The Orkney Native Wildlife Project

Strategic Environmental Assessment
Environmental Report

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Scottish Natural Heritage
Dualchas Nàdair na h-Alba
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1. INTRODUCTION

1.1 Project Summary and Objectives

This five year project aims to eradicate the stoat populations on Orkney Mainland, South Ronaldsay, Burray, Glimps Holm, Lamb Holm and Hunda and prevent the spread of stoats to the non-linked islands of the archipelago. The map of the Orkney mainland and linked isles can be found in appendix 1. Stoats are non-native to the Orkney Isle with the first confirmed sightings in 2010. Stoats have never been part of the ecosystem in Orkney and the ecological consequences of stoat introduction to Orkney are predicted to be devastating. The stoat will impact a whole array of species across the landscape, from hen harriers and short-eared owls nesting on the moors, voles, corncrake and wading birds breeding on farmland, seabirds breeding on cliffs and land, and twite nesting on coastal heath.

The Orkney stoat eradication will be the largest of its kind ever attempted, in terms of the land area targeted. It will also be the world's largest eradication operation carried out on an inhabited island. Around 20 of the Orkney Islands are inhabited, with a total population of around 21,000 people.

This eradication will be delivered by the Orkney Native Wildlife Project (ONWP) partnership, formed by the Royal Society for the Protection of Birds (RSPB), Scottish Natural Heritage (SNH) and the Orkney Islands Council (OIC). This project is funded by the National Lottery Heritage Fund and the EU LIFE in addition to financial contributions from the partners.

1.2 Policy Context

Requirement for Strategic Environmental Assessment (SEA)

Section 5(3) (b) of the Environmental Assessment (Scotland) Act 2005 triggers the need for SEA where likely significant effects on the interests of sites designated in terms of the EU Directive 92/43/EEC on the conservation of natural habitats and of wild flora and fauna (the Habitats Directive) have been identified as requiring assessment in terms of Article 6 or 7 of that Directive (an appropriate assessment).

The Habitats Regulations

Habitats Regulations Appraisal (HRA) is the term used to describe the procedure required by regulation 48 of The Conservation (Natural Habitats, &c.) Regulations 1994, (as amended) (The 'Habitats Regulations'). These regulations transpose the Habitats Directive into Scottish law. HRA is a rigorous, precautionary procedure that examines the potential negative effects on Natura sites of a plan or project; and which, by the end of the procedure must allow the competent authority to come to a firm conclusion as to whether there are no adverse effects on the integrity of Natura sites. The HRA has been appended as Annex 1.

1.3 Related Plans, Programmes and Strategies

Table 1 below details the related policy and regulatory framework which sets the context for the assessment.

Related Policy and legislative context.	Summary description	Relevance to the project
Nature conservation law		
EC Habitats & Species Directive 1992	Ensures the conservation of a wide range of rare, threatened or endemic animal and plant species.	The project has the ability to affect the habitats and species within Orkney's SACs. An HRA has been undertaken to determine if the project will have an adverse effect on the integrity of these SAC's.
EC Birds Directive 1992	Protects wild birds within the EU, including their eggs, nests and habitats.	The project has the ability to affect SPA birds. An HRA has been undertaken to determine if the project will have an adverse effect on the integrity the Orkney SPA's.
Habitats Regulations 1994	Implements Birds and Habitats Directives in the UK	Plans or proposals affecting any Natura site (SAC or SPA), would require a 'Habitats Regulations Appraisal' before proceeding. Some of these might require an 'Appropriate Assessment' before a decision is made about whether or not to proceed
Wildlife & Countryside Act 1981	The protection of sites and species and the licensing of activities that might affect them.	Licences may be required to disturb Schedule 1 breeding birds.
Nature Conservation (Scotland) Act 2004	Duty on public bodies to further the conservation of biodiversity; also protection for Sites of Special Scientific Interest and threatened species.	The project has the potential to affect Orkney SSSIs. SSSI consents will be required for potentially damaging operations.
Wildlife and Natural Environment (Scotland) Act 2011	The act amends existing legislation relating to the protection of certain birds, species, habitats and activities, aiming to make law on wildlife and the natural environment more effective and proportionate.	Any feral/domestic cats caught in the traps will not be released into the wild.
Animal welfare law		
Animal Health & Welfare (Scotland) Act 2006	This law protects the welfare of all vertebrate animals kept on a temporary or permanent basis in Scotland.	The welfare of stoats and any bycatch must adhere to this legislation.
Cultural Heritage		

Passed to the Future (Sustainable Management of the Historic Environment) 2002	Scottish Government policy on the historic environment.	The project had potential to affect historic or archaeological sites through the compaction of soil when placing traps and through physical damage to historic features of interest during digging of soil for trap placement.
Scottish Historic Environment Policy 1: The Historic Environment 2006	Sets out Scottish Government strategic policy for the historic environment. Provides a framework for more detailed strategic policies on the management of the historic environment	See above.
Other Related plans and Policies		
The 2020 challenge for Scotland's Biodiversity	Statutory role relating to the biodiversity duty in the Nature Conservation (Scotland) Act. Scotland's contribution to meeting the Convention on Biological Diversity	The project (if successful) will contribute to safeguarding Orkney's biodiversity.
The Orkney Local Biodiversity Action Plan 2018-2022	Measures to protect and enrich the biodiversity in the Orkney Isles.	See above.
RSPB's Policy on the Killing or Taking of Vertebrates (section 6.1.4)	Guiding policy of RSPB (lead partners) in the humane trapping of vertebrates.	The project conservation dogs cannot be used to flush out target species.

Table 1: Related policies and plans

2. SEA METHODOLOGY

2.1 Topics within the scope of assessment

Following the feedback received from the Consultation Authorities (CAs), the scope of environmental topics to be included in the assessment remains the same. These are detailed in appendix 2.

2.2 Assessment Approach

An environmental topics based approach to the assessment will be undertaken with a focus on the likely significant effects of the project on the key environmental objectives both during and following the completion of the project.

