

Appendix 12.4

Breeding Bird Survey

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1 Introduction

- 1.1.1 CH2M HILL Fairhurst Joint Venture (CFJV) is the Lead Design Consultant for the A9 Dualling Central Section (Glen Garry to Dalraddy). MacArthur Green has been commissioned to assist CFJV with ornithology elements relating to the Design Manual for Roads and Bridges DMRB Stage 2 options appraisal and DMRB Stage 3 iterative design assessment process.
- 1.1.2 This document details the results of field surveys carried out for Project 9 (Crubenmore to Kincaig) during the 2015 and 2016 breeding seasons.

2 Methods

- 2.1.1 Field surveys took place from May to July 2015, and March to May 2016, with the aims of mapping the distribution of breeding birds, estimating the approximate size of breeding bird populations, and identifying the areas of relatively high ornithological sensitivity to inform the design process. This included:
- Four separate breeding bird survey visits (May to July 2015)
 - A series of targeted scarce breeding bird surveys to record breeding species categorised as high conservation concern (May to July 2015 and March to May 2016)
 - A series of woodland grouse surveys to record lekking (or breeding), and associated maximum numbers (April and May 2016).
- 2.1.2 The ornithology surveys were undertaken and reported in line with design sections developed for Project 9 during DMRB Stage 2, comprising (from south to north):
- section 1 (ch. 40,000 to 40,846)
 - section 2 (ch. 40,846 to 44,662)
 - section 3 (ch. 44,662 to 48,881)
 - section 4¹ (ch. 48,881 to 52,812)
 - section 5 (ch. 52,812 to 56,650).
- 2.1.3 The section between ch. 56,200 and ch. 56,650 consists of a tie-in to connect with Project 10 (Kincaig to Dalraddy) of the A9 Dualling Programme.

2.2 Species under Consideration

2015 Breeding Bird Survey Target Species

- 2.2.2 The scope of the 2015 desk-based study and field surveys was restricted to “target species” (thereby excluding common species of low conservation concern) in order to more efficiently record and determine the location of higher sensitivity areas (i.e. containing populations of

¹ The Royal Society for the protection of Birds (RSPB) Scotland has provided breeding bird data for Insh Marshes National Nature Reserve (NNR) within the 500m study area between 2015 and 2017. This information is not included here but documented in **Appendix 12.6** in **Volume 2** and illustrated on **Drawings 12.40** to **12.44** in **Volume 3**.

species of higher conservation concern). Target species are those listed in one or more of the following:

- EU Birds Directive Annex I and regularly occurring migratory species²
- Schedule 1 of the Wildlife and Countryside Act³
- A qualifying interest of a nearby Special Protection Area (SPA) or Site of Special Scientific Interest (SSSI)
- The Cairngorms National Park Priority Species List⁴
- Red-listed in the Birds of Conservation Concern 3⁵
- Any other species identified as an integral part of the local bird assemblages which is of wider conservation importance (e.g. Amber-listed wader species).

Scarce Breeding Birds Surveys 2015 and 2016

2.2.3 Scarce breeding birds were defined as those listed in one or more of the following:

- EU Birds Directive (Annex I and regularly occurring migratory species)⁶
- Schedule 1 of the Wildlife and Countryside Act⁷
- A qualifying interest of a nearby Special Protection Area (SPA) or Site of Special Scientific Interest (SSSI)
- A rare national breeder (<300 pairs) not included within the above categories.

2.2.4 The River Spey – Insh Marshes Ramsar, SPA and SSSI is present in the study area within sections 2 to 5. The qualifying interests of the SPA during the breeding season are osprey, spotted crane, wigeon and wood sandpiper.

2.2.5 Osprey is also a qualifying interest of the SSSI, alongside the breeding bird assemblage, which includes, according to the citation, wigeon, shoveler, goldeneye, redshank, snipe and curlew. Black-headed gull is also listed as a noteworthy species for the Ramsar and SSSI.

Woodland Grouse Surveys 2016

2.2.6 Black grouse and capercaillie are considered as woodland grouse species. Both species are known to breed in the Cairngorms and Speyside areas.

