Chapter 10: Sloy Pumped Hydro Storage Scheme: Ornithology

Chapter 10: Ornithology - Contents

Figures

There are no figures associated with this Chapter.

Appendices

Appendix 10.1: Breeding Bird Report

10. Ornithology

10.1. Executive Summary

An Ecological Impact Assessment (EcIA) has been undertaken to consider the effects of the Proposed Development on ornithological Important Ecological Features (IEFs). The EcIA has been undertaken by Ecological Consultants at EnviroCentre Limited according to the latest guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) and informed by comments and information supplied by Loch Lomond & the Trossachs National Park Authority (LLTNPA) and Scottish Environmental Protection Agency (SEPA).

The assessment considered the potential significant effects of the project and its associated activities on IEFs present within the Proposed Development Area (PDA), and for the Zone of Influence (ZoI) of the IEFs which were scoped in for assessment.

The PDA and surrounding area were recorded as provisioning suitable habitat for thirty-five bird species, twelve of which are listed as Priority Species in the Scottish Biodiversity List (SBL), and / or as Amber or Red List species in the Birds of Conservation Concern 5 (BoCC) listing. Of the thirty-five species recorded during the surveys, twenty-two of these were suspected of breeding within the survey area locale. Four species had confirmed or probable breeding territories within the PDA. All terrestrial habitats within the PDA supported breeding species. None of the species present were in numbers or had population sizes that would represent importance at national, regional, or local levels.

Assuming no avoidance mitigation or compensatory strategies are applied:

- Habitat loss to accommodate the spoil management area could result in injury and / or death of nesting birds during the clearance of existing conifer plantation, mixed plantation, birch woodland, and rhododendron scrub.
- Removal of habitats within the PDA during the construction phase to facilitate the spoil management area would result in the loss of a small area of habitat which currently supports one confirmed Wood Warbler territory, and probable and / or possible Wren (1), Blackcap (1), Blue Tit (1), Coal Tit (1), Goldcrest (1), Song Thrush (1), Willow Warbler (1), and Wren (1) territories. These habitats are abundant in the wider landscape.
- Auditory and visual disturbance during the construction and operational phases could disrupt territorial and breeding behaviours, interfere with the ability of birds recorded on site to hold territories during the nesting season, and permanently affect local bird populations.

Vegetation clearance or tree removal would not be completed during the nesting bird season (March to September, inclusive, although some species may breed outwith this period), unless no active nests are identified during a nesting bird survey within 48 hours prior to works. Should any nesting birds be identified, an appropriate buffer zone should be maintained and works suspended until all dependent young have left the nest. No activity may take place within this exclusion zone until the ECoW confirms that either the young have fledged, the brood has failed, or nest has become inactive. Fencing or signage would delineate these restricted zones.

Noise reduction measures would be implemented during the construction phase in working areas adjacent to retained habitat, including no machinery idling and sensitive scheduling of noisy activities. A sensitive lighting strategy would be implemented during the construction and operational phase to minimise disturbance as a result of artificial lighting. Compensatory bird boxes suitable for the bird species confirmed or suspected of breeding within the survey area would be provisioned within existing

adjacent woodland and mature trees during the construction phase and in the compensatory planting area during the operational phase.

Providing that the mitigation and compensation measures detailed are in place during the construction and operational phases, the residual effects on birds are assessed to be non-significant.

The cumulative effects of the Proposed Development in combination with other cumulative developments in the vicinity are not considered to be significant.

Biodiversity enhancements would provide benefits to the local biodiversity, creating habitats suitable for a variety of flora and fauna that frequent the site and locale.

10.2. Introduction

EnviroCentre Limited was commissioned by Ash Design + Assessment on behalf of SSE Renewables to undertake an Ecological Impact Assessment (EcIA) of ornithology for the proposed pumped hydro storage (PHS) scheme at the Sloy Hydroelectric Power Station, Inveruglas, Loch Lomond. The assessment is required to identify important ecological features and provide an assessment of baseline data against design, construction and operational proposals to ascertain the significance of predicted effects. This chapter details the specialist ecological studies undertaken and the results of the assessment. The assessment has been carried out according to the latest guidance from the Chartered Institute of Ecology and Environmental Management (CIEEM) by experienced and competent ecologists who are all Members of CIEEM and follow its Code of Professional Conduct. It is supplemented by technical reports with supporting figures contained within **Volume 4: Technical Appendices** of this EIA Report.

Details of the site and the Proposed Development are provided in **Chapter 4: Description of Development**.