Within the SEA topics scoped in, the key environmental SEA receptors include:

Biodiversity, flora, fauna, soils

- SAC habitats :
    - Blanket bog

    - Dry Heath
    - Base rich fen
    - Vegetated sea cliff
- Birds
- Mammals

Population and Human health
- **population and human health**

Cultural heritage
- **cultural heritage including archaeology**

Given the requirements of the Habitats Directive, the focus of the SEA will be on the effects on biodiversity issues. For population and human health and cultural heritage the assessment will extend outwith protected areas to ensure these aspects are considered in full.

The SEA assessment particularly for biodiversity, flora and fauna focusses on protected areas and focuses on the nationally and internationally important designations which have connectivity with the project. A Habitats Regulations Appraisal (HRA) has been undertaken for all European protected areas which have the potential to be affected by this project. **It should be noted this HRA has considered virtually all Natura sites in the vicinity of Orkney[1] despite the ONWP presently being limited to Mainland, Burray and South Ronaldsay.** This is to ensure that if the ONWP – using its existing methodology - needs to expand to other Orkney Islands during its lifetime - this HRA has ensured that there will be no adverse effect on the site integrity (AESI) of any Natura site through the expansion of the project. **It should also be noted that although the HRA will have been completed, the HRA will need to be revisited prior to any expansion/ alteration of the Operational Plan, to ensure it remains fit for purpose**; i.e. that by using any more up to date information there remains no AESI despite the passage of time, and consent can be given.

Each receptor is detailed in a section which considers:
- A summary of how the eradication project affects the receptor both during and following the project completion. (i.e. broad scale)
- A summary of positive and negative effects of the eradication project on receptor both during and following the completion of the project. (i.e. broad scale)
- The distribution of receptor within the project area.
- An assessment of likely effects on important receptors within the project eradication area split into positive and negative (with link to mitigation / monitoring where appropriate).

Chapter 5 considers the 2 policy alternatives below:

- Long term control of stoats rather than eradication
- No control of stoats

Chapter 6 looks at opportunities to monitor the environmental effects arising from the Eradication of stoats in Orkney.

2.3 SEA Objectives

The following SEA objectives will form the basis against which the nature of the environmental effects on the receptors identified above will be considered:

[1] Sule Skerry and Sule Stack SPA was excluded due to its distance from the project and the inability of stoats to swim to those islands.

- Biodiversity, flora and fauna – *to conserve and enhance the integrity of ecosystems on the Orkney Isles.*
- Population and human health – *to protect human health*
- Cultural heritage including archaeology – *to conserve and enhance the historic environment in the Orkney Isles.*

2.4 Limitations to the Assessment

The SEA assessment particularly for biodiversity, flora and fauna and cultural heritage focusses on designated sites and focuses on the nationally and internationally important designations in the project area, consistent with the approach of assessment of significant environmental effects. However, the wider importance of freshwater and riparian habitats should be recognised and that not all species of conservation interest are restricted to designated sites. For species and habitats of conservation interest in the wider countryside it is recognised that there will be an ongoing need to assess data derived from general surveillance and monitoring activities that are already in place, and intervene with management if and when necessary. This will be informed by a more strategic approach to management being developed in due course.

The necessarily precautionary nature of HRA for European sites should be noted throughout the assessment and this rigorous approach needs to be viewed in this context.

As a result of the precautionary approach of the HRA and the aim of keeping the reporting succinct, many of the positive effects may get lost on reading because of their generic and long-term nature. Positive effects have been identified in each of the assessment sections, but mainly in terms of a general overview.

The HRA raises limitations in respect of validity of the timescale of the HRA assessment beyond 15 years. In particular, it states that “There should be a commitment to conduct an updated HRA after ten to twelve years, or at the point any new trapping site or other reinforcement is considered (whichever comes first). This should result in a new iteration of the HRA to take into account all relevant data acquired since the date of this HRA. Accordingly, this will require a refresh of the SEA within in a similar timescale.

3. ENVIRONMENTAL CHARACTERISTICS OF THE PROJECT AREA

3.1 Biodiversity, Flora and Fauna

In order to be able to understand the significant environmental effects of the ONWP it is necessary to set out some basic information about the current environment in Orkney relative to the issues.

The Orkney mainland and surrounding Orkney isles contain significant and rich biodiversity interest, reflected in the high proportion of internationally and nationally important designations.

In Orkney there are thirteen SPAs, five SACs and one Ramsar site. Seven SPAs in Orkney include marine areas that are important to breeding seabirds for essential resting and maintenance activities. Work is ongoing throughout the UK to identify a suite of wholly marine SPAs, and the following areas within Orkney waters are currently identified as proposed SPAs:

- North Orkney
- Scapa Flow
- Pentland Firth

A SEA consultation has proposed that the North Orkney and Scapa Flow sites should be combined to form the Orkney Inshore Waters SPA. Decisions on this new classification are currently pending by Scottish Ministers. Nationally protected sites include the Sites of Special Scientific Interest (SSSI) of which there are 36. The figures in appendices 3 and 4 show the distribution of protected areas across Orkney.

Stoats are not native to the Orkney archipelago where they are a recent introduction. First reports of stoats on Orkney Mainland were received in 2010, and the population has since expanded rapidly. Appendix 5 shows the recorded sightings of stoats on Orkney Mainland, South Ronaldsay, Burray, Glimps Holm, Lamb Holm and Hunda between 2010- 2018.

The lack of native mammalian predators on Orkney means that populations of wildlife, especially ground nesting birds, have flourished and distinct farming practices, such as free-range poultry rearing, have developed. But it also makes Orkney's native wildlife very vulnerable to the introduction of non-native predators.

Harper (2017) [2] speculated that stoats in Orkney might already be at carrying capacity, and that it was highly likely that they would be dispersing to the non-linked islands of the group, most of which are within stoats' swimming distance from each other.