² http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

³ http://jncc.defra.gov.uk/pdf/waca1981_schedule1.pdf

⁴ <http://cairngorms.co.uk/look-after/conservation-projects/biodiversity-action-plan/priority-species-information1>

⁵ <http://www.bto.org/sites/default/files/u12/bocc3.pdf>

⁶ http://ec.europa.eu/environment/nature/legislation/birdsdirective/index_en.htm

⁷ http://jncc.defra.gov.uk/pdf/waca1981_schedule1.pdf

2.3 Breeding Bird Surveys

2.3.1 Methods deployed for “generic” breeding bird surveys were based on a combination of Brown and Shepherd (1993⁸) upland bird surveys developed for surveying extensive upland areas, and Common Bird Census (CBC) surveys⁹, developed for more enclosed farmland and woodland areas. Both methods use a territory-mapping approach with species’ point records combined across survey visits to define breeding territories.

2.3.2 The key methodological aspects of the breeding bird surveys were:

- The survey area was surveyed four times in 2015 (during May, June and July) as per Calladine *et al.* (2009¹⁰) guidance
- Walk-routes which optimised ground visibility were used. Where possible, two surveyors followed an approximately parallel route walking through a 500m wide strip extending out from the A9 corridor (hereafter 500m buffer) such that all parts are approached to within at least 150 m. This was undertaken on both the sides of the existing A9 road
- Existing infrastructure which runs roughly parallel with the A9 road within the 500m buffer (*e.g.* the old A9 road and cycle path along the northbound carriageway, the Beaully-Denny Overhead Power Line along the southbound carriageway, as well as other minor roads and farm tracks) were used to maximise the time spent scanning an area for birds, so long as the route did not significantly deviate from the “ideal” survey route
- Fieldwork was undertaken between 0730 and 1800hrs, thus avoiding the main periods of rapidly changing bird activity (Brown and Shepherd, 1993)
- Isolated trees, copses and patches of scrub and woodland which could offer suitable breeding habitat were approached and examined
- At regular intervals (approximately every 100 m) the observers scanned the surrounding area with binoculars and listened for calls or song
- Contacts with birds by sight or sound were recorded on large-scale maps
- Standard BTO activity codes were used to note species, sex and age where possible, and to record activity such as singing or nest-building
- When individuals or pairs were observed the observer made efforts to establish whether, in their opinion, these birds were new observations or the same individuals previously encountered within the survey area
- Fieldwork was not undertaken in conditions considered likely to affect bird detection rates, for example in winds greater than Beaufort Scale Force 4, persistent precipitation, poor visibility (less than 300m), or in unusually hot weather. All meta data relating to weather conditions was recorded at regular intervals and has been stored on the CFJV SharePoint site

⁸ Brown, A. F. & Shepherd, K. B. (1993) A method for censusing upland breeding waders. *Bird Study*, 40: 189-195.

⁹ Marchant, J.H. (1983). *Common Birds Census instructions*. BTO, Tring. 12pp.

¹⁰ Calladine, J., Garner, G., Wernham, C. & Thiel, A. 2009. The influence of survey frequency on population estimates of moorland breeding birds. *Bird Study* 56: 381-388.

- After survey visits were completed the data were digitised and overview maps produced using GIS showing all records of each target species. These were analysed to produce composite breeding territory maps, using the methodology described by Bibby *et al.* (2000¹¹).

2.4 Scarce Breeding Bird Surveys

Desk Studies

- 2.4.2 In 2015 and 2016, habitat and species data obtained from desk-based studies and 2015 breeding bird surveys were used to focus survey effort within areas most likely to host breeding target species.

