# TECHNICAL APPENDIX 9.5

## Outline Habitat Management Plan

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# Clashindarroch II Wind Farm EIA Report

# Chapter 9 Technical Appendix:

# 9.5 Outline Habitat Management Plan

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# 1. INTRODUCTION

## 1.1 Purpose of this Document

1.1.1 This document outlines a Habitat Management Plan (HMP) and other conservation measures proposed to offset the potential long-term adverse effects from the operation of the proposed Clashindarroch II wind farm (the 'proposed development') on the wildcat (*Felis silvestris*) population within the Strathbogie Wildcat Priority Area (WPA).

1.1.2 Further information on the ecology and conservation status of wildcat in Scotland, the population present within the Strathbogie WPA and specifically the Clashindarroch Forest, is provided in Chapter 9 of the EIA Report.

1.1.3 A separate outline species protection plan is provided in Technical Appendix 9.5. That document focuses on the proposed approach to ensuring that the wind farm related tree felling and the construction phase of the proposed development proceed lawfully with respect to the legislation protecting wildcat and their places of shelter.

## 1.2 Consultation

1.2.1 This document has been prepared in consultation with Scottish Natural Heritage (SNH), Forestry and Land Scotland (FLS) and Scottish Wildcat Action (SWA) prior to it being submitted with the EIA report.

1.2.2 It is intended that the HMP and proposed wildcat conservation support measures would be developed and agreed in greater detail, in consultation with all relevant parties, prior to planning determination for the proposed development. The HMP would be implemented as soon as possible following planning approval. This would allow the proposed habitat creation and enhancement measures to be completed / progressing before construction starts on the wind farm. Thereby providing some benefit (as compensatory habitat) ahead of the windfarm operational period.

1.2.3 There is the potential for the use of the area by wildcat to change with time. Therefore, information from pre-construction surveys and any ongoing and future monitoring in Clashindarroch Forest (e.g. by SWA, FLS rangers) will be taken into account prior to the detailed HMP being developed and implemented.

1.2.4 The proposed HMP will be subject to periodic review and updating in view of the latest available information from site monitoring and progress towards the agreed objectives.

1.2.5 The wildcat was identified as a priority for conservation action by SNH in the 2007 Species Action Framework. Following this, the Scottish Wildcat Conservation Action Plan was launched in 2013. It covers all current threats to wildcats and aims to halt the decline of the species in the six years to 2019. Several Wildcat Priority Areas were identified and established through the Action Plan. Scottish Wildcat Action is the organisation tasked with leading on delivery of the Action Plan.

## 1.3 Summary of Wildcat Ecology and Conservation Status

Summary of Wildcat Ecology

1.3.1 Scottish wildcats are associated with native woodland, the margins of woodland and rough grassland and upland habitats. Commercial conifer plantations, particularly those adjacent to farmland, can also provide suitable habitats, particularly those that incorporate areas of open space (e.g. grassland along riparian corridors) and are

more structurally diverse. Wildcats largely avoid exposed coastal areas, mountain tops, industrial and urban areas as well as intensively managed lowland agricultural land.

1.3.2 Wildcats will den in a wide variety of natural features and will also use dense cover as 'above ground' shelter, such as gorse and juniper thickets as well as areas of windthrow in conifer plantations. Dens can be located in boulder piles, log and brash piles, under tree roots and in old fox earths and badger setts. Wildcats will also use artificial structures such as disused hay barns and purpose-built wooden boxes located under brash piles. Typically, wildcats will have several den sites across their territory. Females will have specific dens where they give birth and raise their young, which provide suitable conditions and freedom from disturbance.

1.3.3 Adult wildcats are solitary for most of the year. During January to March adult males will move to nearby female territories to seek out a mate. Kittens are born, usually, between April and May, not venturing outside of the natal den for about 5 weeks. The mother may move them around to different den sites, often in close proximity, every few weeks during and after this initial period. The average litter size is 3 to 5 and the female raises the kittens on her own. The kittens are initially fed on milk before progressing to dead then live prey brought to them by the mother. Young wildcats stay with their mother for up to 6 months.