There are currently no protected areas on Orkney which are in unfavourable condition as a result of the stoat introduction. An SNH commissioned report, "Stoat (Mustela ermine) on the Orkney Islands – Assessing the risks to native species"[3] has highlighted that stoats could have a serious detrimental effect on the endemic Orkney vole, (*Microtus arvalis orcadensis*), and consequently on the populations of Hen harrier, (*Circus cyaneus*), and Short-eared owl, (*Asio flammeus*) who rely on the vole as their main prey.

These two species of bird have sites of international importance for them in Orkney, and the appearance of stoats on Orkney is likely to lead to a significant deterioration in the condition of the species. This is not only through predation on the vole, but also through direct predation on the chicks and eggs of these birds. The opportunistic predation habits also means that other species of ground nesting birds such as terns, skua, and waders will occur. The predatory modes of stoats further indicates that internationally important seabird colonies of species such as guillemots, kittiwakes and puffins around Orkney are at risk from predation, especially as stoats are very mobile, and there are no top predators in Orkney to impact, in turn, upon the stoat population as their numbers increase.

3.2 Population and Human Health

In NHS Scotland's 2017-2018 public health report for the Orkney Islands the population of Orkney was estimated to be 22,000 in 2017, an increase of under 0.7% from 2016. The trend,

[2] Harper, G. 2017a. *The feasibility of eradicating stoats from the Orkney Islands.* Unpublished report, RSPB Scotland, 35 pp.
[3] Fraser, E.J., Lambin, X., McDonald, R.A. & Redpath, S.M. 2015. Stoat (*Mustela erminea*) on the Orkney Islands – assessing risks to native species. *Scottish Natural Heritage Commissioned Report No. 871.*

within Orkney as elsewhere in the Scotland, is currently towards an ageing population with an estimated 23.1% of the Orkney population over the age of 65 (18.7% Scotland), and 16.1% under 16 (16.9% Scotland)**.** Life expectancy at birth in Orkney is greater for females (82.7 years) than males (80.3 years).

3.3 Cultural Heritage

Orkney is internationally renowned for its historic buildings and archaeological remain, with the Heart of Neolithic Orkney World Heritage Site, 373 Scheduled Ancient Monuments, 626 listed buildings and 3 Gardens and Designed Landscapes.

3.2 Existing Environmental Issues Relevant to the Project

The Orkney vole is under serious threat from predation from stoats. If stoats continue to thrive on Orkney then there is real risk that Orkney voles could become extinct. This in turn would have a knock on effect on other vole predators such as hen harrier and short-eared owl.

This environmental issue is the primary reason for implementing the project.

4. ASSESSMENT OF ENVIRONMENTAL EFFECTS

4.1 Overview of Stoat Ecology

The stoat is a small carnivorous mammal native to the UK mainland and Ireland. They are not native to Orkney and were first sighted on the mainland in 2010.

Stoats can be found in both urban and rural environments where there is good ground vegetation cover. There main prey are rabbit and voles however stoat will eat gamebirds, waders, chicks and eggs. They can live up to around 5 years, but usually don't survive beyond 1-2 years old.

Stoats receive no legal protection in the UK and many farmer and gamekeepers will control them via trapping. Stoats are listed as a species of least conservation concern on the IUCN red list category.

4.2 Biodiversity

The main and most obvious impact on Natura sites is by the activities of the people involved in field work. This includes people accessing Natura sites to site traps by foot but also by vehicle, especially if over sensitive qualifying habits, or near birds that are sensitive to disturbance due to their sensitivity / time of year / or workers' proximity to roosting or breeding areas or other important locations. Checking traps over the lifetime of the project will produce similar types of impacts, though perhaps less intense and longer-lasting.

4.2.1 The Eradication of Stoats and Blanket Bog

Loch of Isbister SAC is located within the project area and is designated for its blanket bog habitat.

The operations of the ONWP could lead to a deterioration of the blanket bog habitat from the scale, nature and location of the project which will take place. This could occur initially from the setting up of traps, and later on from moving, checking, and maintaining them, as well as incidentally when accessing and checking other traps. The intensity of the work means that staff visits to deal with the traps will be occasional, but the habitat is sensitive to trampling especially by vehicles. The habitat will be able to withstand, and not be adversely affected by the very small amount of additional foot-trampling that will occur, but no vehicles should be used on the blanket bog.

Mitigation

Avoid deterioration of habitats by avoiding trap-setting on this habitat, and avoid use of all-motorised vehicles on this habitat or around within 50m from margins, unless on existing tracks

4.2.2 The Eradication of Stoats and Dry Heath

Stromness Heaths and Coast SAC is located within the project area and is designated for its dry heath habitat in addition to base-rich fens and vegetated sea cliffs.

The operations of the ONWP could lead to a deterioration of the dry heath habitat from the scale, nature and location of the project which will take place. This could occur initially from the setting up of traps, and later on from moving, checking, and maintaining them, as well as incidentally when accessing and checking other traps. However the intensity of the work means that staff visits to deal with the traps will only be occasional, and the habitat will be able to withstand the very small amount of additional trampling that will occur. Use of vehicles such as ATVs should be restricted to existing tracks.

Mitigation

Avoid deterioration of habitats by avoiding high value habitat areas and avoid use of motorised vehicles except on existing tracks.

4.2.3 The Eradication of Stoats and Base Rich Fen

Stromness Heaths and Coast SAC is located within the project area and is designated for its base-rich fen in addition to other qualifying habitats.

The operations of the ONWP could lead to a deterioration of the qualifying habitat from the scale, nature and location of the project which will take place. This could occur initially from the setting up of traps, and later on from moving, checking, and maintaining them, as well as

incidentally when accessing and checking other traps. The intensity of the work means that staff visits to deal with the traps will be occasional, but this habitat is very sensitive to trampling especially to vehicles. The habitat will be able to withstand and not be adversely affected by the very small amount of additional foot-trampling that will occur, but all vehicles should only use existing tracks.

Mitigation

Avoid deterioration of habitats by avoiding trap-setting on this habitat, and avoid use of all motorised vehicles on this habitat or within 50m of margins, unless on existing tracks.

