

Beaw Field Wind Farm

Outline Habitat Management Plan

Submitted on behalf of
Peel Wind Farms (Yell) Limited

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Background

The Applicant, Peel Wind Farms (Yell) Limited ('PWFY'), is committed to establishing, implementing and funding an agreed Habitat Management Plan (HMP) for life of Beaw Field Wind Farm, i.e. not less than 25 years. The Beaw Field Outline Habitat Management Plan (OHMP) has been prepared to set out how PWFY will enhance ecological interests through the construction and operation of the Proposed Development.

When decommissioning of the Beaw Field Wind Farm eventually takes place, a separate Decommissioning Management Plan will be prepared (using current best practice at that time) that will commit the Applicant to ensure that the decommissioning works can be completed so as to continue to deliver the objectives of the approved Habitat Management Plan (HMP).

This OHMP will be developed further through consultation with relevant organisations and agencies (e.g. SNH, RSPB) to provide more site specific detail should the Proposed Development be approved. Until then, this OHMP provides a summary of the aims, methods and scope of works proposed.

PWFY is promoting the imposition of a planning condition that will secure the development and application of the OHMP.

Aims and Objectives



Photo 1: Peat erosion and degraded blanket bog on main ridge between Mossy Hill and Atli's Hill, Yell

AIM 1

- **To enhance habitat conditions for identified species of importance present on or linked to the Site.**

The Beaw Field Wind Farm Environmental Statement (ES) does not identify any potentially significant adverse ecological or ornithological effects (**Chapter 10: Ornithology; Chapter 11: Ecology**), but does identify some likely non-significant adverse effects. Whilst these may be regarded as being of lesser importance, PWFY still wishes to address them.

Given the generality of this aim, it has been subdivided into more discrete 'objectives' for which particular work packages and methods can be identified.

AIM 2

- **To alleviate ecological impacts arising from past and present land management practices on the Site, by conserving, enhancing and restoring important habitats and species.**

The second aim of the OHMP is not required under the EIA Regulations, but is considered best practice and to accord with various biodiversity and planning guidance. PWFY recognises that the Proposed Development's implementation could be a facilitating mechanism to allow past and current poor practice to be addressed.

Again, this aim has been subdivided into more discrete 'objectives' for which particular work packages and methods have been identified.

As a general rule, all potential OHMP management sites were surveyed and assessed for suitability in 2015 and will be surveyed prior to any HMP work commencing to ensure that any existing important biodiversity is protected and considered when developing and implementing the HMP. Proposed HMP works should ideally be undertaken between September and March (inclusive) to prevent the possibility of disturbing nesting birds. However, if works do take place outside this period, then measures will be put in place to ensure no disturbance of nesting birds occurs.

Objective 1a

- Create conditions on former lochans in southern Yell conducive to the enhancement and restoration of breeding Red-throated diver (*Gavia stellata*)

Situation

Over the recent decades several lochans have been lost due to overgrazing and erosion of surrounding peat. The overgrazing and erosion is caused when the action of sheep opens up one or more gaps or gullies in the peat through which the lochan water drains out. The result is that several formerly suitable red-throated diver lochans have either dried out or become too shallow to be used by nesting divers in recent years.



Photo 2. Non-breeding red-throated divers on Horse Water, Yell

Delivery

Six candidate lochans in southern Yell have been identified through a combination of reviewing mapping information and site surveys. Where candidate lochans lie outside of the direct control of PWFY land-owner liaison and negotiation to allow interventions to be made have been undertaken and long-term management agreements for lochan restoration have been secured (Annex 1). An outline of the candidate sites is provided below, along with the management steps required to achieve the objective. The likelihood is that these lochans will be rapidly re-colonised by breeding red-throated divers once restoration work has been completed, so their specific locations are provided in **Appendix 10.2: Confidential Information.**

Lochan A (unnamed waterbody) summary

Potentially highly suitable former diver lochan for restoration in southern Yell. This former lochan was ca. 50m long by 15m wide. Almost all standing water had drained out of the west end of it, where the peat bank had collapsed due to sheep trampling. There was also a small break in the peat bank along the north side of lochan. If both of these gaps were blocked by plastic dams to restore the lochan then it is estimated that the water levels would reach 70-100cm deep and be level with the surrounding bank edges (important for divers to slide in and out of the water from their nest). The eroded areas of former bare peat have started to be recolonised by sedges and sphagnum, beginning the process of vegetation recovery around the lochan. The following three photos show Lochan A in its current condition (September 2015). Photo 3 shows the eastern end of the lochan, Photo 4 shows the middle and Photo 5 shows the western end where placement of a dam to block outflowing water is recommended.



