

VOLUME 6: CHAPTER 5 – ORNITHOLOGY – ALTERNATIVE ALIGNMENT

5.	ORNITHOLOGY	5-3
5.1	Executive Summary	5-3
5.2	Introduction	5-3
5.3	Scope of Assessment and Methodology	5-4
5.4	Potential Effects	5-4
5.5	Baseline	5-5
5.6	Assessment of Effects	5-6
5.7	Embedded Protection Measures	5-8
5.8	Mitigation	5-8
5.9	Residual Effects	5-8
5.10	Cumulative Effects	5-8
5.11	Summary and Conclusions	5-8

Appendices (Volume 5 of this EIA Report)

Appendix V2-5.1: Ornithology Technical Report April 2016 to March 2019

Appendix V2-5.2: Ornithology Technical Report April 2016 to December 2018

Appendix V2-5.3: Ornithology Technical Report January to August 2021

Appendix V2-5.4: Shadow Habitats Regulations Appraisal for the Cuillins Special Protection Area

Figures (Volume 3 of this EIA Report)

The relevant figures for this Chapter are contained within the Appendices listed above

5. ORNITHOLOGY

5.1 Executive Summary

- 5.1.1 This Chapter considers the potential effects of the Alternative Alignment within Section 3 of the Proposed Development on ornithology and reaches conclusions as to the predicted likely significance of effects on ornithology. It details the methods used to establish the bird species and populations present that may be affected by the Alternative Alignment, together with the process used to determine their Nature Conservation Importance. The ways in which birds might be affected (directly or indirectly) by the Alternative Alignment are explained and an assessment is made with regards the significance of these effects.
- 5.1.2 The assessment is structured around the consideration of potential effects, including cumulative effects, of the Alternative Alignment upon those ornithological receptors identified during survey work.
- 5.1.3 Desk-based studies and field surveys were carried out in and around the Alternative Alignment over respective 'Study Areas' to establish baseline conditions and the species and populations present.
- 5.1.4 It was possible to 'scope out' the effects on a number of species of high Nature Conservation Importance by virtue of their ecology, absence, distance from the Alternative Alignment, small numbers, low levels of activity and the nature and location of this activity.
- 5.1.5 One bird species was included in the assessment, white-tailed eagle. This species is considered to be of high Nature Conservation Importance due to their listing as Annex I species (Birds Directive) and Schedule 1 of the Wildlife and Countryside Act 1981, as amended by the Nature Conservation (Scotland) Act 2004).
- 5.1.6 Habitat loss arising from the construction of the Alternative Alignment is unlikely to result in adverse impacts upon any bird species. Any impacts are likely to be negligible and not significant. Population reductions due to habitat loss, displacement and/or collision mortality are also likely to be minimal. Where "hot spots" of flight activity have been identified mitigation, by way of bird flight diverters, has been proposed. Any impacts are likely to be negligible and not significant for all bird species.
- 5.1.7 The contribution of adverse effects accrued by the Alternative Alignment within Section 3 of the Proposed Development to regional populations would be undetectable and so cumulative effects of the Alternative Alignment with existing and planned developments in the region are judged as being unlikely to have a significant effect on existing bird populations. Overall, it is concluded that the Alternative Alignment within Section 3 of the Proposed Development would not have a significant effect on birds under the terms of the EIA Regulations.

5.2 Introduction

- 5.2.1 This Chapter presents the scope, methodology and assessment of predicted residual effects of the Alternative Alignment on ornithological interests. Where relevant, reference is made to **Volume 2, Chapter 5: Ornithology** of this EIA Report and supporting appendices which contain the assessment of the Proposed Development comprising the Proposed Alignment.
- 5.2.2 The assessment of the Alternative Alignment on ornithological interests has been undertaken by Natural Research (Projects) Limited. All staff contributing to this assessment have professional experience in ecological impact assessment and ornithological survey. A table presenting relevant qualifications and experience of key staff involved in this assessment is included in **Appendix V1-5.1: EIA Team**, contained within Volume 5 of this EIA Report.