1.3.4 Wildcats are mostly active during the night and crepuscular periods, occasionally during the day in areas that are not disturbed by people. They are active year round and do not hibernate. Home range sizes vary geographically and in response to habitat quality, prey availability and population density. Female territories are usually smaller than male territories, an average of c. 6 $km^2$, with the range of each male encompassing several females. Young wildcats, following independence, often occupy a smaller range than that of adults. Although, young males, in particular, may become nomadic for a period while searching for vacant areas to establish their own territory.

1.3.5 The wildcat diet is typically comprised of rabbits and small rodents, such as voles and mice, with some evidence that rabbits are a favoured prey where available. However, wildcats can be relatively flexible in their diet, opportunistically taking what food is available within their territory. Prey availability has a strong influence on habitat use with wildcats often favouring woodland / grassland edge habitats that support relatively high densities of small mammals. This can include the margins of forested and agricultural areas including hay and arable fields, scrub and rough grass dominated riparian zones as well as pre-thicket conifer plantation. During the winter snowfall can also affect ranging behaviour as deep snow can limit wildcat movement.

1.3.6 In new plantations and for a period following felling and restocking in 2$^{nd}$ rotation plantations, the application of fertilizer and the absence or control of large grazers (i.e. the exclusion of cattle and sheep and active deer management) allows a thick ground cover of grasses, sedges and rushes to develop. This provides ideal habitat for small mammals such as the field vole (*Microtus agrestis*). Field voles can reach very high densities in this habitat, with a tenfold variation in numbers on a c. 4-year cycle between the lows and highs.

1.3.7 Extensive, homogenous thicket and pole-stage conifer plantations provide relatively poor foraging habitat for wildcat in comparison to the early stages of the rotation. Although the later stages in the forestry cycle can provide good cover for wildcats as well as opportunities for shelter during the day. Heterogeneous plantations, with

comparatively uneven-aged stands, greater tree species diversity and more permanent open space should provide better habitat for wildcat. Essentially, a mosaic of pre-thicket and unplanted open space suitable for hunting, interspersed with areas of more mature plantation providing good cover and shelter.

1.3.8 Due to their relatively large territories, good habitat connectivity is also very important, enabling wildcats to move freely and efficiently between den sites and areas of shelter, patches of good prey availability (which can vary seasonally), also to find mates and successfully raise their young. Evidence from satellite tracking studies in Scotland and mainland Europe has highlighted the importance of woodland edges and riparian zones as movement corridors for wildcat.

Conservation Status

1.3.9 Scotland is home to the most northerly sub-population of the European wildcat. The Scottish wildcat was once considered to be a distinct sub-species but recent assessments of morphological, genetic and biogeographic traits has concluded that it is not sufficiently distinct from populations on mainland Europe (Kitchener 2017).

1.3.10 Historically, wildcats were present across the British mainland. Due to a combination of factors, primarily human persecution and habitat loss, the population has dwindled and the range significantly contracted. Wildcats are now restricted to locations in Aberdeenshire, Inverness-shire, Morvern, Perthshire and the central Highlands.

1.3.11 Accurate estimates of the number of wildcats in Scotland are hampered by the longstanding and ongoing effects of hybridisation with domestic cats (*Felis catus*). The genetic influence of hybridisation is now present across the whole population and this may have disrupted the link between genetic and morphological traits making it difficult to reliably separate Scottish wildcats from hybrids in the field (Kilshaw *et al*. 2015, Senn *et al*. 2018).

1.3.12 The number of wildcats remaining which, according to morphological and genetic criteria, are the least influenced by the effects of hybridisation may be as low as 400 (Kitchener *et al*. 2005, Yamaguchi *et al*. 2015) or fewer (Mathews *et al*. 2018). On this basis the Scottish wildcat population could be classified as 'Critically Endangered' under the International Union for Conservation of Nature (IUCN) guidelines and facing an extremely high risk of extinction in the wild (Hermann *et al*. 2007).

1.3.13 Wildcats are also at risk from road traffic collisions, disease, human persecution and inadvertent killing and injury (e.g. related to legal predator control). There is also a threat to wildcats from the loss and fragmentation or disturbance to habitats through development or changes in land management.