Photo 3. Former red-throated diver Lochan A, eastern end, Yell



Photo 4. Former red-throated diver Lochan A, middle section, Yell



Photo 5. Former red-throated diver Lochan A, western end, Yell

Lochan B (unnamed waterbody) summary

Potentially highly suitable former diver lochan for restoration in southern Yell. This former lochan was ca. 45m long by 10m wide. This location is close to Lochan A, being 60m to the south of it, along the same ridge. Almost all water had drained out of its west end, where the peat bank had collapsed due to impacts from sheep. There was also a small eroded break in the peat bank along the southwest side of lochan. If both of these gaps were blocked by plastic dams to restore the lochan then it is estimated that the water levels would reach ca. 1m deep and be level with the surrounding banks. The former areas of bare peat around the lochan have been recolonised by sedges and *sphagnum*, beginning the process of vegetation recovery around the lochan. The following two photos show Lochan B in its current condition (September 2015); Photo 6 shows the eastern end of the former lochan and Photo 7 shows the western end.



Photo 6. Former red-throated diver Lochan B, eastern end, Yell



Photo 7. Former red-throated diver Lochan B, western end, Yell

Lochan C (unnamed waterbody) summary

A former potential diver lochan is currently divided into two shallow lochans and is considered unsuitable for nesting divers, but suitable for restoration in southern Yell. Both lochans currently

contain water, but have shallow, reduced depth due to a small eroded gap on the bank where it has collapsed due to trampling by sheep. The two lochans are separated by a small 1-2m² area of collapsed bank. By removing the collapsed bank and plugging the small gap at the east end of one lochan the two current lochans should reform into one larger one. The areas of former degraded peat have recolonised well by sedges and *sphagnum* and the process of vegetation recovery around the lochan is well underway. Unfortunately, this will not result in the plugging of the eastern lochan gap or the joining of the two lochans. The following three photos show Lochan C in its current condition (September 2015); Photos 8 and 9 show the eastern lochan and its eroded gap, which has been identified for blocking with a plastic dam and Photo 10 shows the collapsed bank blocking and separating the two shallow lochans from meeting.



Photo 8. Former red-throated diver Lochan C, eastern loch eroded gap, Yell



Photo 9. Former red-throated diver Lochan C, eastern loch, Yell



Photo 10. Former red-throated diver Lochan C, collapsed middle section separating two shallow lochans, Yell

Lochan D summary

This waterbody is a relatively large lochan. At the southern edge of the lochan, peat erosion has occurred (and is still occurring), mainly through trampling by sheep and the lochan water is now held back from draining by a narrow patch of vegetated peat (marked by walking pole in Photo 11). Although water levels are currently suitable for nesting divers, it does appear that this narrow plug of vegetated peat has been degraded and if it fails, then the lochan will rapidly drain away and become empty, resulting in the loss of a suitable diver nesting lochan. It is recommended that a plastic dam is placed at this location to strengthen the natural peat plug and retain water in the lochan.



Photo 11. Lochan D, southern end, Yell

Lochan E summary

This waterbody is a relatively large loch that has previously held breeding red-throated divers. The peatland habitats in the southwest of this waterbody have historically been severely degraded by the trampling and passage of many sheep. In particular, a peat bank along the western edge has eroded away and lochan water is now draining out of a break in the peat bank (Photo 12), lowering the water level and making the site unsuitable for breeding divers. Recent reductions in sheep grazing in this area have resulted in the bare areas of peat being recolonised by sedges and *sphagnum* mosses.

Blocking the peat outflow with a plastic dam will result in the water levels returning towards previous natural levels, creating suitable conditions for divers to regularly breed here again.