The purpose of this chapter is to:

- Identify and describe the ornithological Important Ecological Features (IEFs) which may be impacted by the Proposed Development.
- Describe all potentially significant ecological impacts associated with the Proposed Development.
- Consider the avoidance and mitigation measures to be adopted within the design, construction and operational phases and those required to ensure compliance with nature conservation legislation and to address adverse impacts.
- Provide an assessment of the significance of any residual impacts.
- Set out the requirements for post-construction monitoring.
- Detail actions to be taken to deliver biodiversity enhancements.

10.3. Scope Of Assessment

Potential impacts to ornithological features have been considered within this assessment, based on the results of breeding bird study (**Volume 4, Appendix 10.1: Breeding Bird Report**).

10.3.1. POTENTIAL IMPACTS AND ZONE OF INFLUENCE

Potential significant impacts to ornithology considered during Scoping were as follows:

- Habitat loss for breeding and foraging birds.
- Disturbance to and displacement of breeding birds (both visual and noise).

The CIEEM Guidelines identify the Zone of Influence (ZoI) as the area over which ecological features may be subject to significant effects as a result of the Proposed Development and associated activities. This is likely to extend beyond the Proposed Development Area (PDA), for example where there are terrestrial and / or hydrological habitat links beyond the site boundaries. Features found to be present or likely to be present within the predicted ZoI and which have potential to be significantly affected (positively and negatively) by the Proposed Development are included within the scope of this assessment. The features considered, associated ZoI, decision to scope in / out and justification are summarised in **Table 10.1** below. Where impacts to features are considered likely to be similar, these have been grouped for succinctness.

Table 10.1: Scoping Summary

IEF	Importance of IEF	ZoI	Present in Site/Locale	Significant effects likely/Scoping Decision	Justification
The Great Trossachs Forest National Nature Reserve (NNR)[1] • Black Grouse	National (Scotland)	Within and up to 1km from the PDA (furthest extent at which pollution impacts are expected).	Locale	No significant effects on Black Grouse are likely. The Great Trossachs Forest NNR has been scoped out.	No significant effects are expected on the qualifying features of the NNR due to the scale and distance of the Proposed Development from the site.
Breeding Birds	International/ National/ Regional/ Local	Within the PDA and up to 50m from the boundary.	Site	Significant effects are likely. Birds have been **scoped in.**	There is suitable habitat for nesting birds within the ZoI.
Wetland Breeding Birds	International/ National/ Regional/ Local	Within the PDA and up to 50m from the boundary.	Locale	No significant effects likely. Wetland breeding birds have been scoped out.	No wetland breeding birds were identified within the PDA during the Breeding Bird Survey.

10.4. Consultation Responses

Table 10.2: Consultee Responses

Consultee	Issues raised / discussed	Point of Inclusion
Loch Lomond & The Trossachs National Park Authority	Update breeding bird survey should be undertaken to inform the EIA.	A Breeding Bird Survey report is included in **Volume 4, Appendix 10.1: Breeding Bird Report.**

[1] https://sitelink.nature.scot/site/8298 (Accessed March 2024)

Scottish Environmental Protection Agency	NatureScot and LLTNP should be consulted regarding the scope of any assessment on the impact to wetland breeding birds as loch levels may change more quickly and more often than currently.	No wetland breeding birds were identified during the Breeding Bird Survey and have been scoped out of this assessment, as detailed in **Table 10.1: Scoping Summary.**
	A Construction Environmental Management Plan (CEMP) should be provided including details of pollution prevention and drainage management and that site specific maps and plans should be submitted that include reference to best practice pollution prevention and construction techniques and regulatory requirements.	A CEMP would be produced, as detailed in **Section 10.10.1: Monitoring**. A draft CEMP is included in **Volume 4, Appendix 4.2: Outline Construction Environmental Management Plan**.

10.5. Legislation, Policy and Guidance

The compilation of this chapter has taken cognisance of the legislation, planning policies, conservation initiatives and general guidance presented in **Table 10.3** below:

Table 10.3: Legislation, Policy and Guidance Documents

Scope	Document
International	• International Union for the Conservation of Nature (IUCN) Red List of Threatened Species.
European	• Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Flora and Fauna (The Habitats Directive). • Environmental Impact Assessment (EIA) Directive (2014/52/EU) on assessing the potential effects of projects on the environment.
Scottish	• Wildlife and Countryside Act 1981 (as amended) (WCA); • The Conservation (Natural Habitats, &c.) Regulations 1994 (as amended). • The Town and Country Planning (Environmental Impact Assessment) (Scotland) Regulations 2017. • National Planning Framework 4[2]. • Scottish Biodiversity List (SBL)[3]. • Scotland's Biodiversity Strategy to 2045[4]. • Birds of Conservation Concern 5 (2021) [5].