4.2.4 The Eradication Project and Vegetated Sea Cliffs

Stromness Heaths and Coast SAC is designated for its vegetated sea cliff feature.

The operations of the ONWP could lead to a deterioration of the vegetated sea cliff feature from the scale, nature and location of the project which will take place. This could occur initially from the setting up of traps, and later on from moving, checking, and maintaining them, as well as incidentally when accessing and checking other traps. However the nature of the habitat (most growing on inaccessible cliffs) means that most of this habitat will be outside the areas that are accessible by ONWP staff. The remaining small areas of accessible habitat at the tops of cliffs means only a very small proportion of the qualifying habitat might ever be used by trappers to set traps. This along with the intensity of the work whereby staff visits to the traps will be occasional (roughly once every three weeks during knockdown phase), means the qualifying habitat will be able to withstand the very small amount of additional foot-trampling that will occur. Use of vehicles such as ATVs should be restricted to existing tracks.

Mitigation

Avoid deterioration of habitats by avoiding all vehicle movements on the habitat unless on existing tracks.

4.2.5. The Eradication of Stoats and Birds

It is considered that the project is necessary to avoid predation of eggs and chicks at SPA nest sites during the breeding season by stoats, to avoid a major negative impact to the SPA population.

The project is also required to safeguard the native Orkney vole from stoat predation. The Orkney vole is an important prey species for birds such as hen harrier and short eared owl. Once the eradication of stoats is complete, it is considered that this will have a positive impact on both SPA bird species and non-SPA bird species.

There is however potential for the project to cause short-term negative impacts on SPA birds. The main and most obvious impact on SPAs is by the activities of the people involved in eradication and monitoring field work. This includes the initial phase of people accessing Natura

sites to site and pre-bait traps by foot but also (rarely) by vehicle, especially if over sensitive qualifying habits, or near birds that are sensitive to disturbance due to their sensitivity / time of year / or workers' proximity to roosting or breeding areas or other important locations. Checking the traps over the lifetime of the project, as well as cleaning, and maintaining traps will produce similar types of impacts, though perhaps less intense but longer-lasting.

There are thirteen SPAs on Orkney which are designated for birds. Please refer to table 2 below. Out of the thirteen, the following SPAs are located within the project area and therefore may be impacted:

- Mawick Head SPA
- Orkney Mainland Moors SPA
- Scapa Flow proposed SPA (pSPA)
- North Orkney pSPA

Switha SPA is outwith the project area however the qualifying feature (non-breeding Barnacle goose) may use habitat within the mainland and linked isles and therefore could potentially be disturbed.

Other SPAs have been considered within the HRA undertaken for this project in the event that the project area may have to expand in the future.

Overall it is considered the project is necessary to for the conservation of the SPA birds.

Natura Site	**Qualifying Feature**	**Potential Negative Impact**	**Mitigation**
Marwick Head SPA	Seabird assemblage	The potential negative effect of the project is significant disturbance to birds from trappers and volunteer. This would mainly occur during the initial setting up of the traps, possibly including the use of vehicles to access areas near to nest sites to distribute traps. After the initial set-up phase trappers will also need to check traps on a regular though infrequent basis for the lifetime of the project. However, traps will not be located on, or at the edge of cliffs so there	The project will need to **avoid setting traps within specific distance of nesting areas for the ground-nesting species during their breeding seasons. Access routes to other traps will also actively avoid known locations of ground nesting birds during the breeding season**. This will minimise disturbance to less-than-significant levels for those species. The ONWP must ensure that the operational methodologies minimise disturbance to the qualifying interests, particularly in places and at times when disturbance would have increased impacts. This will be optimised by ensuring the ONWP keeps up to date on breeding bird and colony locations. **This means a protocol should be established**

		will be no negative impacts to the cliff-nesting species	**whereby local RSPB staff and volunteers keep the ONWP up to date on colony locations. ONWP should also use sources such as the JNCC seabird colony database. Particularly important in this regard are the tern species and other ground-nesting smaller gull species. This protocol should be set up with clear responsibilities and mechanisms in place so that ONWP can avoid significantly disturbing the qualifying species in line with the site's conservation objective.** Despite the levels of minimised disturbance from people checking traps in areas near to the terns, the consequences of this degree of disturbance are not as serious a threat to the qualifying species as stoats are, if they are allowed to remain.
	Guillemot	As guillemots are a cliff nesting species then no negative impacts are expected during the trapping phase as traps will be locate away from cliffs.	N/A
	Kittiwake	As kittiwake are a cliff nesting species then no negative impacts are expected during the trapping phase as traps will be locate away from cliffs	N/A
North Orkney proposed SPA	Red throated diver (breeding)	These birds are ground nesting and highly sensitive to disturbance. Potential disturbance during breeding season is possible due to trap setting.	RTDs are ground nesting birds, and the rationale is the same for why the 1st test is met for this qualifier as it is for the seabird assemblage. RTDs are highly sensitive species so ONWP staff will need to avoid setting, checking etc. traps within 750m of these birds' nests within the breeding season **(April 1st to September 15th inclusive**) in locations where ONWP staff could be seen by RTDs from the body of water including shoreline they

			use. Where ONWP staff can easily get closer without a direct line of sight to the loch/ lochan the RTDs are based upon for their breeding (e.g. due to topography), they can place traps (and maintain them etc.) closer to the water body, up to an absolute minimum distance of 100m from the shore. However, the actual distance within which it can be ensured that disturbance risk is minimised will be dependent on specific circumstances. In all instances where traps are operated within 750m of a RTD nest, great care should be taken when moving towards and away from the loch/lochan and when working with traps to move slowly, keep hidden at all times and remain vigilant for evidence of any RTD present having seen the trap setter/operator (this includes behaviour such as alertness and staring in the direction of the worker). In such circumstances ONWP staff should immediately but carefully move away from the loch/lochan until more normal behaviour is seen to be exhibited by the RTDs. In addition, access routes to other traps will also need to avoid known locations of RTD nests during the breeding season such that the breeding birds are not significantly disturbed. Again any observation of alertness from RTDs should mean that the disturbance creating the behaviour ceases This will minimise disturbance to the RTDs As with other mitigation measures such as outlined for Short eared owls and Hen harriers, ONWP staff should ensure they have as much prior information as possible about RTD breeding locations (whole loch-ans/small lochs or sites around larger lochs) prior to working with traps. Using historical or up to date data from RSPB and SNH staff. This will help focus mitigation in places, both where it is, and is not, needed.