5.3 Scope of Assessment and Methodology

5.3.1 The main elements of the project of relevance to the Alternative Alignment within Section 3 would consist of the construction of a new steel lattice Overhead Line (OHL). Approximately half this section, about 10 km in length, would closely follow the route of the existing OHL with a deviation taking the remainder of the new OHL through Glen Arroch to Kyle Rhea. The new 132 kV OHL would use a steel lattice structure ca. 27 – 33 m high. Full details of this element of the project are provided in **Volume 6, Chapter 2: Project Description**.

Consultation

5.3.1 The scope of the assessment has been determined through a combination of professional judgement, reference to the relevant guidance documents and consultation with stakeholders through a formal EIA scoping process and pre-application advice.

5.3.1 Full details of the consultation process and responses are included in **Volume 1, Chapter 6: Scope and Consultation** and associated appendices. Responses of relevance to ornithology are summarised in **Volume 2, Chapter 5 - Ornithology**.

Methodology

5.3.2 The Study Area was defined with reference to the location and alignment of the Alternative Alignment within Section 3 of the Proposed Development, plus buffers between 2 km and 6 km radius; with buffer size defined by NatureScot (SNH, 2017)¹ and dependent on the sensitivity of key species to potential effects associated with development.

5.3.3 Baseline field surveys along the route were carried out between February to August 2017, March 2018 to March 2019 and April to July 2021. A detailed methodology for all surveys is provided in **Appendix V2-5.2: Ornithology Technical Report** and is briefly summarised here.

- Flight Activity Survey (February to August 2017, March 2018 to March 2019, April to July 2021, within the 2 km buffer).
- Scarce Breeding Bird Survey (April to July 2018 and October 2018 to March 2019 within the 2 km and 6 km buffers).

5.3.4 Full details of all desk-based, field survey and assessment methodologies are provided within **Appendix V2-5.1, V2-5.2 and V2-5.3**.

5.4 Potential Effects

5.4.1 The potential effects on ornithology associated with the construction and / or operation of the Proposed Development (and dismantling of the existing OHL) are:

- a short-term reduction in breeding or wintering bird populations due to disturbance (during construction of the Proposed Development and dismantling of the existing OHL);
- a long-term/permanent reduction in breeding or wintering populations due to direct loss of critical habitats (during operation);
- a long-term/permanent reduction in breeding or wintering populations due to disturbance displacement resulting from maintenance activities or birds' perceived reductions in suitability of adjacent habitats (during construction and operation);
- a long-term/permanent reduction in breeding or wintering bird populations due to collision mortality (during operation);

¹ SNH. (2017). SNH Guidance: Recommended bird survey methods to inform impact assessment of onshore wind farms. SNH, Inverness, UK.

- long-term/permanent reduction in breeding or wintering bird populations due to electrocution mortality (during operation); and
- cumulative effects with other nearby development proposals that are constructed during the same period, and/or with other developments which pose a potential mortality risk (during operation).

5.4.2 As specified by NatureScot Guidance (SNH, 2018)² the potential for significant effects is assessed for species which are considered to be of high and moderate NCI (see **Table V2-5.2 of Volume 2, Chapter 5: Ornithology**) and for which a population is known to be present, or is potentially present, in the vicinity of the Proposed Development, and thus could potentially be affected.

5.4.3 Further detail on potential effects is included **Volume 2, Chapter 5 – Ornithology**.

Effects Scoped In / Out of Further Assessment

5.4.4 On the basis of the professional judgement of the EIA team, experience from other relevant projects, consultations and policy guidance, several topics have been ‘scoped out’ of the assessment. The topics scoped out of further assessment are:

- Effects arising from habitat loss and/or modification during construction and operation of the Proposed Development and dismantling of the existing OHL;
- Effects arising from disturbance and/or displacement from critical habitats for feeding, breeding, wintering or roosting during construction and operation of the Proposed Development and dismantling of the existing OHL;
- Effects arising from electrocution during operation of the Proposed Development;
- Effects arising due to the Proposed Development acting as a barrier to movement during operation; and
- Effects arising from maintenance of the Proposed Development during operation.

5.4.5 The remaining topic scoped in for further assessment is:

- Effects arising from collision mortality during operation of the Proposed Development.

5.4.6 Further detail is provided in **Volume 2, Chapter 5 - Ornithology**.

5.5 Baseline

Designated Sites

5.5.1 The majority of the Alternative Alignment is not covered by any statutory nature conservation designations for ornithology. However, approximately 0.8 km of new OHL passes through the Cuillins SPA (to the west of Section 3 whereby the Proposed Alignment and Alternative Alignment comprise the same alignment) which is classified for its breeding population of golden eagles. Hence, potential effects on the Cuillins SPA are considered in the assessment.