[2] Available from: https://www.gov.scot/publications/national-planning-framework-4-revised-draft/ (Accessed March 2024)

[3] Available from: https://www.nature.scot/doc/scottish-biodiversity-list (Accessed March 2024)

[4] Available from: https://www.gov.scot/publications/scottish-biodiversity-strategy-2045-tackling-nature-emergency-scotland/documents/ (Accessed March 2024)

[5] Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man

Scope	Document
Local Planning Policy & Other Advice Documents	• British Standard (BS) 42020:2013: Biodiversity Code of Practice for Planning and Development 2013. • The Loch Lomond and the Trossachs National Park Local Development Plan, 2017-2021[6]. • The Loch Lomond and the Trossachs National Park Local Development Plan, 2017-2021: Renewable. • Energy Supplementary Guidance. • CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, Version 1.2

10.6. Methodology

10.6.1. DESK STUDY

A desk study was conducted in August 2022 to gather baseline data in relation to the site. The following sources were checked:

- NatureScot Sitelink website[7] for statutory designated sites up to 5km from the site.
- Loch Lomond and The Trossachs National Park Local Development Plan (LDP)[8] for non-statutory designated sites up to 2km from the site.
- Glasgow Museum Biological Records Centre (GMBRC) records for notable or protected bird species records within a 2km of the site.
- The Scottish Biodiversity List[9] for notable or protected bird species.
- The Loch Lomond Local Biodiversity Action Plan (LBAP)[10] for local priority bird species; and
- Aerial imagery from Google Earth[11].

10.6.2. FIELD STUDIES

Ornithological field work was undertaken by EnviroCentre Limited and comprised three breeding bird survey visits on the 28th April 19th May, and 23rd June 2023. Survey visits were based on the British Trust for Ornithology (BTO) Common Bird Census (CBC) and Breeding Bird Survey (BBS) methods and were designed to coincide with the main breeding period, covering the time when most breeding species would be present.

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and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114: 723-747. Available online at https://britishbirds.co.uk/content/status-our-bird-populations

[6] Available from: Our Local Development Plan - Here. Now. All of us. - Loch Lomond & The Trossachs National Park (lochlomond-trossachs.org) (Accessed March 2024)

[7] NatureScot Sitelink website. Available from: https://sitelink.nature.scot/map

[8] Loch Lomond and The Trossachs National Park LDP. Available from: https://www.lochlomond-trossachs.org/planning/planning-guidance/local-development-plan/

[9] Available at: https://www.nature.scot/scottish-biodiversity-list

[10] Loch Lomond and The Trossachs National Park LBAP, available to download at https://www.lochlomond-trossachs.org/park-authority/publications/wild-park-our-biodiversity-action-plan/

[11] Available at: https://www.google.com/earth/

10.6.3. EVALUATION OF IMPORTANT ECOLOGICAL FEATURES

The evaluations are applied to those sites, habitats and species that have been scoped into the assessment. These are termed Important Ecological Features (IEFs).

European, national and local governments and specialist organisations have together identified a large number of sites, habitats and species that provide the key focus for biodiversity conservation in the UK and Ireland, supported by policy and legislation. These provide an objective starting point for identifying the important ecological features that need to be considered. **Table 10.4** shows a procedure for determining the geographical level of importance of site designations, habitats and species. Where a feature is important at more than one level in the table, its overriding importance is that of the highest level. Usually only the highest level of legal protection is listed.

Table10.4: Geographical Level of IEFs

Level of Importance	Sites	Habitats	Species
International	Designated, candidate or proposed Special Areas of Conservation, Special Protection Areas and Ramsar sites; UNESCO (Ecological) World Heritage Sites; UNESCO Biosphere Reserves; Biogenetic Reserves.	A viable area of habitat included in Annex I of the EC Habitats Directive; a habitat area that is critical for a part of the life cycle of an internationally important species.	A European Protected Species; an IUCN Red Data Book species that is globally Vulnerable, Endangered or Critically Endangered.
National (UK)	Sites of Special Scientific Interest; National Nature Reserve; Marine Conservation Zones (UK offshore).	An area of habitat fulfilling the criteria for designation as an SSSI or MCZ; a habitat area that is critical for a part of the life cycle of a nationally important species.	An IUCN Red Data Book species that is Vulnerable, Endangered or Critically Endangered in the UK; a species that is Rare in the UK (<15 10km grid squares); a Schedule 5 (animal) or Schedule 8 (plant) species included in the Wildlife and Countryside Act (WCA) 1981; any species protected under national (UK) legislation where there is the potential for a breach of the legislation; a species that is Vulnerable, Endangered or Critically Endangered in The Vascular Plant Red Data List for Great Britain[12].

