MASTS - Making the Most of Masters – Project Proposal Form

Name and address of Organisation:

Uist Forest Retreat (UFR)
Taigh na Coille
Claddach Vallay
North Uist, HS6 5BY

Name of the key contact in Organisation:
Kathryn Johnson

Contact e-mail and phone number:
hello@uistforestretreat.co.uk 01876 560 894 / 07799 066 277

Title of proposed project:
A study of prey items during the raising of a white-tailed eagle at the nest, hunted in an area rich in both natural prey from a coastal environment and where unnatural prey such as livestock are plentiful.

NB. This project is dependent on the renewal of a licence for the installation of the camera. The project will involve analysing video data and, therefore, may be carried out remotely.

Project outline and intended outcomes:

Background:
In 2017 a pair of white-tailed sea eagles were identified with the use of a trail cam, as regularly using a particular roosting spot in a 1300 acre coniferous plantation on the island of North Uist. In 2018 they attempted to nest and the trail cam was removed. The attempt was unsuccessful, as the nest appeared to have collapsed. Later that year UFR, with support from RSPB, applied for a licence from SNH to film at the nest during the nesting season. A new remote camera system was installed. In 2019 a nest was built and a chick was raised successfully with many interesting moments, including the adults bringing prey to the nest, captured on camera. In 2020 there was some activity at the nest site, but no successful breeding. Also in 2020 a masters student analysed video data from previous years.

The eagles have ready access to open coastal habitat including intertidal hunting ground that is rich in biodiversity and natural prey. Prey identified in 2019 included; flounder, fish spp (type not identifiable), squid, goose (gosling & adult), wildfowl (various and not always identifiable), short-eared owl, other bird species, rodents. [Robin Reid from RSPB will soon be visiting to carry out a nest analysis of prey items found. We hope to then update the list above prior to issue if time allows].

Within a 1km – 5km range are the active crofting communities of Malacleit, Sollas and Greinitote, with many other active crofting townships within a 10km range. Non-natural prey such as lambs are plentiful throughout these crofting areas. To date, there has been no evidence on camera of prey such as lamb being taken to the nest. Locally, there has been no reporting's of any impact on lambs by sea eagles to either RSPB or UFR.

Project outline:
Identifying prey returned to the nest as a sea eagle is raised should indicate potential preferences for prey species during different stages of growth, such as fish during the early weeks. If possible, observe the nearby sea pools and the strategy for hunting flounder and other fish.

Studies in Greenland and elsewhere have indicated how conventional methods of investigating sea eagle diet (such as collection of prey items or regurgitated pellets) can give misleading results. The use of automatic still cameras, triggered as the adults returned with prey revealed the actual importance of easily digested fish over larger mammal and bird prey which leave conspicuous, longer-lasting remains (F Wille in Love 2013). This study would be unique in that is the first time the diet of a sea eagle pair is able to be observed remotely using movie footage. The eagle pair have already accepted camera hardware placed discreetly, under licence, at their nest. Initial and casual scrutiny so far of the footage captured during this first season, indicates the need for better resolution and the benefits of placing a pen camera in a closer situation. UFR are investigating improved equipment and are confident this can be installed in a location acceptable to the eagle pair well before the start of the breeding season.

Intended outcomes:
Each year, predictably around lambing season, sensationalist headlines repeat themselves and perpetuate a myth that the re-introduction of sea eagles has and is having an impact on livestock and in particular lambs. The press coverage of the 2019 reintroduction of sea eagles on the Isle of Wight has already adopted rather sensationalist headlines influenced by crofting communities in the Hebrides and elsewhere. Such largely negative attitudes from the agricultural industry seem to have arisen from a misrepresentation of the situation during the Scottish and Irish reintroductions. Not only has this been fuelled by a certain element of hearsay but ignores what scientific analyses have already been undertaken on the Isle of Mull etc (M Marquiss et al 2010). Clearly there is a pressing need for more recent, detailed and convincing research into predation by sea eagles on lambs. The Uist Forest Retreat eagle pair, nesting amidst active hill sheep-farming country, offer a unique opportunity to show that the incidence of lamb killing has been grossly overestimated, with minimal impact on the sheep industry despite what is claimed at present. It is hoped that the results obtained would be promoted widely, to be taken up by the conservationists, media and the farming community, to offer a more accurate and moderate assessment of the true situation.