Photo 12. Lochan E, western edge collapsed peat bank, Yell

Lochan F (unnamed waterbody) summary

This lochan in southern Yell and is within an area of reduced grazing and peatland habitat improvement. Nevertheless, substantial damage and erosion has occurred, altering the water levels in this former red-throated diver breeding lochan. Photo 1 shows the bare peat lined banks caused by low water levels and Photo 14 shows an eroded outflow at the western edge of the lochan and the island they presumably formerly nested on. Simply blocking the outflow would result in water levels rising and restoring the site into a condition likely to be more suitable for breeding red-throated divers.



Photo 13. Lochan F bare, peat lined banks, Yell



Photo 14. Lochan F eroded outflow, western end, Yell

Objective 1b

- **Enhance habitat quality and prey abundance in southern Yell to encourage the nesting and breeding of merlin (*Falco columbarius*)**

Situation

The ES predicts (before mitigation) that land-take or operational disturbance from Proposed Development is judged likely to affect one irregularly used merlin nesting territory in the Study Area. Establishing regularly successful breeding merlins in just one former territory would be sufficient to offset this predicted potential negative (but non-significant) impact by providing alternative and suitable habitat so that merlins could regularly use a territory away from the Development Footprint. Merlin is a ground nesting raptor that prefers to nest in long/rank heather (on east facing slopes in Yell) which provides cover from predominantly westerly weather and aerial predators.

Delivery

The OHMP aims to improve nest habitat quality and prey abundance at two traditional but abandoned merlin territories in southern Yell. This measure is based on the tenet that the current state of the habitat, in particular deep heather on east facing slopes, at all known southern Yell territories is poor due to high grazing pressure and this has contributed to low territory occupancy rates in the past.

During ornithological surveys two active merlin territories were identified in southern Yell but neither was regularly occupied throughout the study period. It is intended that nest habitat quality will be improved by erecting stock fences (creating an enclosure) around areas of potential suitable nesting habitat in abandoned former territories to exclude livestock (i.e. sheep). The increase in merlin nesting habitat quality that is expected to follow from enclosure fences is predicted to increase merlin occupancy rates at the abandoned former territories. This would potentially help offset non-significant adverse effects from the Proposed Development on one pair of merlins that irregularly nest within the Study Area.

Two abandoned merlin territories were selected for habitat management exclosures and both had a combination of current poor habitat condition and historically low occupancy rates. However, these sites also had at least some stands of heather that had the potential to be improved (i.e. from current short and sparse heather to long and dense heather) and, in the judgement of the ornithologist, were sites intrinsically attractive to nesting merlin in terms of their slope, aspect and position in the landscape. Furthermore, these sites were away from the Turbine Area.

Exclosure 1 - the east facing slope of West Hill which overlooks Aris Dale. The east slope of West Hill is a historical merlin nest site, but it appears not to have been used for several years (e.g. not in 2011-2015). There is plenty of heavily grazed heather still present and a reduction in grazing pressure should allow the heather to grow much longer, creating suitable preferred merlin nesting habitat.



Photo 18: Heavily grazed former merlin breeding habitat West Hill, Yell

Exclosure 2 - the east facing slope of Stouraclev (e.g. HU 496 820), which overlooks Burn of Hamnavoe. This area is currently heavily grazed by sheep. Fencing off a steep area from sheep should allow heather to be restored and to become long and rank within a relatively short space of time.



Photo 19: Heavily grazed former merlin breeding habitat Stouraclev, Yell

It is recommended that large exclosures are erected at both former merlin nesting sites. Fences should be of the conventional design for sheep, comprising corner strainers, high tensile wires and 'rylock'-type stock mesh. They should be constructed of materials with an expected life span of at least 25 years and be fitted with a suitable gate. The gate should be padlocked and the keys held by Beaw Field Wind Farm local agents. It is anticipated that once vegetation recovery is well underway merlins will return to nest in these areas. However, whilst thick rank heather is ideal for nesting merlins, they cannot use a thick sward without any gaps in it. The use of gates in the exclosures will allow the targeted grazing management of small numbers of sheep to break up the sward if it is

determined by the ornithologists monitoring the site that the vegetation has recovered so well that all bare or open areas suitable for nesting merlins have become overgrown.