Field Surveys

- 2.4.3 Scarce breeding bird surveys followed species-specific survey guidelines such as those outlined in Hardy *et al.* (2009¹²) and Gilbert *et al.* (1998¹³), depending on habitat and likely species assemblage. The aims were to determine the distribution of occupied nests/territories for target species (particularly Schedule 1 listed species) and record breeding success.
- 2.4.4 Access was restricted to 500m from the A9 corridor. The main impact on breeding species such as raptors is likely to be disturbance during construction, and based on SNH guidance on species-specific disturbance distances (Ruddock and Whitfield, 2007¹⁴), this is likely to be confined to within 1 km of construction activity at most. The actual scarce breeding bird survey area was therefore a buffer of up to 1 km either side of the A9 corridor, depending on habitat type and topography. Because of access restrictions it was necessary to scan areas of land beyond 500m from the edge of the corridor.
- 2.4.5 Areas with potential for scarce breeding birds, as identified in the desk studies, were characterised as being of high sensitivity and therefore prioritised during surveys.
- 2.4.6 Areas of suitable habitat were visited to:
- Check for territory occupancy (1st and 2nd visits) – this consisted of watching over suitable habitat from a good vantage point for displaying males (and females)
 - Locate incubating birds (2nd and 3rd visits) – by listening for begging calls or watching for food provision by the other member of a pair
 - Check for young or breeding evidence (3rd visit in 2015) – by listening for begging calls, watching for food passes or watching for adults provisioning the nest with food
 - Check for fledged young (4th visit in 2015).
- 2.4.7 Surveys were undertaken by experienced and licensed field ornithologists. Extreme care was taken to avoid unnecessary disturbance to breeding birds.

¹¹ Colin J. Bibby, Neil D. Burgess, David A. Hill and Simon H. Mustoe (2000) *Bird Census Techniques*, 2nd Edition, London, Academic Press

¹² Hardy, J. Crick, H. Wernham, C. Riley, H. Etheridge, B and Thompson, D. (2009) *Raptors: A Field Guide for Surveys and Monitoring*. The Stationary Office, Edinburgh.

¹³ Gilbert, G., Gibbons, D. W. & Evans, J. (1998) *Bird Monitoring Methods*. RSPB, Sandy.

¹⁴ Ruddock, M. & Whitfield, D. P. (2007). *A Review of Disturbance Distances in Selected Bird Species*, A report from Natural Research (Projects) Ltd to Scottish Natural Heritage.

2.5 Woodland Grouse Surveys

- 2.5.1 Prior to 2016 field surveys, a desk-based review of habitat information, historic records and aerial photography was carried out to determine likely presence of capercaillie and blank grouse (see **Annex A**).
- 2.5.2 It was concluded that, due to a combination of a lack of historic data within Project 9, and lack of extensive and contiguous suitable habitat, capercaillie was scoped out of the field surveys, this approach followed consultation with RSPB regarding the scope of woodland grouse surveys.
- 2.5.3 The preferred habitats identified for black grouse leks included mosaics of moorland or heathland, woodland, plantations, rough grazing, in-bye land and meadows. The following areas were considered unsuitable for black grouse leks: ground above 550m; built-up areas; enclosed arable farmland; the interiors of unbroken post-thicket stage forest blocks and dense native woodland.
- 2.5.4 The survey methodology used is detailed in Gilbert *et al.* (1998). A summary is provided below:
- Black grouse were surveyed within the 500m A9 corridor, and scanned out to 1km, by counting total numbers of males and females at leks
 - Most lekking activity takes place at or soon after dawn in spring, and so known lek sites and other areas of suitable habitat which can host leks were visited during April and May within two hours of dawn, on calm dry days with good visibility where possible
 - Visits involved listening and scanning for lekking black grouse from strategic locations (avoiding disturbance of leks) and during walks between these locations ensuring that all potential habitat was covered
 - The maximum count of males in the two hours around dawn gives the standard count estimate but the maximum number of females seen was also presented
 - Leks that were at least 200m apart within the same year were treated as separate leks.

3 Results

3.1 Survey Limitations

- 3.1.1 Survey guidelines were followed as closely as practicably possible. However, the following should be noted:
- Wherever possible a constant walking search effort was maintained, particularly in more open moorland areas. However, in practice, access restrictions meant that it was necessary to adopt a stop-and-scan approach in some areas. It was not possible to access certain areas, which included private gardens, public amenities and golf courses. Where possible, these areas were scanned externally, but even where this was not possible, the habitat type suggests that bird sensitivity is likely to be low and few target species are likely to be present
 - The mainline railway track lies to the west of the A9 corridor within the survey area, and there was no access within the Network Rail boundary and across the tracks for Health and Safety reasons. There are a few road crossing points within the survey area that allowed movement from one side of the railway line to the other (*e.g.* bridges and underpasses). Consequently, for a number of locations where the railway line runs close to the road,

access to areas on the non-A9 side of the railway line was obtained on follow up visits by way of these minor roads