12 Cheffings, C.M. & Farrell, L. (eds), Dines, T.D., Jones, R.A., Leach, S.J., McKean, D.R., Pearman, D.A., Preston, C.D., Rumsey, F.J., Taylor, I. (2005) The Vascular Plant Red Data List for Great Britain. Species Status No. 7. JNCC, Peterborough. Available from: https://hub.jncc.gov.uk/assets/cc1e96f8-b105-4dd0-bd87-4a4f60449907 (Accessed March 2024)

Level of Importance	Sites	Habitats	Species
National (Scotland)	National Parks; Marine Protected Areas; Marine Consultation Areas.	SBL Priority Habitats and Priority Marine Features (PMFs)[13] (Scotland); semi-natural and ancient woodland.	Species of principal importance for biodiversity in the relevant countries[14], including SBL Priority Species and PMFs (Scotland). Species protected under the Marine Scotland Act 2010.
Regional	Regional Parks (Scotland).	Regional Local Biodiversity Action Plan habitats noted as requiring protection.	A species that is Nationally Scarce in the UK (present in 16-100 10km grid squares); a species that is included in the Regional LBAP; an assemblage of regionally scarce species.
County / Metropolitan	Woodland Trust Sites; Royal Society for the Protection of Birds Sites; Scottish Wildlife Sites.	County LBAP habitats noted as requiring protection.	A species that is included in the County LBAP; an assemblage of species that are scarce at the county level.
Local		Semi-natural habitats that are unique or important in the local area.	Species as defined by Local Authority lists (if available).
Site		Common and widespread habitats not covered above.	Common and widespread species not covered above.
Negative			An Invasive Non-Native Species (INNS) as defined by the GB Non-Native Species Secretariat (NNSS) and supported by the GB Invasive Non-native Species Strategy (2015).

10.6.4. IMPACT ASSESSMENT

The assessment of impacts describes how the baseline conditions would change as a result of the project and its associated activities and from other developments. The term ‘impact’ is used commonly throughout the EIA process and is usually defined as a change experienced by a receptor (this can be positive, neutral or negative). The term ‘effect’ is commonly used at the conclusion of the EIA process and is usually defined as the consequences for the receptor of an impact after mitigation measures have been taken into account. The EIA Regulations specifically require all likely significant effects to be considered.

13 In July 2014, Scottish Ministers adopted a list of 81 priority marine features (PMFs) – many of which are features characteristic of the Scottish marine environment. Most are on other conservation status lists so may be valued higher than this.

14 These are all the species that were identified as requiring action in the UKBAP and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework, including any additions.

Therefore, impacts and effects are described separately and the effects for the IEFs are assessed as being either significant or not according to the importance and sensitivity of the IEF.

Significant cumulative effects can result from the individually insignificant but collectively significant effects of actions taking place over a period of time or concentrated in a location, for example:

- Additive / incremental; and
- Associated / connected.

10.6.4.1. Assessment Criteria – Magnitude

The CIEEM guidance states that when describing changes/activities and positive or negative impacts, reference should be made to the following parameters where relevant:

- Magnitude
- Extent
- Duration
- Reversibility, and
- Timing and frequency.

Magnitude refers to the size, amount, intensity and volume of an impact, determined on a quantitative basis, if possible, but typically expressed in terms of relative severity, such as major, moderate, low or negligible. Extent, duration, reversibility, timing and frequency of the impact can be assessed separately but they tie in to determine the overall magnitude.

Criteria for describing the magnitude of an impact are presented in **Table 10.5** below:

Table 10.5: Criteria for Describing Magnitude of Impact

Magnitude	Description
Major	Total or major loss or alteration to the IEF, such that it will be fundamentally changed and may be lost from the site altogether; and / or loss of a very high or high proportion of the known population or range of the IEF.
Moderate	Loss or alteration to the IEF, such that it will be partially changed; and / or loss of a moderate proportion of the known population or range of the IEF.
Low	Minor shift away from the existing or predicted future baseline conditions. Change arising from the loss or alteration will be discernible but the condition of the IEF will be similar to the pre-development conditions; and / or having a minor impact on the known population or range of the IEF.
Negligible	Very slight change from the existing or predicted future baseline conditions. Change barely discernible, approximating to the 'no change' situation; and / or having a negligible impact on the known population or range of the IEF.

10.6.4.2. Assessment Criteria – Significance

Significance is a concept related to the weight that is attached to effects when decisions are made. For the purposes of EcIA, a 'significant effect' is an effect that either supports or undermines biodiversity conservation objectives for IEFs. In broad terms, significant effects encompass effects on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).