	Eider (non – breeding)	The non-breeding eiders spend most of their time out on water therefore potential disturbance is unlikely.	N/A
	Great northern diver (non-breeding)	The non-breeding Great Northern divers spend most of their time out on water therefore potential disturbance is unlikely.	N/A
	Long-tailed duck (non breeding)	The non-breeding Long-tailed duck spend most of their time out on water therefore potential disturbance is unlikely.	N/A
	Red-breasted merganser (non –breeding)	The non-breeding Red-breasted merganser spend most of their time out on water therefore potential disturbance is unlikely.	N/A
	Shag (non-breeding)	The non-breeding shag spend most of their time out on water therefore potential disturbance is unlikely.	N/A
	Slavonian grebe (non-breeding)	The non-breeding Slavonian grebe spend most of their time out on water therefore potential disturbance is unlikely.	N/A
	Velvet scoter (non-breeding)	Velvet scoters use this pSPA outside of the breeding season and spend the vast majority of their time on the water. They are therefore not at significant risk from stoats, which mean the project is not aimed at their conservation	N/A
Orkney Mainland Moors SPA	Hen harrier (breeding)	Hen harriers are sensitive to disturbance during the breeding season therefore	These birds can be sensitive to disturbance during the nesting/breeding season, and measures to mitigate this impact are

		could potentially be disturbed when setting and checking the traps.	necessary to reduce it as far as possible. Most of the conservation objectives for this qualifier would be negatively impacted if stoats remain on Orkney. Most clearly, "Population of the species as a viable component of the site", "Distribution of the species within site" and "Structure, function and supporting processes of habitats supporting the species". Stoats would seriously reduce indigenous vole populations upon which the hen harrier and short-eared owl heavily depend as a food source. This loss of prey would have a very serious direct effect on the populations of these two bird species in Orkney. They are likely to also predate on the chicks and eggs of Hen harriers. The most probable negative effect of the ONWP is significant disturbance to nesting and breeding harriers and owls from trappers and volunteers. This would mainly occur during the initial setting up of the traps, which will happen across all of Mainland, Burray and South Ronaldsay over a period of time, probably including the use of vehicles to access areas with a cargo of traps to distribute. After the initial set-up phase trappers will also need to check traps on a regular basis. . **Regarding Hen harrier, the breeding season dates are March 15th to August 15th inclusive. Therefore, trap set-up must take place outside of these dates to avoid significant disturbance. However, if traps are found to be within 500m of nests once the birds begin to breed they should be removed and re-sited by trappers or volunteers as unobtrusively as possible, outwith 500m of any HH or SEO nest in order to avoid significant disturbance to the birds.** The project must ensure that the operational methodologies/ protocols minimise disturbance to the qualifying interests, particularly in places and at times when

			disturbance would have increased impacts. The ONWP must ensure that the operational methodologies minimise disturbance to these qualifying interests, particularly in places and at times when disturbance would have increased impacts. This will be optimised by ensuring the ONWP keeps up to date on breeding bird locations. **This means a protocol should be established whereby local RSPB staff and volunteers keep the ONWP up to date on any known HH nest locations including if possible where they are viable or if they have been abandoned. This protocol should be set up with clear responsibilities and mechanisms in place so that ONWP can keep up to date with active nests in order to avoid significantly disturbing the qualifying species in line with the site's conservation objective.** Despite the levels of minimised disturbance from people checking/maintaining etc. traps in areas (both within and outside the SPAs which the qualifiers use for hunting) the consequences of this minimised degree of disturbance are not as serious a threat to the qualifying species as the loss of the Orkney vole could be, if stoats are allowed to remain.
	Red-throated diver	Breeding red throated diver as sensitive to disturbance and therefore may be disturbed during the setting and checking of the traps.	ONWP staff will need to avoid setting, checking etc. traps within 750m of these birds' nests within the breeding season **(April 1st to September 15th inclusive**) in locations where ONWP staff could be seen by RTDs from the body of water including shoreline they use. Where ONWP staff can easily get closer without a direct line of sight to the loch/ lochan the RTDs are based upon for their breeding (e.g. due to topography), they can place traps (and maintain them etc.) closer to the water body, up to an absolute minimum distance of 100m from the shore. However, the actual

			distance within which it can be ensured that disturbance risk is minimised will be dependent on specific circumstances. In all instances where traps are operated within 750m of a RTD nest, great care should be taken when moving towards and away from the loch/lochan and when working with traps to move slowly, keep hidden at all times and remain vigilant for evidence of any RTD present having seen the trap setter/operator (this includes behaviour such as alertness and staring in the direction of the worker). In such circumstances ONWP staff should immediately but carefully move away from the loch/lochan until more normal behaviour is seen to be exhibited by the RTDs. These birds are very likely the same ones that use North Orkney pSPA for feeding.
	Short-eared owl (breeding)	Short-eared owl are sensitive to disturbance during the breeding season. Trap setting and checking may cause disturbance.	**The breeding dates to avoid trap-setting within 500m of nests are March 1st to August 15th inclusive. Therefore trap set-up must take place outside of these dates to avoid significant disturbance. In addition, during the lifetime of the project, traps should be removed and re-sited by trappers or volunteers if they are located within 500m of nests: as unobtrusively as possible and outwith 500m of any SEO or HH nest, to ensure they avoid significant disturbance.** The ONWP must ensure that the operational methodologies minimise disturbance to these qualifying interests, particularly in places and at times when disturbance would have increased impacts. This will be optimised by ensuring the ONWP keeps up to date on breeding bird locations. **This means a protocol should be established whereby local RSPB staff and volunteers**