Such an approach in North Uist and the methods being refined, indeed pioneered, by Uist Forest Retreat could easily in the future be adopted in a wider context throughout the crofting counties and elsewhere, in different habitats, offering different prey bases.

Any additional comments e.g. details of specific disciplines required, methods to be used, travel involved, where the work would take place (i.e. at the host site or at the University), whether you foresee any Intellectual Property or confidentiality issues (and if so, what form might these take?):

Location: It is anticipated that most of the work can be carried out remotely with a live stream feed (tbc). However, some fieldwork may be possible depending on Covid restrictions. UFR can provide accommodation on a short term basis subject to availability.

Video: Confident use of media required. It is hoped a live stream can be set up to be captured at the home base of the researcher and allow real time access to footage, avoiding the need to send hard drives by post. This is TBC. Some time with Kathryn Johnson may be needed for support with workflow with the use of the media, dependent on the improved hardware system and how it is captured at source.

Hunting area: We are exploring the potential of a remote camera set up at one of the favoured hunting grounds in a nearby sea pool within a tidal bay. This may help reveal where some of the ocean prey comes from, how it is hunted or if it is pirated from other species such as otter.

IP: UFR welcomes the potential of the footage and results of the study to be used for research, education and promotion of the conservation of white-tailed eagles by NatureScot and relevant bodies. Where appropriate please credit Uist Forest Retreat. Footage is not to be shared for commercial use.

UFR currently share footage from the nest and will continue to do so. Some feedback as to identification of prey species or other notable activity during the course of the study would be welcome. We would wish to publish the outcome of the study on our website when appropriate and share with appropriate groups or publications such as Rewilding Europe, RSPB and conservation or nature tourism press opportunities that might arise.

Contacts and support:
John Love, who was instrumental in the re-introduction of Sea Eagles to the Isle of Rum from 1975 to 1985 and a member of the Sea Eagle Project Team. Author of titles including 'The Return of the Sea Eagle' (1983) and 'A Saga of Sea Eagles' (2013), familiar with North Uist and a resident of neighbouring island of South Uist.

Jamie Boyle, local RSPB Reserves Manager. Jamie has supported and guided us from the very beginning as we explored the birdlife in the area and without his support the filming and project to date would not have been possible.

Others: Sea eagle Project Team – Dave Sexton (Secretary), Andrew Stevenson (NatureScot)
Robin Reid, RSPB (study of eagles on the Outer Hebrides)
Steve Duffield, Western Isles Wildlife, sightings and wildlife tours.

Actions required pre study:
To enable better identification of species of prey a camera at the nest is required.

- NatureScot currently considering renewal of a licence to film at the nest, including the installation of a new pen camera embedded in the tree trunk.
- Camera installation.
- Streaming of footage to be set up, if possible.

References:

Marquiss, M, Madders, M, Irvine, J, and Carss, D.N. (2010) The Impact of White-tailed Eagles on Sheep Farming on Mull. A Final Report to SNH Contract No: ITE/004/99 47pp

Love, J.A. (1983) *The Return of the Sea Eagle.* Cambridge University Press

Love, J.A. (2013) *A Saga of Sea Eagles.* Whittles, Dunbeath, Caithness

MASTS - Making the Most of Masters – Project Proposal Form

Name and address of Organisation: Aquatera & NatureScot
Name of the key contact in Organisation: Ian Hutchison (Aquatera) & Chris Eastham (NatureScot)
Contact e-mail and phone number: MARINECOASTALVOLUNTEER@nature.scot.
Title of proposed project: Review and analysis of underwater video data from tidal turbines
Project outline and intended outcomes: Uncertainties remain regarding the interaction between tidal turbines and marine wildlife. Monitoring of operational tidal turbines is important to understand these interactions, and better inform Environmental Impact Assessments for future deployments of tidal turbines. Video data has been collected at a number of operational tidal turbine sites. Due to the large amount of data gathered, and the time required in order to review the data, only a small amount has been reviewed and analysed. This project will investigate ways of sampling large volumes of video data, analyse data for wildlife interactions, and explore methods for data storage.

