

Loch Kemp Storage - EIA Report

Appendix 11.1: Ornithology Field Survey Methodology

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Appendix 11.1: Ornithology Field Survey Methodology

1. Upland Breeding Bird Survey

Four breeding bird survey (BBS) visits using a version of the Brown and Shepherd¹ method were carried out between April and July 2021, the breeding bird survey area is displayed in **Figure 11.1: Ornithological Survey Areas**.

The modified Brown and Shepherd Moorland Breeding Bird survey is the standard survey technique for moorland / upland breeding birds and is described in the SNH online guidance (SNH 2014, revised 2017)². The Brown and Shepherd methodology is based on a constant search method involving spending 25 minutes in each 500 m x 500 m quadrant within the breeding bird survey area. Each quadrant was walked to ensure that all parts were approached within 100 m.

The survey involved a single surveyor walking the areas of open ground, recording the location and behaviour of all birds seen and heard. At regular intervals, the surveyor paused, scanned the area for species and listened out for calls and songs. All registrations were marked on a 1:10,000 scale map using British Trust for Ornithology (BTO) symbols with a note of the species activity. These surveys were undertaken on the following dates:

- 25th-28th April 2021;
- 21st-24th May 2021;
- 19th-23rd June 2021; and
- 12th-16th July 2021.

All surveys were carried out between the hours of 08:00 and 17:00 British Summer Time (BST). Surveys were conducted by experienced ornithologists in suitable weather conditions.

Population estimates of birds in the breeding bird survey area were derived by comparing the summary maps for each of the main seasonal survey periods. When compiling figures of breeding birds, the approximate central location of all registrations recorded from different visits is used to identify a notional territory centre. Birds displaying breeding behaviour within a territory during more than one visit were assessed as breeding. For species which can be under-recorded such as

¹ Brown, A.F. & Shepherd, K.B. (1993) A method for censusing upland breeding waders. *Bird Study*, **40**: 198 – 195.

² Scottish Natural Heritage (204, revised 2017) Recommended Bird Survey methods to Inform Assessment of Onshore Wind Farms. SNH, Battleby.

snipe (*Gallinago gallinago*), birds displaying breeding behaviour, or recorded within suitable breeding habitat during any visit were assessed as breeding

2. Breeding Raptor Survey

Breeding raptor and owl surveys were carried out between April and July 2021, and March and July 2022 within the breeding raptor and owl survey area, as shown in **Figure 11.1: Ornithological Survey Areas**. Golden eagle (*Aquila chrysaetos*), red kite (*Milvus milvus*), osprey (*Pandion haliaetus*), hen harrier (*Circus cyaneus*), and white-tailed eagle (*Haliaeetus albicilla*) were identified as the target raptor species most likely to be breeding within the survey area. However, whilst surveys were designed to target these species in particular, all raptors encountered (including secondary species) were recorded.

Where suitable habitat for target raptor and owl species was present within 2 km of the Proposed Development, specific surveys for these target species were carried out using a combination of walkover surveys combined with Vantage Point surveys (VPs) in accordance with methods described in Hardey *et al.*, 2013³. Fixed point watches were carried out with the aim of identifying courtship displays and territorial behaviour of target raptor and owl species. In addition, any raptor flight data from the VP surveys that was indicative of breeding was used to help target the walkover surveys. Four breeding raptor and owl surveys were undertaken between May and July 2021 on the following dates: 7th-8th May, 19th-20th May, 17-18th June and 20th-21st July. Four further visits were undertaken in 2022 on the following dates: 14th-15th March, 23rd-24th April, 9th-10th June and 29th-30th July. In order to provide supplementary data, site visits were also undertaken on 14th-15th June 2023, and 11th August 2023.

Surveys were carried out by suitably experienced surveyors under Schedule 1 Licence in suitable weather conditions. Details of all target species flights (including height, duration and number of birds) were recorded, with flightlines recorded on 1:10,000 scale field maps. Results from breeding raptor and owl surveys are contained in Confidential **Appendix 11.4: Confidential Appendix of Sensitive Bird Records**.

3. Waterbird Surveys

Waterbird surveys were undertaken using a combination of general walkover surveys and species-specific methodologies for black-throated diver, red-throated diver and Slavonian grebe as described in Gilbert *et al.*, (1998). Licensed surveyors visited and checked all potentially suitable nesting waterbodies within 1km of the Proposed Development which identified ten potentially suitable waterbodies. These lochs are shown in **Figure 11.1: Ornithological Survey Areas**.

³ Hardey, J., Crick, H., Wernham, C., Riley, H., Etheridge, B. & Thompson, D. (2013) Raptors: a field guide to survey and monitoring (3rd Edition). The Stationery Office, Edinburgh.

Potentially suitable waterbodies were surveyed at least twice during the breeding season (as per guidance). In practice, these lochs were checked on numerous occasions during walkover surveys. If there was evidence of breeding, surveyors would collect targeted nesting diver flight-lines during the breeding season.

Waterbird surveys were carried out at suitable lochs and lochans on the following dates: 25th June; 9th and 23rd July and 6th August 2021, and 18th April, 20th May, 15th June and 20th July 2022. Results from the waterbird surveys are contained in **Appendix 11.3: Assessment of Ornithological Receptors of Local Value**.

4. Black Grouse Surveys

The standard survey methodology for black grouse as outlined in Gilbert et al., (1998)⁹ was followed. Areas of potentially suitable habitat within 2 km of the Proposed Development (open moorland, woodland edges, open glades within woodland) were checked by surveyors in early May for black grouse leks. Surveys were conducted within 2 hours of dawn on clear and calm days to maximise lek detectability.

Black grouse surveys were undertaken on 5th and 6th May 2022.