1.3.14 The IUCN were commissioned in 2018, by the Scottish Wildcat Conservation Action Plan Steering Group, to review the current conservation status of wildcat in Scotland. The review, which was published in February 2019 (Breitenmoser *et al*. 2019), concluded that the wildcat in Scotland is at the verge of extinction and the population is considered to be no longer viable, due to the long-term effects of hybridisation and the remaining population being too fragmented.

## 2. OUTLINE HABITAT MANAGEMENT PLAN

## 2.1 Introduction

2.1.1 This outline HMP sets out the proposed approach to offset the potential long-term effects of the proposed development on the wildcat population within Clashindarroch Forest and its supporting habitats.

2.1.2 There is currently a lack of published scientific studies on the potential long-term effects of wind farm development on wildcat. As a 'critically endangered' species in Scotland, a precautionary approach has been taken in both the assessment of effects and in determining the proposed suite of mitigation measures. Further discussion and assessment of the potential long-term effects of the proposed development on wildcat is provided in Chapter 9 of the EIA Report.

2.1.3 It is intended that the HMP objectives would be aligned, as far as possible, with SNH, SWA and FLS conservation objectives for the wider Clashindarroch Forest, as part of the Strathbogie WPA. There is some uncertainty as to the potential future focus of efforts on wildcat conservation with respect to the existing WPAs, including the Strathbogie WPA. Further consultation on the outline HMP proposals is planned to help ensure that the detailed measures taken forward align well with current and future objectives. Also that the HMP proposals clearly contribute above and beyond other existing commitments for wildcat conservation and habitat improvements within Clashindarroch Forest and the wider WPA.

## 2.2 Background

2.2.1 As well as the effects of hybridisation and deliberate/accidental killing, habitat fragmentation / connectivity is also considered to be one of the factors hampering the recovery of the Scottish wildcat (Breitenmoser *et al*. 2019). Habitat fragmentation impedes the dispersal of individuals and isolates populations and reduces genetic diversity, acting as a barrier to the spread and recovery of threatened species.

2.2.2 Relatively large areas like Clashindarroch are not sufficient on their own to sustain a viable wildcat population. It is important to the long-term survival and recovery of the species, and recolonisation of its former range, that there is good connectivity between the larger areas of suitable habitat.

2.2.3 The concept of habitat connectivity has both structural and functional elements (Blake & Baarda 2018). Structural connectivity relates to the degree of physical linkage between areas of suitable habitat within the landscape. Functional connectivity relates to the capacity of the species of interest to move between habitat patches. Both aspects need to be carefully considered when planning measures to improve habitat connectivity.

2.2.4 The issue of habitat connectivity at the landscape scale for wildcat populations has been considered in detail in Germany. Hybridisation is considered a lower concern for wildcat conservation in Germany and there is a greater focus on reducing traffic mortality, altering forest management practices and improving habitat connectivity to aid dispersal and interchange between sub-populations (Klar *et al*. 2008, Vogel *et al*. 2009, Klar 2010). As there is insufficient contiguous forest available the reconnection of wildcat populations is the one of the main objectives in the German Wildcat Action Plan (Birlenbach *et al*. 2009) and is also the focus of a national 'Wildcat Infrastructure Plan' developed by the Federal Association for Environmental and Nature Protection.

2.2.5 Sub-populations with less than 50 individuals are considered to have a high risk of extinction due to localised stochastic events, such as harsh winters or disease

outbreaks. This risk can be reduced by creating habitat corridors through areas managed intensively for agriculture, linking larger areas of good quality habitat, enabling gene flow and re-population after local extinction events. Wildcat-specific habitat models have been developed to help determine the most effective location and design of linking these corridors (Klar *et al.* 2008).

## 2.3 Habitat Corridors

2.3.1 It has been agreed, in consultation with SWA, to develop a plan to improve habitat connectivity for wildcat between the larger forest blocks within and near to the Strathbogie WPA. Through the creation of suitable native hedge, scrub and woodland targeted to improve habitat connectivity in appropriate locations or corridors. The intention is for relatively small areas of habitat to be established, creating 'stepping stones' rather than large swathes of new woodland.