			keep the ONWP up to date on any known SEO nest locations including if possible where they are viable or if they have been abandoned. This protocol should be set up with clear responsibilities and mechanisms in place so that ONWP can keep up to date with active nests in order to avoid significantly disturbing the qualifying species in line with the site's conservation objective.
	Hen harrier (non-breeding)	Hen harrier can be sensitive to disturb-ance whilst roosting.	**These roost sites are largely in deep heather in Orkney which means that traps will generally not be located there. However, if traps are to be set near known roost sites this must take place outside the dates these roost sites are used; or, if carried out during the dates of usage by the harriers, trap activities should oc-cur during daylight hours (avoid-ing an hour after sunrise and an hour before sunset) to avoid sig-nificant disturbance to the birds. During the lifetime of the ONWP physical checking, cleaning re-baiting etc. of these traps, should be done under the same con-straints as for trap-setting.** **The other potential issue is the accessing of traps elsewhere on the Moors disturbing Hen harrier roosts as peoples/vehicles pass to and from the traps. To avoid this disturbance the ONWP will need to ensure routes are located and used in such a way to avoid disturbance to known Hen harrier roost sites. This will minimise dis-turbance to less-than-significant levels for the species. To do this a protocol should be established by ONWP whereby local RSPB staff and volunteers keep the ONWP up to date on known HH roost locations. This protocol**

			should be set up with clear responsibilities and mechanisms in place so that ONWP can keep up to date with roosts in order to avoid significantly disturbing the qualifying species in line with the site's conservation objective.
Scapa Flow proposed SPA	Red-throated diver (breeding)	Sensitive to disturbance during breeding season.	The Red-throated divers that use this marine pSPA are also very likely to be qualifiers of Hoy SPA, or less-likely Orkney Mainland Moors SPA, and use these pSPA waters to feed in. Therefore impacts to the qualifiers of this pSPA from the ONWP will only occur outside its boundaries, i.e. at the terrestrial SPAs where the birds nest and breed. **See RTD entries under Orkney Mainland Moors SPA to see mitigation for these birds when at their breeding sites.**
Switha SPA	Greenland Barnacle Goose (non-breeding)	Geese roosting outwith the SPA on South Ronaldsay could be disturbed during setting and checking of the traps.	No mitigation is required. It is considered that any disturbance outwith the SPA will be minimal due to the nature and infrequency of the trapping work.

Table 2: Assessment of project on birds and mitigation

4.2.6 The eradication of stoats and mammals

By-catch is unfortunately likely to include some Orkney voles and other mammals such rats and other rodents. There should be a very limited number of by-catches during the project as entrance to the traps will be restricted by baffles to allow only stoats or smaller animals to enter any tunnel used.

Following the completion of the eradication project Orkney vole numbers will recover since they will no longer be subject to predation from stoats. Having a healthy population of Orkney voles also means that the Orkney populations of hen harrier and short-eared owl will benefit since the voles are an important prey species.

Mitigation

Experience from the Hebridean Mink Project (HMP) has shown that the use of specific predator anal gland lure (including both commercially available and 'home made' varieties) will help to reduce the incidence of these non-target kills, and perhaps more importantly maintain

the traps as available for the capture of stoats. Some vole kills will occur and will need to be tolerated, but they are unlikely to have a significant impact on the population and will certainly be fewer than the number of voles killed by the stoats the project removes. If it is found that certain traps, or trap areas, are yielding a particularly high catch rate of non-target species then adaptive management will allow for trapping in these areas to be reduced, so that the traps can be set in other areas where the balance of stoat to non-target captures is more favourable. A review of all bycatch will be monitored by the trapping team throughout the project and as part of 6-monthly adaptive management reviews

4.3 The Eradication of Stoats and Population and Human Health

This section considers the physical and mental health implications of the project. Stoats themselves do not pose a risk to human health however their carcass disposal (including by-catch disposal) could potentially affect human health. There is also a potential for the project to impact on the public's mental health as a result of the potential emotional distress people may experience when thinking about the eradication of stoats.

Physical Health

It is proposed that carcasses would be disposed at the Chinglebraes waste facility on Orkney. The waste would go into their clinical waste container and be disposed of through official channels.

SEPA also allows burial of small numbers of rodent carcasses (no more than 10) without the need for a licence or exemption, provided it is done without delay and meets the following requirements:

Carcasses **must not** be buried:

- within 250m of any drinking water supply; or
- 50m from any watercourse; or
- 10m from any field drain

- Carcasses **must** be buried:
- no less than 1m in depth
- in dry soil/ground only
- in sites where there is at least 1m of subsoil at the bottom of the pit.

Mitigation

It considered that mitigation in addition to the above measures for the burial of carcasses is not required.

Mental Health

A public consultation for the project has been held and no significant opposition was raised. The majority of the public understand the reasoning behind the project and are supportive. Mental health is therefore not concern a cause for concern.

4.4 The Eradication of Stoats and Cultural Heritage

Given the high number sites of cultural significance across Orkney there is potential during the trap setting phase to disturb soil/ground near recognised areas of cultural heritage.

Following the eradication of stoats there is not expected to be any impact on cultural heritage therefore no further mitigation in addition to that outlined below is required.

Mitigation

Access routes to and around sensitive sites will be agreed in discussion with Historic Environment Scotland and local site managers.

The digging of soil to the depth of >100 mm will not be done in the vicinity of archaeological features or any heritage sites. Care will be taken when operating in the vicinity of any such site, and as far as is operationally feasible, traps will not be placed adjacent to scheduled monuments.

5. ASSESSMENT OF PROJECT ALTERNATIVES

Alternatives to the project have been considered. The only two possible alternatives are thought to be:

- Long term control of stoats rather than eradication
- No control of stoats

1. Long-term control of stoats

The long- term control of stoats is not economically or practically feasible. It would require sustained resources and cooperation with numerous stakeholders for the foreseeable future which is not considered to be practical. There would also be a high risk of stoats spreading to the stoat free islands.