Species

5.5.2 One active white-tailed eagle territory and an active golden eagle territory are located within 6 km of the Alternative Alignment within Section 3. Also, white-tailed eagles use the areas around the narrows at Kyle Rhea.

5.5.3 Golden eagle was recorded during the course of baseline bird surveys. Golden eagles are known to breed within the wider area however baseline surveys did not locate any breeding or roosting sites within 1.5 km of the Alternative Alignment within Section 3. Given this, and that the Alternative Alignment within Section 3 is

² SNH. (2018). Assessing significance of impacts from onshore wind farms outwith designated areas. SNH Guidance Note. Battleby, UK.

located along the valley bottom, away from preferred golden eagle foraging habitat, there is deemed to be no prospect of the Alternative Alignment within Section 3 affecting the regional golden eagle population. Hence, despite their high NCI, golden eagle is not considered further in the assessment of the Alternative Alignment within Section 3. However, potential effects on golden eagle are considered within the Habitats Regulations Appraisal (HRA) under the EU Habitats Directive. As part of a HRA, the competent authority would be required to undertake an Appropriate Assessment. **Appendix V2-5.4** includes relevant information to allow the competent authority to undertake this assessment for the Cuillins SPA.

- 5.5.4 White-tailed eagle was recorded regularly during the course of baseline bird surveys. White-tailed eagles are known to breed within the wider area however no breeding sites were located within 2 km of the Alternative Alignment within Section 3. Surveys revealed a 'hot-spot' of flight activity at Kyle Rhea. Hence, potential effects on white-tailed eagle are considered in the assessment of the Alternative Alignment within Section 3.
- 5.5.5 Black-throated diver was recorded once during the study period within 2 km of the Alternative Alignment within Section 3. A pair was seen on Lochan na Saile in July 2018; however, breeding was not suspected. There were no further records from within the vicinity of the Alternative Alignment within Section 3. All nests of black-throated diver will be identified and protected from disturbance during the construction and dismantling periods (see **Part 5.7: Embedded Protection Measures**). Given this, and the very low level of flight activity, there is deemed to be no prospect of the Alternative Alignment within Section 3 affecting the regional black-throated diver population. Hence, despite their high NCI black-throated diver is not considered further in this assessment of the Alternative Alignment within Section 3.
- 5.5.6 One species of high NCI was identified for consideration within the assessment of the Alternative Alignment within Section 3: white-tailed eagle.

5.6 Assessment of Effects

Cuillins Special Protection Area

- 5.6.1 The qualifying species of the Cuillins SPA is golden eagle and as noted in paragraph 5.5.1 above, approximately 0.8 km of the new OHL in Section 3 would pass through the SPA. It cannot be concluded on the basis of objective information that a likely significant effect on golden eagle can be ruled out. Consequently, it is anticipated that the competent authority may consider that an appropriate assessment of whether there would be an adverse effect on the integrity of the SPA under the Habitats Regulations is required. Information is provided in **Appendix V2-5.4: Shadow Habitats Regulations Appraisal for the Cuillins Special Protection Area** to enable the Scottish Ministers to conduct an assessment of potential effects of the Proposed Development on the integrity of the Cuillins SPA. This information demonstrates that having regard to the conservation objectives of the site, the Proposed Development would not have an adverse effect on the integrity of the SPA.

Predicted Construction and Dismantling Effects

- 5.6.2 All potential effects arising from the construction of the Alternative Alignment and the dismantling of the existing OHL were scoped out of detailed assessment for the reasons explained in Part 5.4 of **Volume 2: Chapter 5 - Ornithology**. On that basis it is concluded that the likely effects of the Alternative Alignment on all bird species within Section 3, from construction and dismantling, are **negligible** and therefore **not significant** under the terms of the EIA Regulations.

Predicted Operational Effects – Collision Risk

- 5.6.3 White-tailed eagle is listed on Annex 1 of the Birds Directive and on Schedule 1 and 1A of the WCA, and therefore a species of high NCI.