2.3.2 The experience of creating linking corridors for wildcat in Germany has shown that large areas of woodland planting are not necessarily required in order to improve habitat connectivity. Based on wildcat radio-tracking studies, small copses and thick hedgerows may be used as long as they are no further than 500 m from the nearest suitable cover (Klar *et al*. 2012). From the monitoring of wildcat movements in the Clashindarroch area individual wildcats have been recorded along field boundaries over 500 m from woodland or scrub cover. Also, monitoring has highlighted the importance of south-facing areas of dense scrub cover (i.e. gorse patches, often located in areas supporting good densities of rabbit prey (Dr K. Kilshaw, pers. comm.).

2.3.3 Vattenfall propose to engage with landowners in these areas, prior to planning determination for the proposed development, in order to establish which specific locations could be acceptable for wildcat habitat creation and to discuss and agree the detailed planting plans. An update on the feasibility of achieving the habitat connectivity measures set out here will then be provided to the relevant authorities (including SNH) prior to determination of the application.

2.3.4 Careful consideration will be given to the routes, corridor design and planting plans to ensure that they are cost effective and suitable for wildcat. It is also important that the woodland / scrub creation does not affect existing good quality foraging habitat for wildcat. The creation of suitable resting places for wildcat at regular intervals along the corridors will also be important.

2.3.5 It is also important that wildcat are not inadvertently encouraged to use unsafe crossing points on main roads which could increase road traffic mortality. Suitable fencing (see Herrmann & Klar 2007) may be used to help direct wildcats to pass at safe crossing points (such as bridges and large culverts). This may also require adaptations to the crossing structure to provide a dry route for wildcats to use. Well-designed wildcat fences, linking to safe crossing points such as wildlife bridges and underpasses, have been shown to reduce road mortality by 83% in Germany (Klar *et al*. 2009).

2.3.6 As well as new areas of scrub or woodland, cover for wildcat can also be achieved simply through grassland and hedge management. Riparian zones are also suitable landscape features for habitat improvement. Fencing to exclude stock from grazing up the edge of the river bank can rapidly create rough grassland strips that provide good habitat for wildcat prey as well as suitable cover for wildcat to move through the landscape.

2.3.7 These measures are also of wider ecological benefit, improving habitats for a range of species of conservation concern associated with native woodland and helping to contribute to national biodiversity policy objectives. In the Strategic Plan for Biodiversity 2011-2020 there are specific targets for biodiversity (commonly referred to as the 'Aichi Targets') that the UK has committed to as a signatory to the Convention on Biological Diversity. These targets include halving the rate of loss of forests and significantly reducing their fragmentation. This is reflected in the targets set out in the Scottish Biodiversity Strategy (Scottish Government 2013).

## 2.4 Outline HMP Objectives

2.4.1 The following is a summary of the proposed HMP objectives and their purpose. The HMP proposals have been discussed in outline with SNH, SWA and FLS. They will be developed into fully detailed plans and prescriptions, within an agreed wildcat HMP document, prior to commencement of the proposed development and as soon as possible following planning determination.

- Wildcat Habitat Corridors: develop, in consultation with SWA, FLS and other relevant landowners, a detailed plan for the improvement of habitat connectivity for wildcat along corridors linking Clashindarroch Forest to large woodland blocks at Gartley, Correen and Insch. This to include up to 50 ha of suitable native woodland / scrub planting which may be subdivided into smaller blocks of up to 1 ha not more than 500 m apart – *in order to improve habitat connectivity within and beyond the Strathbogie WPA*.
- Riparian Zones within the Project Area: protection and enhancement of suitable cover and hunting habitat for wildcat along riparian zones within the wind farm study area – *to mitigate potential effects from the operating wind farm, affecting wildcat use of, and movement through, the area*.
- Artificial Dens: create at least 10 den sites (e.g. boulder piles, hay barns, brash and root plate piles), breeding females are thought to use a suite of dens in close proximity to each other, which they will regularly transfer their kittens between – *in order to address the potential loss of similar suitable resting places as a result of felling, construction and the operational effects of the wind farm*.
- Windthrow: retaining or creating windthrow areas, cross-felling low value standing timber near to stand edges in suitable undisturbed locations >500 m from the wind farm – *in order to address the potential loss of similar habitat as a result of felling, construction and the operational effects of the wind farm*.