The environmental benefits to long-term control would also be less significant than total eradication as a reduced number of stoats would still continue to put pressure on the Orkney vole population.

2. No control of stoats

If stoats are not subject to control then it is highly likely that they will continue to spread throughout the Orkney Isles, including to the currently stoat free islands.

This increase in numbers over a larger area would have a serious impact on Orkney's native wildlife and could lead to the extinction of the Orkney vole which in turn would have serious impacts on their native predators such as hen harriers and short-eared owl.

It is therefore considered that the above alternatives can not effectively deliver the aims and objectives of the project.

6. MONITORING

This eradication operation will be supported by a monitoring programme, which will collect data on stoat abundance using tracking tunnels and motion-triggered trail cameras operated by citizen scientists and volunteers. Orkney's native wildlife will also be monitored by volunteer citizen scientists, and seasonal research assistants will collect wader and hen harrier productivity data to gather evidence on the conservation impact of the stoat removal in Orkney.

At the completion of a 2-year period with no confirmed reports of stoats, no stoats captured in traps or by monitoring tools (such as motion-triggered trail cameras, operated by volunteers), and no fresh sign detected by the conservation detection dogs, the eradication can be declared a success and the operation will end.

7. CONSULTATION ON THE ENVIRONMENTAL REPORT

The 6 week consultation period on this Environmental Report will run from Monday 8th June until Monday 20th July 2020. Due to the current restrictions as a result of Covid-19 the documents are not available to view in hard copy.

Responses to the consultation should be sent to Debbie.Skinner@nature.scot

LIST OF ACRONYMS AND ABBREVIATIONS

CA	**Consultation Authorities**
EU	**European Union**
HES	**Historic Environment Scotland**
HH	**Hen Harrier**
NHS	**National Health Service**
OIC	**Orkney Islands Council**
ONWP	**Orkney Native Wildlife Project**
pSPA	**proposed Special Protection Area**
RTD	**Red-throated diver**
RSPB	**Royal Society for the protection of Birds**
SAC	**Special Area of Conservation**
SEO	**Short-eared owl**
SEA	**Strategic Environmental Assessment**
SEPA	**Scottish Environment Protection Agency**
SNH	**Scottish Natural Heritage**
SPA	**Special Protection Area**
SSSI	**Site of Special Scientific Interest**

Appendix 1 - Map of Project Area

geo.View map

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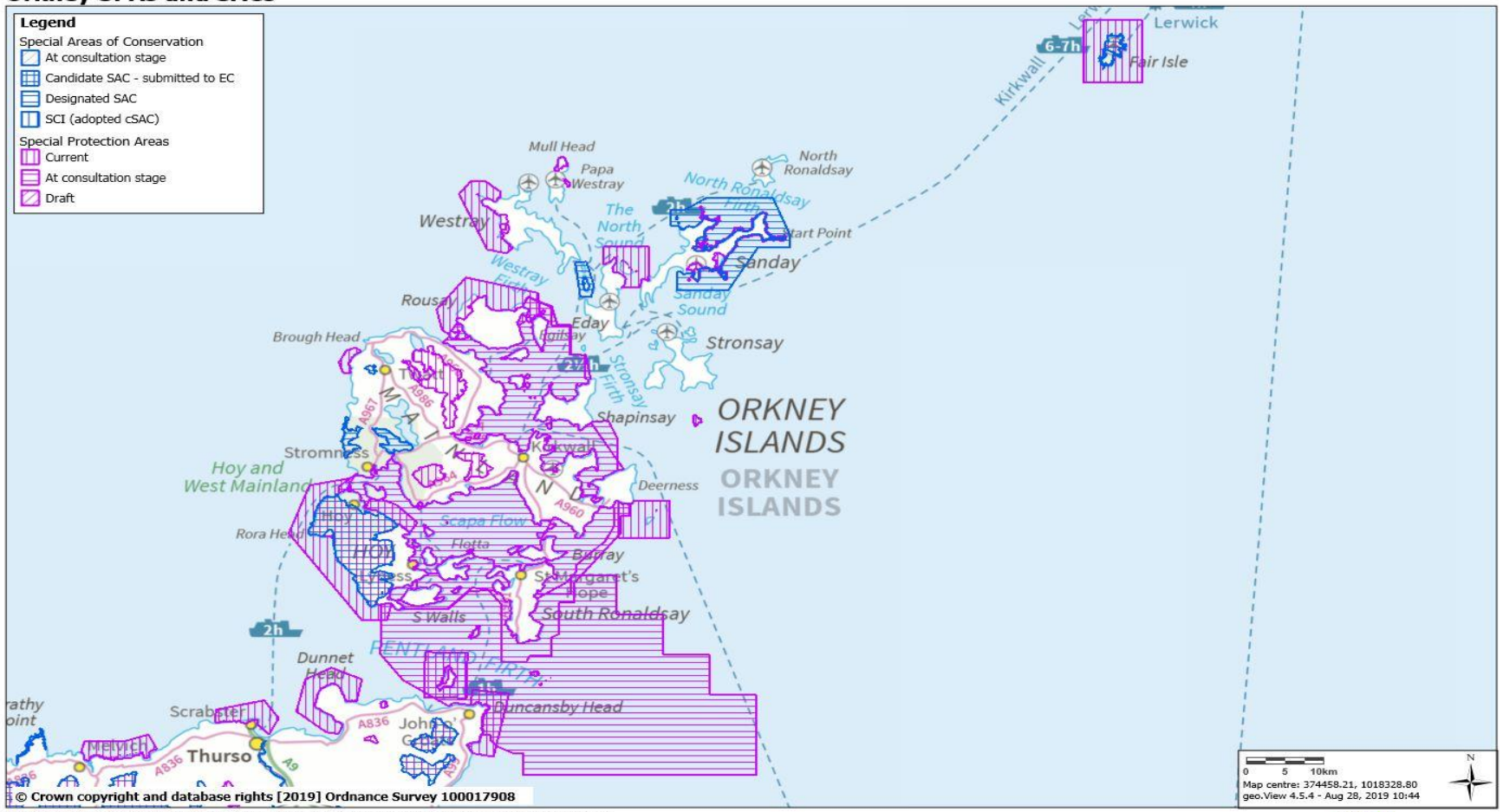
The project area covers Orkney mainland and the linked isles of South Ronaldsay, Burray, Glimps Holm, Lamb Holm and Hunda.