The integrity of the fences and gates will be monitored quarterly and any repairs made as soon as practicable. The potential presence of nesting merlin will be monitored annually by an experienced ornithologist using established survey methods currently used in Shetland. A baseline survey measuring species composition and height will be undertaken prior to the exclosures being erected, both within and outside (control site) the planned exclosure areas. The changes to the vegetation will then be monitored at regular intervals (e.g. every three years), using systematic methods. The basis of this monitoring should be comparisons of vegetation measures made within exclosures against measures from outwith exclosures and baseline data obtained prior to the exclosures being erected. The key measures for vegetation monitoring should be the height and percent cover of ling heather, and the overall species community.

Objective 2a

- **Reduce and / or arrest blanket bog / peatland degradation**

Situation

Areas of land within the Site and adjacent to it have historically been subject to livestock grazing pressure that has exceeded the habitat's capacity to recover. This has led to a steady and noticeable deterioration in the condition of the land, reducing its ability to provide good grazing and support other species.

Delivery

Peatland restoration will take place primarily through reductions in grazing pressure over the entire Application Boundary area, ca. 1,158ha. The maximum number of sheep allowed in the area at present is 1,800 units (sheep), the actual current figure grazing is ca. 1,200 sheep and, through the HMP, sheep numbers will be reduced down to a maximum of 600. The evidence from West Yell suggests that a large scale reduction in grazing pressure should result in bare peat surfaces (Photos 16 and 17) and hags naturally revegetating with little or no other interventionist management.

The large reduction in grazing pressure on adjacent land owned/managed by John Ballantyne (West Yell) demonstrates how rapidly peatland vegetation can recover on exposed hills in southern Yell with a substantial reduction of grazing pressure. Formerly bare, eroded and hagged peat has become revegetated, stopping erosion damaging important features such as red-throated diver lochans (Photo 15). The signs of vegetation and habitat recovery are everywhere to be seen in the West Yell Common Grazings, with little or no bare peat now that grazing pressure is low (in contrast to large part of the Study Area).



Photo 15. Recovering blanket bog habitat, Hill of the Waters, West Yell



Photo 16. Degraded blanket bog habitat, Mossy Hill, Yell



Photo 17: Degraded blanket bog on western side of main ridge between Mossy Hill and Atli's Hill, Canis Dale, Yell

It is recognised that not all areas of blanket bog habitat will recover quickly without intervention. The area around Moss Houll has been severely degraded by both over-grazing and peat cutting (Photo 18). Nevertheless, the majority of peatland habitat the Application Boundary area is likely to recover with a substantial reduction in grazing pressure. An important element of the HMP will be to monitor vegetation recovery and areas of bare peat to ensure the reduction of grazing pressure delivers the anticipated blanket bog recovery. If monitoring demonstrates this has not occurred, further management such as additional reductions in grazing pressure, hagg reprofiling, mulching, seeding and potentially fencing may be required. The planned habitat monitoring will determine what, where and if additional management intervention is required.



Photo 18: Degraded blanket bog habitat, eroded down to the mineral soil at Moss Houll, Yell

A baseline monitoring survey measuring species composition, vegetation height, peat depth and areas of bare peat will be undertaken prior to the reduction in grazing pressure across a range of monitoring sites within the Application Boundary area and outside (at grazed control sites). The changes to the vegetation/peat will then be monitored at regular intervals (e.g. every three years), using standardised systematic methods.

Objective 2b

- **Expand and enhance native broadleaf tree cover**

Situation

Given historical clearance of all woodland on Yell, there is now little woodland cover anywhere on the island outside of private residential gardens. Such cover as exists is highly fragmented and offers very limited opportunity to benefit bird species.

Delivery

Aris Dale holds suitable merlin passerine prey and birds have occasionally been seen here during ornithological surveys. There is an opportunity to expand and enhance native broadleaved cover along the Burn of Arisdale. Such a woodland expansion would benefit a range of songbird species, which should occur in greater numbers/densities and which also form the main basis of merlin prey. By targeting planting along the relatively sheltered Burn of Arisdale, the riparian woodland should also directly benefit the native salmonid population in the watercourse, which in turn may be eaten by otters from the Yell Coast SAC. According to the landowner John Ballantyne, he and others used to

fish the Burn of Arisdale for sea trout but he has not done so for many years because of poor catches (*pers. comm.*).