- 5.6.4 The study area for the assessment of effects on white-tailed eagle is the Western Seaboard Natural Heritage Zone (NHZ 6), as defined by SNH (2000)³. The population of white-tailed eagle in NHZ 6 is considered to be in favourable conservation status.
- 5.6.5 The factors that contribute to a species' vulnerability to OHL collisions are generally well known. Species that flock, have rapid flight, and are large with slow manoeuvrability (high wing loading and low wing aspect ratio) are especially vulnerable, with younger individuals and nocturnal migrants exhibiting further vulnerability (Crivelli *et al.*, 1988⁴; Bevanger, 1998⁵; Erickson *et al.*, 2001⁶; Crowder & Rhodes, 2002⁷; Manville, 2005⁸; Jenkins *et al.*, 2010⁹).
- 5.6.6 The bird species that are most likely to collide with OHLs are those that are less able to cope with artificial obstacles (Bevanger, 1994)¹⁰. Typically, these species include ground-dwelling species (e.g. bustards and capercaillies), waterbirds (e.g. wildfowl and shorebirds), thermal soarers (e.g. storks and cranes) and birds that form large flocks (e.g. gulls) (Bevanger, 1998⁴; Janss, 2000¹¹). Despite being thermal soarers, eagles are generally reported as collision victims in low numbers, probably due to a low number of span crossings per day and their solitary habits (Janss, 2000)¹¹. Bevanger (1998)⁵ classifies eagles as having low to medium wing load and low aspect, so are classified as low susceptibility to collision. As such, white-tailed eagle is generally considered to be at lower risk of collision with OHLs. The population of white-tailed eagle is increasing across NHZ 6, which suggests that collision mortality is not limiting population growth.
- 5.6.7 However, current NatureScot guidance (SNH, 2016)¹² recommends that the results of baseline surveys should be analysed to identify any 'hot-spots' of activity where mitigation may be required. The results of baseline surveys have identified a 'hot-spot' of white-tailed eagle flight activity around Kyle Rhea.
- 5.6.8 **Appendix V2-5.1 Figures 9 and 10** show the distribution of flight activity and perches of white-tailed eagle recorded during baseline surveys in this location. The substantial majority of white-tailed eagle activity within Section 3 is to the south of the existing OHL crossing tower at Kyle Rhea. Therefore, the frequency of flight activity in proximity to the Alternative Alignment within Section 3 is considered to be significant and is likely to give rise to an increase in collision effects to those already presented by the existing OHL.
- 5.6.9 Line marking remains the most common and practical form of wire collision mitigation worldwide, and research shows that it can reduce bird collisions by 50-94% (evidence reviewed in Prinsen *et al.*, 2012¹³). Therefore, it is proposed that line marking along parts of the Alternative Alignment within Section 3 will be undertaken.

³ SNH. (2000). Natural Heritage Zones. SNH, Battleby, UK.

⁴ Crivelli, A.J., Jerrentrup, H. & Mitchev, T. (1988). Electric power lines: a cause of mortality in *Pelecanus crispus* Bruch, a world endangered species. *Col. Waterbirds* 11: 301-305.

⁵ Bevanger, K. (1998). Biological and conservation aspects of bird mortality caused by electric power lines: a review. *Biological Conservation* 86:67-76.

⁶ Erickson, W. P., Johnson, G. D., Strickland, M. D., Sernka, K. J. & Good, R. E. (2001). Avian collisions with wind turbines: a summary of existing studies and comparisons to other sources of avian collision mortality in the United States. Western Ecosystems Technology, Inc., Cheyenne, Wyoming, USA.

⁷ Crowder, M. R. & Rhodes, O. E. (2002). Relationships between wing morphology and behavioural responses to unmarked power transmission lines. Pages 403-410 in J. W. Goodrich-Mahoney, D. F. Mutrie, and C. A. Guild, editors. *The Seventh International Symposium on Environmental Concerns in Rights-of-Way Management*. Elsevier, Boston, Massachusetts, USA.

⁸ Manville, A. M., II. (2005). Bird strikes and electrocution at power lines, communication towers, and wind turbines: state of the art and state of the science—next step toward mitigation. U.S. Forest Service General Technical Report PSWGTR-191, Washington, D.C., USA.