## 2.5 Financial Support for Wildcat Conservation

2.5.1 The recently published IUCN review of the status of the wildcat in Scotland has considered the most effective means of rescuing the species. Given the impact of introgressive hybridisation within the remaining population, the IUCN recommended that the focus of wildcat conservation efforts should shift from attempting to preserve a genetically compromised and diminishing wild population towards captive breeding and release. This would require breeding from wildcats of a genetic stock that has been less affected by hybridisation and releasing these cats into suitable receptor sites (i.e. areas with extensive, good quality habitat). However, exactly how this would be implemented in practice and what the role of the existing WPAs (including Strathbogie) would be is currently unclear.

2.5.2 Under a future conservation framework for wildcat in Scotland it is assumed that the monitoring, protection and improvement of areas currently occupied by wildcat will

remain a key objective. Also that efforts to reduce the impact from feral and domestic cats on the wildcat population would need to continue through Trap-Neuter-Vaccinate-Release (TNVR) programmes.

Funding a Wildcat Project Officer Post

2.5.3 SWA currently employs a wildcat project officer for the Strathbogie WPA. The project officer carries out important work in the WPA including monitoring and camera trapping, managing volunteers, promoting wildcat conservation, and the TNVR programme. When SWA completes this phase of its work in 2020, there will no longer be a dedicated project officer for Strathbogie. It is anticipated that there will be a single conservation officer to cover all the WPAs in Scotland who will oversee some monitoring work with the continued help of local volunteers.

2.5.4 Further discussion with SWA and SNH is proposed, prior to planning determination, to establish the most effective way for the proposed development to support a full-time wildcat project officer (WPO) for at least 5-years should existing funding sources no longer be available at that time. The role of the WPO is anticipated to be broadly similar to the current role under SWA (i.e. including the continuation of wildcat monitoring within the WPA and the TNVR programme, see below) and would also include responsibility for overseeing the implementation of the proposed HMP. The management of the WPO position would be the responsibility of Vattenfall.

Funding the TNVR Programme

2.5.5 SWA has also been managing a TNVR programme across the WPAs since 2016. As of summer 2018 over 200 cats have been treated through this programme. If this work were not to continue it is likely that the number of feral cats in the vicinity would grow, further increasing the impact of hybridisation on Scottish wildcat. There is the potential for the proposed development to fund the continuation of the TNVR programme should existing sources of funding no longer be available at that time.

2.5.6 Vattenfall also intends to assist with funding for TNVR within the Stathbogie WPA. The feasibility of this and the exact funding requirements will be discussed with SWA and SNH with the aim to have an agreement in place prior to planning determination for the proposed development.

## 2.6 Compensatory Planting

2.6.1 Under Scottish Government policy on the control of woodland removal (CoWR) it is necessary that any unavoidable forest loss due to the proposed development is addressed through compensatory planting.

2.6.2 Typically, compensatory planting is undertaken on a ‘like-for-like’ basis. In this case that would entail the establishment of c. 87 ha (see Technical Appendix 3.2) of commercial conifer plantation. This type of woodland is of limited benefit to wildcat, generally of poor value in terms of maximising the potential biodiversity benefit more widely, and would clearly not be appropriate given the HMP objectives.

2.6.3 There is provision within CoWR guidance[1] for a departure for the normal ‘like-for-like’ requirement for compensatory planting plans in specific cases where this can be

[1] Scottish Government’s policy on control of woodland removal: implementation guidance (February 2019)

justified on economic and public benefit grounds. Under Annex 5 the following is stated (emphasis added):

- *Compensatory planting (CP) should always take place on-site or in close proximity to the site- where on-site is not possible, the EIA Report must justify why. Options that include conversion to low management intensity and slow growing woodland should be considered.*
- *Details of off-site CP should be included in a suitable CP plan to be agreed before the developer can proceed with the development and the felling of trees. This plan must flesh out all the details of the proposed planting, including its maintenance over the entire life-span of the development.*
- *Tree/shrub species must be suited to the site and the objectives of management. Although direct planting is always preferable, proposals for the use of natural regeneration will be considered, where establishment can be achieved within a reasonable timescale.*

2.6.4 It is considered possible, in this specific case, that the compensatory planting requirements for the proposed development could also be met through native woodland creation under the proposed HMP. Further discussion with Scottish Forestry is planned to determine whether an exception to normal compensatory planting requirements can be made in this case.

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