Any additional comments e.g. details of specific disciplines required, methods to be used, travel involved, where the work would take place (i.e. at the host site or at the University), whether you foresee any Intellectual Property or confidentiality issues (and if so, what form might these take?):

Preparation work to be carried out at the university. A relevant NatureScot and Aquatera staff advisor and would help with the scope of the project, and ensure outcomes are relevant to our work as well as being beneficial to the university and student.

Please note that NatureScot hope to provide basic funds for travel and fieldwork expenses relating to 2-3 MSc projects for summer 2021. This is dependent on agreeing appropriate and relevant students and supervisors, and agreeing the level of financial support for the particular project and circumstances.

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Name and address of Organisation: NatureScot
Name of the key contact in Organisation: Chris Eastham (Flora Kent as NatureScot advisor)
Contact e-mail and phone number: MARINECOASTALVOLUNTEER@nature.scot.
Title of proposed project: Subtidal seagrass bed habitat suitability
Project outline and intended outcomes: Seagrass beds are a Priority Marine Feature in Scotland and important for a number of ecosystem functions and services, such as providing a habitat for fish and a blue carbon resource. Globally, seagrass beds have experienced loss and degradation, due to a number of factors such as disease, coastal development and pollution. Selecting sites for seagrass restoration trials requires a good understanding of habitat suitability to maximise success. However, habitat suitability maps currently available for the UK have limited use in Scotland due to the scale and parameters used. Although this project would be desk based, there may be an opportunity to visit field sites to validate the model.

Any additional comments e.g. details of specific disciplines required, methods to be used, travel involved, where the work would take place (i.e. at the host site or at the University), whether you foresee any Intellectual Property or confidentiality issues (and if so, what form might these take?):

Preparation work to be carried out at the university. A relevant NatureScot staff advisor would help with the scope of the project, and ensure outcomes are relevant to our work as well as being beneficial to the university and student.

Please note that NatureScot hope to provide basic funds for travel and fieldwork expenses relating to 2-3 MSc projects for summer 2021. This is dependent on agreeing appropriate and relevant students and supervisors, and agreeing the level of financial support for the particular project and circumstances.

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Name and address of Organisation: NatureScot
Name of the key contact in Organisation: Chris Eastham (Karen Hall / Glen Tyler as NatureScot advisor)
Contact e-mail and phone number: MARINECOASTALVOLUNTEER@nature.scot.
Title of proposed project: Fair Isle Demonstration and Research Marine Protected Area (D&R MPA)
Project outline and intended outcomes: This project involves the analysis of night-time bird migration data. Data for the project will be collected on the Fair Isle, but could then be sent to a student for analysis. In theory, this could be sent as night-time sound files and the daily census counts. Depending on Covid restrictions, it may be possible to undertake some ground-truthing of the nocturnal recordings with simultaneous human logging.

Any additional comments e.g. details of specific disciplines required, methods to be used, travel involved, where the work would take place (i.e. at the host site or at the University), whether you foresee any Intellectual Property or confidentiality issues (and if so, what form might these take?):

Re. Fair Isle projects – due the current Covid-19 restrictions, and uncertainty about the situation in 2021, work will be carried out at the university and may not include travel to the Fair Isle.

A relevant NatureScot staff advisor would help with the scope of the project, and ensure outcomes are relevant to our work as well as being beneficial to the university and student.

Please note that NatureScot hope to provide basic funds for travel and fieldwork expenses relating to 2-3 MSc projects for summer 2021. This is dependent on agreeing appropriate and relevant students and supervisors, and agreeing the level of financial support for the particular project and circumstances.