Appendix 2 - Environmental topics to be scoped in and out of the assessment process

SEA topic	Scoped in or out	Reasons
Biodiversity, flora and fauna	**In**	Stoats predate on many species of native wildlife on Orkney. The eradication of stoats should therefore have positive benefits to Orkney's wildlife. During the operation phase of the project there is potential for disturbance, damage and death to some of the wildlife on Orkney. There is also potential for habitats to be temporally damaged when installing and checking the traps.
Population and Human Health	**In**	Bio-hazardous animal waste will be a by-product of the project. This could potentially affect human health if not disposed of correctly.
Soils and geomorphology	**out**	No significant impacts to soils or geomorphology are anticipated.
Water quality, resource and ecological status	**out**	No significant impacts to water quality are anticipated.
Air	**out**	The project is unlikely to result in any significant changes to atmospheric emissions or air quality.
Climatic factors	**out**	The project's carbon footprint is considered to be minimal therefore not considered significant.
Landscape	**out**	There are not any landscape impacts anticipated.
Cultural heritage	**in**	There are a number of sites of historic value within the project area. The placement of traps could potentially have an adverse impact on these.

Appendix 3 – SACs and SPAs on the Orkney Islands, including the Mainland and linked isles.

Orkney SPAs and SACs



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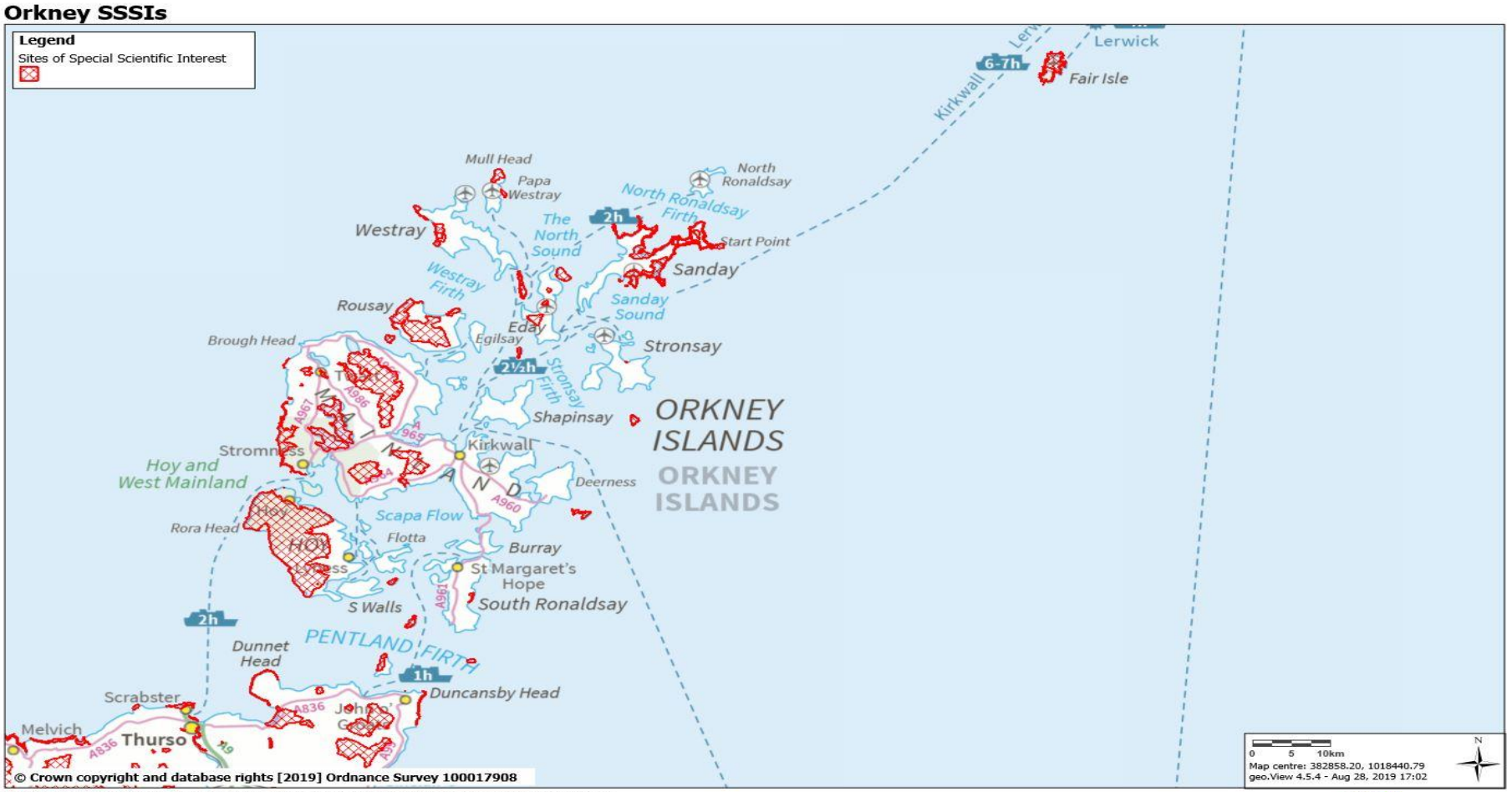
Appendix 4 - Sites of Special Scientific Interest on the Orkney Islands, including the Mainland and linked isles.



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Appendix 5 - Number of confirmed stoat sightings on Orkney between 2010-2018