⁹ Jenkins, A. R., Smallie, J. J., & Diamond, M. (2010). Avian collisions with power lines: a global review of causes and mitigation with a South African perspective. *Biological Conservation* 10:1-16.

¹⁰ Bevanger, K. (1994). Bird interactions with utility structures: collision and electrocution, causes and mitigating measures. *Ibis* 136(4): 412-425.

¹¹ Janss, G.F.E. (2000). Avian mortality from power lines: a morphologic approach of a species-specific mortality. *Biological Conservation* 95(3): 353-359.

¹² SNH. (2016). *Guidance: Assessment and mitigation of impacts of power lines and guyed meteorological masts on birds*. SNH, Battleby, UK.

¹³ Prinsen, H.A.M., Smallie, J.J., Boere, G.C. & Pires, N. (Compilers). (2012). *Guidelines on How to Avoid or Mitigate Impact of Electricity Power Grids on Migratory Birds in the African-Eurasian Region*. AEWa Conservation Guidelines No. 14, CMS Technical Series No. 29, AEWa Technical Series No. 50, CMS Raptors MOU Technical Series No. 3, Bonn, Germany.

5.7 Embedded Protection Measures

- 5.7.1 The assessment has been undertaken in the knowledge that a Bird Protection Plan (BPP), devised in consultation with NatureScot, would be in place prior to the onset of construction and dismantling activities (see **Appendix V1-3.5: General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs)** which includes the Applicant's Bird SPP). The BPP describes the survey methods for the identification of sites used by protected birds and details protocols for the prevention, or minimisation, of disturbance to birds as a result of activities associated with the Proposed Development. The BPP would be overseen by the Ecological Clerk of Works.
- 5.7.2 In summary, **Appendix V1-3.5: General Environmental Management Plans (GEMPs) and Species Protection Plans (SPPs)** describes the surveys to locate the nests or other key sites (e.g. roosts) of birds listed in Schedules 1 and 1A of the WCA, in advance of construction and dismantling works progressing. In the event that an active nest or roost of a Schedule 1 or Schedule 1A species is discovered within distances given by Ruddock & Whitfield (2007)¹⁴ (or within a 500 m radius of the nest for Schedule 1 species not listed), a disturbance risk assessment will be prepared under the BPP and any measures considered necessary to safeguard the breeding attempt or roost (e.g., exclusion zones or restrictions on timing of works), would be submitted to NatureScot for agreement before recommencing work. Similarly, although the species is not listed on Schedule 1, surveys to locate black grouse lek sites would be undertaken and appropriate measures to safeguard relevant lek sites would be agreed with NatureScot and included within the BPP. Standard forestry guidance will be followed in the case of tree felling operations.

5.8 Mitigation

- 5.8.1 Line marking is proposed between towers BF71B to BF82B for the duration of the operational period of the Alternative Alignment within Section 3. Markers will be spaced at 5 m intervals and maintained for the duration of the operational period. Refer also to the Embedded Protection Measures that would be implemented by the Applicant (see **Part 5.6**).

5.9 Residual Effects

- 5.9.1 As line marking is proposed for the duration of the operational period of the Alternative Alignment within Section 3 the residual effects on all bird species are **negligible** and therefore **not significant** under the EIA Regulations.

5.10 Cumulative Effects

- 5.10.1 Other projects of relevance to the consideration of cumulative effects within Section 3 include Broadford Substation (see **Volume 1, Chapter 5: EIA Process and Methodology**). However, given there are no predicted adverse residual effects 'in isolation' for the construction, operational or dismantling phases of the Alternative Alignment within Section 3, i.e. all effects are assessed as **negligible**, it is considered highly unlikely that the Alternative Alignment within Section 3 will contribute cumulatively to adverse effects on the conservation status of regional populations of any bird species. Consequently, there is no requirement for a cumulative assessment.

5.11 Summary and Conclusions

- 5.11.1 This Chapter summarises the potential effects of the Alternative Alignment within Section 3 of the project on ornithological interests.

¹⁴ Ruddock, M. & Whitfield, D.P. (2007). A review of disturbance distances in selected bird species. Report from Natural Research (Projects) Ltd. To Scottish Natural Heritage.

5.11.2 It is concluded that the likely effects of the Alternative Alignment within Section 3 of the project on all bird species are **not significant** under the terms of the EIA Regulations.