaptive solutions and work to try and mitigate the impacts from WTE's.

In order to inform decision making and try and address the issues being experienced on SSC A, call off contractors have been carrying out additional monitoring in this area which has included checking the productivity of known WTE territories and carrying out observations on known roosting areas to identify individual WTEs that are using the SSC area and better understand their movements.

Alongside this work, SSC A contracted a shepherd in 2019 to deliver a programme of structured additional shepherding which included logging WTE activity on a daily basis during the lambing period. This was supported by the SEMS in 2019 and led to the development of the "Enhanced Shepherding" measure. SSC A have again employed the same shepherd to deliver Enhanced Shepherding in 2020 and a separate report covering this work will be available.

SSC A have demonstrated an innovative approach to applications for SEMS funding which has also included the trialling of away-wintering gimmers from their most affected heft in 2019-2020. The lambs of gimmers are the most vulnerable individuals in the flock and the SSC wish to determine whether delaying breeding from gimmers for a year, ensuring they are in the best possible condition to have their first lamb, reduces the likelihood of predation from WTE. The continued trial and support for measures such as this will hopefully identify potential management measures that can be rolled out to others, which the shepherding work on SSC A has already demonstrated.

2.2 SSC B

SSC B was added to the Monitor Farm project in 2018-2019 following reports of increasing levels of lamb loss associated with WTE predation.

In order to better understand the issues being experienced on the extensive areas of open hill grazed by SSC B, call-off contractors have carried out site visits over the past two seasons, including visiting known WTE nests and surveying remote coastal habitat to gain a better understanding of WTE activity. Call off contractors have also initiated discussions with affected crofters to try and build a picture of where impacts are potentially focused and target resources and potential management measures in those areas.

There was initially a poor understanding of WTE distribution and behaviour on SSC B however survey work has helped to improve this picture but further co-ordinated work is needed. This work was planned and resourced for delivery in April 2020 but was unfortunately cancelled due to Covid-19 restrictions and will be now be completed in 2021.

An Accredited Business Advisor was identified to offer Integrated Land Management Planning (ILMP) advice to SSC B through the Farm Advisory Service. This offer was highlighted as an opportunity to take advantage of current government funding as an incentive to SSC B to create a sustainable and profitable future for their business and combined with SEMS support, would be used to trial a wider scale approach to addressing the issues being experienced.

This offer was followed-up in March 2020 and a response from SSC B has not been received as yet. It is hoped that this approach can be taken forward with SSC B as a trial and with additional monitoring and planned field work, the current situation on SSC B can be managed more effectively going forward.

2.3 Farm E

Farm E has been involved in the Monitor Farm project since 2017 and a number of different management approaches, accompanied by survey work has been delivered in order to try and address ongoing predation of lambs by WTE.

This has included the trialling of scaring devices on in-bye lambing parks, the trialled removal of stock from areas of highest impact and the provision of advice and support for an Agri-Environment Climate Scheme (AECS) application targeted at improving habitat condition for natural prey species.

Scaring devices proved to be largely ineffective on Farm E and whilst the removal of stock from the areas of highest impact did address the issues here, on their return stock were again subject to predation.

A significant AECS contract application for Farm E was worked-up with assistance from call-off contractors and the qualifying criteria for the last round in 2020 was met. A formal offer was eventually made just as Covid-19 became apparent and Farm E reluctantly turned down the contract. The basis of the work was to try and provide a more structured management of livestock across the landholding and support wider biodiversity and habitat health with an aim of encouraging other prey species and reducing attention on livestock by WTE's.

Going forward this approach could be reconsidered if there is a future AECS round or alternatively applications could be made, if appropriate, to future formats of this Scheme with a similar aim of addressing natural prey availability.

Further discussions are to take place in due course with the representatives at Farm E to try and identify further options that could potentially address the impacts being experienced here. This could include the use of more structured observations or shepherding which have been delivered on mainland Argyll Monitor Farms and SSC A if resources to deliver this work on Skye can be identified.

2.4 Other areas engaged during this period

Significant work has been carried out on Peninsula A during the period of the Action Plan. This followed an initial request for engagement and discussion over the trialling of potential nest site manipulation by a Community Group and crofters in this area, the latter of which are experiencing significant levels of lamb loss associated with WTE presence.

Discussions over potential nest site manipulation in the Community Forest broke down as a consensus on a way forward could not be agreed between different parties. However a

significant amount of licenced monitoring work was delivered by call off contractors including nest clearances, trail camera installations and colour ringing which has helped to improve our understanding of the behaviour of resident WTE pairs on the peninsula.

Separate to this SNH has been engaging with the affected crofters on the peninsula to provide advice on the SEMS and help to address some of the additional costs incurred by these businesses as a result of having to change their management system. The monitoring work carried out has been essential to inform this and to date 3 crofts have successfully received support for enhanced measures.