Significant effects are quantified with reference to an appropriate geographic scale (see **Table 10.5** above). The CIEEM guidance has one 'level of importance' and a geographical 'scale of significance'. This is to deal with the fact that the geographical scale at which the effect is significant is not necessarily the same as the geographic level of importance of the IEF.

A sensitivity scale is used to assist in the determine the significance of effects, as shown in **Table 10.6** below:

Table 10.6: Sensitivity of Important Ecological Features

Sensitivity	Definition
High	Tolerance: The IEF has a very limited tolerance of the effect.
	Adaptability: The IEF is unable to adapt to the effect.
	Recoverability: The IEF is unable to recover, resulting in permanent or long term (>10 years) change.
Medium	Tolerance: The IEF has limited tolerance of the effect.
	Adaptability: The IEF has limited ability to adapt to the effect.
	Recoverability: The IEF is able to recover to an acceptable status over the medium term (5-10 years).
Low	Tolerance: The IEF has some tolerance of the effect.
	Adaptability: The IEF has some ability to adapt to the effect.
	Recoverability: The IEF is able to recover to an acceptable status over the short term (1-5 years).
Negligible	Tolerance: The IEF is generally tolerant of the effect.
	Adaptability: The IEF can completely adapt to the effect with no detectable changes.
	Recoverability: The IEF is able to recover to an acceptable status near instantaneously (<1 year).

Consideration of conservation status is important for assessing the significance of effects of impacts on individual habitats and species. The Habitats Directive provides a helpful definition of conservation status for habitats and species (as defined by Articles 1 (e) and 1(i)):

For habitats, conservation status is determined by the sum of the influences acting on the habitat and its typical species, that may affect its long-term distribution, structure and functions as well as the long-term survival of its typical species within a given geographical area; and

The conservation status of natural habitats will be taken as 'favourable' when:

- *its natural range and areas it covers within that range are stable or increasing, and*
- *the species structure and functions which are necessary for its long term maintenance exist and are likely to continue to exist for the foreseeable future, and*

– *the conservation status of its typical species is favourable as defined in Article 1(i).*

For species, conservation status is determined by the sum of influences acting on the species concerned that may affect the long-term distribution and abundance of its populations within a given geographical area.

The conservation status of species will be taken as 'favourable' when:

– *population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitats, and*
– *the natural range of the species is neither being reduced for the foreseeable future, and*
– *there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.*

The scientific evidence gathered during the assessment process is used along with professional judgement where appropriate to determine the significance of effects according to the guidance above. Where it is not possible to justify a conclusion of no significant effect, a significant effect is assumed based on the Precautionary Principle.

10.6.4.3. Assessment Criteria – Confidence in Predictions

CIEEM does not cover levels of confidence in predictions adequately, therefore an approach has been adopted based on river conservation evaluation[15]. A simple, qualitative index based on professional judgement is assigned to each predicted effect as follows:

A: high confidence.
B: intermediate confidence.
C: low confidence.

Factors influencing confidence include:

- The frequency and effort of field sampling
- Constraints to the field survey
- The completeness of the data (field and desk)
- The age of the data (although recent data are not necessarily always more reliable than old data)
- The state of scientific knowledge relating to the predicted effects of development activities on the IEF (the accuracy of the magnitude assessment), and
- The accuracy of the assessment of significance.

10.6.4.4. Assessment Criteria – Success of Mitigation

The word 'mitigation' has developed a wider meaning and common usage in environmental assessment than its strict meaning related to reducing the severity of something. Mitigation can sometimes be used as a generic term for a wide range of counter-acting measures, all of which, as the Directive and Regulations prescribe, are intended to *prevent, reduce and where possible offset any significant adverse effect on the environment*. Mitigation can be used to encompass measures intended to avoid, minimise or compensate for adverse effects (this is the 'mitigation hierarchy').

15 NatureScot (Scottish Natural Heritage) (2001) SERCON: System for Evaluating Rivers for Conservation, Version 2, Technical Manual.

Mitigation and compensation measures often carry a degree of uncertainty. Uncertainty associated with a design will vary according to a number of factors, such as:

- The technical feasibility of what is proposed.
- The overall quantity of what is proposed.
- The overall quality of what is proposed.
- The level of commitment provided to achieve what is proposed.
- The provision of long-term management.
- The timescale for predicted benefits.

The following objective scale is used for the success of mitigation:

- Certain/near certain: probability estimated at 95% chance or higher.
- Probable: probability estimated above 50% but below 95%.
- Unlikely: probability estimated above 5% but less than 50%.
- Extremely unlikely: probability estimated at less than 5%.

10.7. Baseline

This section should be read in conjunction with the Bird Survey Report in **Volume 4, Appendix 10.1: Breeding Bird Report.**

GMBRC retuned a large number of bird records during the desk study. Fourteen records considered relevant to the site are detailed in the Preliminary Ecological Appraisal (PEA) report in **Volume 4, Appendix 9.1**.