- The Brown and Shepherd (1993) survey guidelines suggest the first visit should be completed by mid-May. However, May 2015 was a relatively cold and windy month in comparison with the long-term averages (<http://www.metoffice.gov.uk/climate/uk/summaries/datasets>), and this could possibly have delayed the onset of breeding for a number of species. Therefore, a later start date was considered to be appropriate, with the first survey conducted between the 25th and 27th May
- The first scarce breeding bird surveys in 2015 were conducted in early June, and so it is possible that some early season breeding activity, including any breeding failures, may have been missed. However, the cold spring weather could possibly have delayed the onset of breeding by target species. Early season surveys were undertaken in 2016 eliminating data gaps with respect to this part of the season. Ongoing breeding was picked up by the continuing survey programme. Scarce breeding bird surveys in 2016 took place between March and May, and so any late breeding attempts, may have been missed. The 2016 surveys were however intended to compliment the 2015 surveys, to build up a complete picture of the breeding season (i.e. the surveys have covered the full breeding period from March to July).

3.2 Survey Results

2015 Breeding Bird and Scarce Breeding Bird Surveys

3.2.2 A total of 35 target species were recorded during the 2015 breeding bird and scarce breeding bird surveys. Their highest conservation status, level of breeding status (possible, probable or confirmed) and number of territories recorded within each section of Project 9 is presented in **Table 12.4.1**. SPA and SSSI references relates to the qualifying interests of the River Spey - Insh Marshes SPA and SSSI, which is located within the study area.

Table 12.4.1: Conservation status and number of breeding pairs (2015 Breeding Bird Survey)

Highest conservation status	Species	Latin name	Tie-in (S)	Section					Tie-in (N)
				1	2	3	4	5	
SPA breeding feature	Osprey*	<i>Pandion haliaetus</i>	-	✓	-	✓	-	1+	-
	Wigeon	<i>Anas penelope</i>	-	-	✓+	-	-	-	-
Ramsar site breeding feature	Black-headed gull* €	<i>Chroicocephalus ridibundus</i>	✓	✓	✓	C.20+	✓	✓	-
SSSI breeding feature	Goldeneye	<i>Bucephala clangula</i>	-	-	-	1	2	-	-
	Curlew*	<i>Numenius arquata</i>	-	-	-	2	9	-	-
	Snipe	<i>Gallinago gallinago</i>	-	-	1	3	5	-	-
Schedule 1 & Annex I	Merlin*	<i>Falco columbarius</i>	-	-	✓	-	-	-	-
	Golden eagle*	<i>Aquila chrysaetos</i>	✓	-	-	-	✓	-	-
	White-tailed eagle*	<i>Haliaeetus albicilla</i>	✓	-	-	-	-	-	-
	Marsh harrier*	<i>Circus aeruginosus</i>	-	-	-	-	✓	-	-
Schedule 1	Common crossbill	<i>Loxia curvirostra</i>	-	P	P	-	P	-	-