There is a very small remnant patch of planted broadleaved trees along the Burn of Arisdale at Arisdale croft (HU 48274 82212) (Photos 21 and 22).



Photo 20: Small, remnant patch of planted broadleaved trees, Arisdale, Yell



Photo 21: Small, remnant patch of planted broadleaved trees along Burn of Arisdale, Yell

The aim of this enhancement work will be plant native broadleaved along ca. 1km of the banks of the Burn of Arisdale. Most of the plantings should be concentrated upstream of the existing small patch of woodland at Arisdale (HU 48274 82212), as this part of the valley is most sheltered from the prevailing westerly wind direction. The small patch of existing woodland appears to be dominated by willows and, given a reduction in grazing pressure, the mid-upper Aris Dale riparian banks appear ideal for woodland expansion. Only 200-300m of bankside downstream of the Arisdale croft should be planted because once the southern part of the Aris Dale valley opens out into Migga Dale, the wind is likely to be too strong for trees to grow unprotected. The largest area for planting would be concentrated in the 700-800m reach upstream of the Arisdale croft.

An increase in song bird densities, which would occur with broadleaved expansion in this area, would likely improve prey densities for merlins in the area immediately below the West Hill merlin nesting enclosure.

The banks of Burn of Arisdale were outside of the archaeological walkover survey (because it is located outwith the Development Footprint). There are numerous plantiecrubs (small circular dry-stone enclosures) along the Burn of Arisdale and the township of Arisdale is referenced in various 19th century documents (Lynne Roy, *pers comm.*). Consequently it is likely that further evidence of occupation exists within the valley in the form of buried or upstanding remains. Therefore, an archaeological survey prior to any broadleaved planting will be undertaken to ensure that any archaeological remains are recorded and preserved *in situ*.

Monitoring

In order to monitor progress of the HMP, it will be necessary to regularly monitor the effectiveness and success of the restoration measures implemented. To do this an initial assessment of baseline conditions would be required, followed by regular post restoration monitoring. Table 1 displays the type of monitoring that should be considered for each restoration technique, before and after implementation. This monitoring will need to be agreed with Scottish Natural Heritage and Shetland Islands Council.

Restoration	Type of monitoring	Method	Why	Frequency
Red throated diver lochan restoration	Birds	Red throated diver surveys	To determine if and when restored lochans support red throated diver pairs	Pre-restoration, 1, 2, 3, 5, 10, 15, 20 and 25 years
	Dam	Visual inspections for holes, breaks and scouring	To regularly check the integrity of the dams.	Annually
Blanket bog/ peatland habitat restoration	Birds	Moorland bird surveys	To demonstrate whole ecosystem change	Pre restoration, 1, 2, 3, 5, 10, 15, 20 and 25 years
	Photographic records	Photographic records at fixed positions and heights (including a comprehensive set of aerial photos)	To provide visual evidence of changes in the site	Pre restoration, 1, 2, 3, 5, 10, 15, 20 and 25 years
	Vegetation	The percentage cover of <i>sphagnum</i> and indicator plant species, bare peat and vegetation height with the use of quadrats	To demonstrate any changes in species composition and structure	Pre restoration, 1, 2, 3, 5, 10,15, 20 and 25 years
	Dam	Visual inspections for holes, breaks and scouring	To regularly check the integrity of the dams	Annually
Merlin	Birds	Merlin survey	To demonstrate successful merlin breeding in restored areas	Pre-restoration, 1, 2, 3, 5, 10, 15, 20 and 25 years
	Vegetation	The percentage cover of ling heather and vegetation height in quadrats	To demonstrate any changes in species composition and structure	Pre restoration, 1, 2, 3, 5, 10,15, 20 and 25 years
	Monitoring of exclosures	Visual inspection of integrity of fences and exclosures	To ensure heather recovery takes place	Annually
Native broadleaf woodland	Vegetation	Visual inspection for tree mortality (replanting if necessary) and measures of tree height. Phase 1 habitat survey of trees and surrounding vegetation	Ensuring that the planted trees are growing successfully and determining any habitat changes	Pre restoration, 1, 2, 3, 5, 10,15, 20 and 25 years

Table 1: The type of ecological/ornithological monitoring that would be required pre and post restoration techniques.