A total of thirty-five bird species were recorded on or adjacent to site during the 2023 breeding bird survey period.

Eight of the species were recorded are Priority Species on the SBL:

- Dunnock (*Prunella modularis*)
- Lesser Redpoll (*Acanthis cabaret*)
- Reed Bunting (*Emberiza schoeniclus*)
- Siskin (*Carduelis spinus*)
- Song Trush (*Turdus philomelos*)
- Common Starling (*Sturnus vulgaris*)
- Tree Pipit (*Anthus trivialis*)
- Wood Warbler (*Phylloscopus sibilatrix*)

Four of the species were recorded are Red List species of conservation concern. These are:

- Lesser Redpoll, Starling, Tree Pipit and Wood Warbler – which have all suffered severe longer-term declines in breeding populations.
- In addition, Tree Pipit and Wood Warbler have suffered moderate declines in their UK range.

Seven of the species recorded are Amber List species of conservation concern. These are:

- Dunnock, Reed Bunting, Song Thrush, and Willow Warbler (*Phylloscopus trochilus*) – which have all suffered moderate longer-term declines in their UK breeding populations
- Wren (*Troglodytes troglodytes*) has a UK breeding population of international importance
- Common Gull (*Larus canus*) has a UK non-breeding population of international importanc, and
- Red-breasted Merganser (*Mergus serrator*) has suffered a moderate longer-term decline in its non-breeding UK population.

The remaining twenty-three species are Green-Listed species and therefore not covered in the above legislation and are considered to have no additional conservation concern.

Of the thirty-five species recorded during the surveys, twenty-two of these were either confirmed or suspected of breeding within the survey area. Four species had confirmed breeding territories within the survey area – Wood Warbler, Blackbird (*Turdus merula*), Chiffchaff (*Phylloscopus colybita*) and Robin (*Erithacus rubecula*). None of the species present were in numbers or had population sizes that would represent importance at national, regional, or local levels.

Although birds were present in low numbers throughout the survey area, all major natural habitats within the PDA supported breeding species. Semi-natural broadleaved woodland in the northern part of the PDA supported the greatest number of breeding species. Conifer plantations supported species such as Coal Tit (*Periparus ater*), Goldcrest (*Regulus regulus*), and Song Thrush. Although a non-native invasive species, rhododendron, on site was found to support Blackcap (*Sylvia atricapilla*), Wren, and Willow Warbler territories.

All wild bird species and their nests are protected under the WCA (1981).

10.7.1. EVALUATION

The evaluations have been applied only to those designated sites, habitats and species that have been scoped into the assessment and those where there is the potential for impacts that could result in significant adverse ecological effects as a result of the Proposed Development. The IEFs and the evaluations are presented in **Table 10.7** below.

Table 10.7: Evaluation of Important Ecological Features

IEF	Present on site?	Present in wider area?	Importance	Justification
Birds	Y	Y	International/ National/ Regional/ Local	WCA (1981) Schedule 1, SBL, Red List, Amber List and Green List species present

10.8. Potential Effects

The following assessment is made assuming no avoidance mitigation or compensatory strategies are applied.

The mitigation set out in **Section 10.9** will detail the adopted strategies proposed to minimise effects as far as possible.

Injury / Demise During Vegetation Clearance

Without mitigation, there is a potential for nesting birds to be killed, injured or disturbed during vegetation clearance work and subsequent construction during the bird nesting season (March – September, inclusive).

Loss / Fragmentation / Degradation of Nesting and Foraging Habitat

Removal of birch woodland, conifer plantation, and rhododendron to facilitate the spoil management area would result in the loss of confirmed Wood Warbler (1), Chiffchaff (1), Great Tit (1), Goldcrest (1), and Robin (1) territories and probable additional Wood Warbler (2), Dunnock (1), Song Thrush (2), Willow Warbler (2), Wren (1), Blackbird (2), Blackcap (2), Blue tit (2), Chiffchaff (2), Coal Tit (1), Garden Warbler

(1), Great Spotted Woodpecker (1), Great Tit (1), and Robin (2) territories. Vegetation removal during construction is likely to temporarily remove a small area of suitable foraging habitat and available food sources for a range of species. These habitats are abundant in the wider landscape.

Disruption of Breeding Behaviour from Increased Disturbance

Auditory and visual disturbance during the construction and operational phases could disrupt territorial and breeding behaviours, interfere with the ability of birds recorded on site to hold territories during the nesting season (March - September, inclusive), and permanently affect local bird populations. Furthermore, during the construction and operational phases new artificial lighting has the potential to impact on breeding birds and territorial behaviour through the alteration of day-night cycles, extending activity periods, and increasing visibility to predators.