Highest conservation status	Species	Latin name	Tie-in (S)	Section					Tie-in (N)
				1	2	3	4	5	
CNPPS	Lapwing*	<i>Vanellus vanellus</i>	-	-	-	16	11	-	-
BoCC Red	Woodcock*	<i>Scolopax rusticola</i>	-	✓	-	-	-	-	-
	Lesser redpoll*	<i>Carduelis cabaret</i>	1	7	7	6	3	3	-
	Skylark	<i>Alauda arvensis</i>	-	P	-	-	-	-	-
	Linnet*	<i>Carduelis cannabina</i>	-	-	P	-	-	-	-
	Song thrush*	<i>Turdus philomelos</i>	1	2	2	3	3	3	-
	Mistle thrush	<i>Turdus viscivorus</i>	-	1	2	P	1	-	-
	Grasshopper warbler*	<i>Locustella naevia</i>	-	-	-	1	-	-	-
	Spotted flycatcher*	<i>Muscicapa striata</i>	1	3	4	1	2	2	-
	Starling*	<i>Sturnus vulgaris</i>	-	-	P	P	-	✓	-
	Tree pipit*	<i>Anthus trivialis</i>	1	2	2	-	-	-	-
	Grey wagtail	<i>Motacilla cinerea</i>	-	-	-	P	P	-	-
BoCC Amber†	Kestrel*	<i>Falco tinnunculus</i>	-	1	-	-	P	-	-
	Tawny owl	<i>Strix aluco</i>	-	-	-	1	P	-	-
	Greylag goose€	<i>Anser anser</i>	-	-	-	✓	2	✓	-
	Teal€	<i>Anas crecca</i>	-	-	✓	✓	-	-	-
	Mallard	<i>Anas platyrhynchos</i>	-	-	-	6	4	-	-
	Tufted duck	<i>Aythya fuligula</i>	-	-	✓	-	-	-	-
	Little grebe	<i>Tachybaptus ruficollis</i>	-	-	1	-	-	-	-
	Red grouse*	<i>Lagopus lagopus</i>	-	-	-	-	P	-	-
	Common gull	<i>Larus canus</i>	-	-	-	-	1	-	-
	Lesser black-backed gull	<i>Larus fuscus</i>	-	-	-	✓	-	-	-
	Common sandpiper	<i>Actitis hypoleucos</i>	-	-	2	3	-	-	-
Oystercatcher	<i>Haematopus ostralegus</i>	-	-	-	9	14	1	-	

BoCC = listed in Red or Amber Birds of Conservation Concern (Eaton *et al.* 2015)

CNPPS = Cairngorms National Park Priority Species

* = Scottish Biodiversity List Priority Species

✓ = present but no signs of breeding

P = possible or probable breeder, in suitable habitat, but no confirmation

C = colony, with total number of adults

† = Target Amber-listed species only (i.e. excludes common passerines which were not systematically recorded)

€ = Amber listed for its wintering population only

+ = Record outside of 500m study area

2016 Scarce Breeding Bird Surveys

3.2.3

A total of 11 scarce breeding bird species were recorded during the 2016 surveys. Their highest conservation status, level of breeding status and location within each section of Project 9 is

presented in **Table 12.4.2**. SPA and SSSI references relates to the qualifying interests of the River Spey - Insh Marshes SPA and SSSI, which is located within the study area.

Table 12.4.2: Conservation status and number of breeding pairs (2016 Breeding Bird Survey)

Highest conservation status	Species	Latin name	Breeding status	Section					Tie-in (N)
				1	2	3	4	5	
SPA feature	Osprey	<i>Pandion haliaetus</i>	Confirmed breeding	✓	✓	✓	-	1+	-
	Whooper swan	<i>Cygnus cygnus</i>	Non-breeding	-	-	-	✓	-	-
SSSI feature	Goldeneye	<i>Bucephala clangula</i>	Possible	-	P+	-	P	-	-
Schedule 1 & Annex I	Peregrine	<i>Falco peregrinus</i>	Confirmed breeding	✓	1+	-	-	-	-
	White-tailed eagle	<i>Haliaeetus albicilla</i>	Non-breeding	-	✓	✓	-	-	-
Annex I	Golden plover	<i>Pluvialis apricaria</i>	Possible	-	-	-	P+	P+	-
Schedule 1	Goshawk	<i>Accipiter gentilis</i>	Possible	-	-	P	-	-	-
	Common crossbill	<i>Loxia curvirostra</i>	Possible	-	✓	-	P+	-	-
	Fieldfare	<i>Turdus pilaris</i>	Non-breeding	-	-	-	✓	-	-
BoCC Red	Ring ouzel	<i>Turdus torquatus</i>	Possible	-	-	-	P+	-	-
BoCC Amber	Kestrel	<i>Falco tinnunculus</i>	Confirmed breeding	-	1	-	✓	-	-

✓ = present but no signs of breeding

P = possible or probable breeder, in suitable habitat, but no confirmation

+ = located outside of 500m corridor;

BoCC = listed in Red or Amber Birds of Conservation Concern (Eaton *et al.* 2015¹⁵)

Woodland Grouse

3.2.4 Surveys in 2016 established that there are three regularly-recorded black grouse leks within approximately 1km of the Project 9 corridor. A summary of findings is presented in **Table 12.4.3**, and leks within the 500m study area are shown in **Drawing 12.46** in **Volume 3**.