The impacts relating to birds as a result of death during ground clearance, habitat loss, and disturbance from the Proposed Development are considered to be of **low** magnitude on an IEF of **low** sensitivity. The confidence level for this assessment is **high**.

10.9. Mitigation and Compensation

Mitigation / compensation measures pertaining to birds are further detailed in the accompanying Bird Survey Report included in **Volume 4, Appendix 10.1: Breeding Bird Report**.

Vegetation clearance or tree removal would not be completed during the nesting bird season (March to September, inclusive, although some species may breed outwith this period), unless no active nests are identified during a nesting bird survey within 48 hours prior to works. Should any nesting birds be identified, an appropriate buffer zone should be maintained and works suspended until all dependent young have left the nest. No activity may take place within this exclusion zone until the ECoW confirms that either the young have fledged, the brood has failed, or nest has become inactive. Fencing or signage would delineate these restricted zones.

Noise reduction measures would be implemented during the construction phase in working areas adjacent to retained habitat. Machinery would not be left idling within sensitive areas and noisy activities would be scheduled during times when birds are less active.

To minimise the impact of artificial lighting on birds, retained habitat would not be illuminated during the construction or operational phase. Lights within the working area would be installed within shields to direct light downwards and reduce light spill into natural habitats. The lowest light intensity necessary for functioning would be used to minimise disturbance.

Compensatory bird boxes suitable for the bird species confirmed or suspected of breeding within the survey area would be provisioned within existing adjacent woodland and mature trees during the construction phase and in the compensatory planting area during the operational phase. The bird boxes would be suitable for the range of species recorded as having confirmed or probable breeding territories within the PDA. Small hole nest boxes would be utilised for species such as wood warbler, willow warbler great tit, blue tit, coal tit. Boxes would be positioned both between 3-5m above ground level on retained semi-mature/mature trees and low to the ground in dense scrub. Some of the small hole nest boxes would be installed on conifer trees as preferred by coal tits. Open front nest boxes would be utilised for species such as song thrush, blackbird, dunnock, and robin and positioned low to the ground within dense scrub and on tree bases. Specialised woodpecker boxes would be utilised for great spotted woodpecker and installed between 3-5m above ground level on retained semi-mature/mature trees.

Some species do not use nest boxes, and thickets of dense, native shrubs of local providence would be incorporated into the compensatory planting area, including hawthorn (*Crataegus monogyna*), blackthorn (*Prunus spinosa*), elder (*Sambucus nigra*), holly (*Ilex aquifolium*), and crab apple (*Malus sylvestris*).

Assuming these mitigation and compensation measures detailed are in place during the construction and operational phases, the residual effects are assessed to be **non-significant**. Providing the mitigation strategy above is adhered to, the success of mitigation is **near-certain**.

10.10. Monitoring and Licencing

10.10.1. MONITORING

Monitoring would be required to determine the success of compensation measures and provide data on which to base adaptive management if objectives are not being achieved. It is anticipated that the following post-construction monitoring would be required. The results of annual monitoring would be included in a short-from technical report that would be shared with LLTNPA, as required.

- Bird boxes would be checked for the first three years for condition and signs of use.

10.10.2. LICENCING

No licencing is required for works proposed under the current plans.

10.11. Residual Effects

Table 10.8 below summarises the assessment of potential impacts on each IEF, proposed mitigation and the assessed residual effects where all recommended mitigation and enhancements are implemented:

Table 10.8: Summary of Residual Effects

Important Ecological Feature	Potential Impact and Effects (before mitigation)	Avoidance, Mitigation and Enhancement Measures	Residual Effect After Mitigation and Enhancement	Requirement for Further Survey Work/Licencing
Birds	Injury / death during vegetation clearance	Pre-works nesting bird check if works commence during sensitive periods. Restricted zones surrounding nest sites.	Low (Non-Significant)	Pre-works nesting bird check.
	Disruption of breeding behaviour	Noise reduction measures. Sensitive working times.	Low (Non-Significant)	N/A
	Loss / fragmentation / degradation of nesting and foraging habitat	Compensatory bird boxes.	Low (Non-Significant)	Monitoring of bird boxes during first three years.

10.12. Cumulative Impacts

Cumulative effects can occur where a proposed development results in individually insignificant impacts that, when considered in-combination with impacts of other proposed or permitted plans and projects, can result in significant effects.

This section of the EcIA assesses the ecological effects of the Proposed Development cumulatively with the ecological effects of other developments that have either received planning permission or are the subject of a planning application which has not yet been determined.

The Argyll and Bute Council Interactive Planning Map[16] was utilised to identify nearby developments. The recent developments (registered / approved within the past 5 years) listed below were identified within 5km of the site, where development could lead to potential cumulative impacts on IEFs associated with the Sloy PHS development.

10.12.1. DEVELOPMENT WITH PLANNING APPROVAL

10.12.1.1. Cruach-Tairbeirt Forestry Works

2021/0451/NOT

Planning application 2021/0451/NOT pertains to a proposed development located approximately 1.3km to the southwest of the Sloy PHS development and which includes the construction of 7200m of new forestry road, including eight turning points and four passing places to provide access to the Cruach-Tairbeirt forest block to facilitate tree felling, including the felling of larch trees infected with or expected to become infected with *Phytophthora ramorum*. The new road would also provide access for deer control and other work that would take place after felling. It is anticipated that felling and replanting would have a positive impact on biodiversity in that the restocking would result in increased age class, species and habitat diversity.

The total plan area for Cruich Tairbeirt occupies c. 895 ha of mainly productive conifer plantation, and also native broadleaf woodland including Gen Lion Woods SAC and SSSI and Kenmore Woods. It is a 5-year plan to remove infected Larch following an SPHN notice served in 2022.

Overall, there is no expected cumulative effects to IEFs identified within this assessment.

2022/0258/NOT

Planning application 2022/0258/NOT pertains to a proposed development located 1.8km to the southwest of the Sloy PHS development and includes the construction of 1850m of forestry road, including eight turning points and two laybys on land At Dubh Chnoc, Inveruglas, to facilitate tree felling.

Overall, there is no expected cumulative effects to IEFs identified within this assessment.

10.12.2. DEVELOPMENT WITHOUT PLANNING APPROVAL

The following planning application has also been reviewed to assess cumulative impacts. However, due to the early stage, limited details regarding, proposed development, presence of notable flora or fauna, or mitigation is available.

[16] Loch Lomond & The Trossachs National Park *Planning – Map Search,* [Online]. Available from: Map Search (lochlomond-trossachs.org) (Accessed April 2024).

10.12.2.1. Sloy Transformer Replacement Project

Pre-planning consultation 2023/0149/PAC covers the development of a new substation platform including earthworks and tree clearance, construction of the substation and associated infrastructure, and removal of redundant overhead line apparatus. Loch Lomond & The Trossachs National Park state that a planning application must be submitted no later than 27 October 2024. Without further ecological assessment, further cumulative effects of IEFs identified within this assessment cannot be predicted.

10.13. Biodiversity Enhancements

In order to comply with local and national planning policy and planning policy guidance, the following enhancements would be delivered:

- Additional planting of diverse native trees, hedgerow, woodland and wildflower grassland would enhance the commuting and foraging resources for birds present within the locale. Plants and seeds of local provenance would be sourced to achieve the best biodiversity outcome.
- The Proposed Development should incorporate a range of additional bird nesting boxes to provide permanent nesting opportunities within the built environment. All bird boxes must be installed at a height of at least 2m.
- Leave dead trees standing where safe to do so to provide natural nesting sites for cavity nesting birds.
- Create brash piles within the compensatory planting area to provide natural nest sites for ground nesting birds.

10.14. Summary and Conclusion

No significant effects on the IEFs are predicted.

Assuming no avoidance mitigation or compensatory strategies are applied, removal of habitats within the PDA to accommodate the spoil management area could result in injury and / or death of nesting birds during the nesting bird season (March to September, inclusive) and result in the loss of a small of area of habitat which supports confirmed territories of four bird species, including one BOCC Red List species (Wood Warbler), and probable territories of fourteen bird species, including three Amber List species (Song Thrush, Willow Warbler, and Wren). There is a possibility of a small number of birds experiencing disturbance or displacement from a small area of their habitat, but this is not considered likely to affect the conservation status of populations in a local, national or international context. Furthermore, auditory and visual disturbance during the construction and operational phases could disrupt territorial and breeding behaviours, interfere with the ability of birds recorded on site to hold territories during the nesting season, and permanently affect local bird populations.

Providing mitigation measures during construction are applied, including pre-work nesting bird check during the nesting season, noise reduction measures and sensitive lighting strategy within the working area, and compensatory bird boxes suitable for the bird species confirmed or suspected of breeding within the survey area are provisioned during the construction and operational phase, the residual effects on birds are assessed to be non-significant.

Biodiversity enhancements would provide benefits to the local biodiversity, creating habitats suitable for a variety of bird species which frequent the site and locale.

The cumulative effects of the Proposed Development in combination with other cumulative developments in the vicinity are considered to be not significant.