Table 12.4.3: Black grouse leks within Project 9 study area

Lek no.	Location	Section	Distance from current A9 corridor	Max. no. males	Max. no. females
1	Craigbuie Wood	5	c. 1.2km	8	7
2	Raliabeag	2	250m	25	1
3	Tom na Crualaich	1	250m	6	4

Leks 2 and 3 are within potential disturbance areas in the A9 corridor. No evidence of breeding was recorded within the survey area.

¹⁵ Eaton MA, Aebischer NJ, Brown AF, Hearn RD, Lock L, Musgrove AJ, Noble DG, Stroud DA and Gregory RD (2015) Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and Isle of Man. British Birds 108, 708–746.

SPA Species

- 3.2.5 Three qualifying interests of the nearby Insh Marshes SPA were recorded during surveys in 2015 and/or 2016: osprey, wigeon and whooper swan. Osprey is also a featured interest of the River Spey - Insh Marshes SSSI, and listed as noteworthy fauna in the River Spey - Insh Marshes Ramsar site citation.
- 3.2.6 Osprey was recorded breeding within 1km of the Project 9 footprint in 2015 and 2016. The exact location is retained as confidential due to the sensitive nature of nest sites within this report. Some flights, likely associated with a breeding pair, were recorded in 2015 and 2016. No hunting behaviour was observed within the survey area.
- 3.2.7 A female wigeon was recorded on a small loch in July 2015 (around 750m from the Project 9 footprint), and although no breeding evidence was observed, it is possible that the bird is connected to the SPA population.
- 3.2.8 Two family groups of whooper swan (total of 11 birds) were recorded within the SPA, beyond the 500m survey area buffer in 2016. Whooper swan qualifies for its non-breeding population.

Ramsar Site Species

- 3.2.9 Breeding black-headed gull is included in the Ramsar site citation as “noteworthy fauna”. It was recorded breeding outside the study area in 2015, where at least 20 pairs were observed near Lochan Odhar around 1km south of the A9. Over 200 birds were recorded using fields near Kingussie.

SSSI Species

- 3.2.10 In addition to osprey, wigeon and whooper swan; goldeneye, curlew and snipe were recorded within Project 9 in 2015 and/or 2016.
- 3.2.11 Goldeneye were found along the River Spey and are likely to have bred within the vicinity in 2015 and 2016.
- 3.2.12 Curlew was found mainly within section 4 in 2015, within marshy agricultural fields around the River Spey in particular. Around 11 pairs were thought to be present. Snipe was also present in smaller numbers, mainly in marshy ground in sections 2 and 3. The distribution of snipe and curlew outside Insh Marshes NNR is shown in **Drawing 12.45** in **Volume 3**.

Schedule 1 and Annex 1 Species

- 3.2.13 Nine Schedule 1 and/or Annex I species (apart from osprey) were recorded during 2015 and/or 2016 surveys: merlin, peregrine, golden eagle, white-tailed eagle, goshawk, marsh harrier, golden plover, crossbill and fieldfare.
- 3.2.14 Peregrine was recorded breeding beyond the 1km buffer of Project 9 in 2016. There were no records within the 500m corridor.
- 3.2.15 A merlin was recorded briefly in flight within section 2 during a breeding bird survey in July 2015.
- 3.2.16 A juvenile and an adult golden eagle were recorded on the same day in July, crossing above the southern tie-in from the hills to the east.
- 3.2.17 No breeding evidence was observed for white-tailed eagle in either year however one was observed in flight over forestry south of the southern tie-in section in July 2015. A sub-adult white-tailed eagle was also recorded flying on one occasion within section 3 in 2016.

- 3.2.18 A female marsh harrier was recorded hunting within the Insh Marshes SPA near Ruthven Barracks (section 4) on one day in July 2015. A juvenile and an adult golden eagle were recorded on the same day in July, crossing above the southern tie-in from the hills to the east.
- 3.2.19 A plucking spot with a number of remains of pheasant, woodpigeon and short-eared owl was found in woodland in section 3 in 2016, and considered likely to be used by goshawk. No breeding evidence was recorded, although it is considered possible as the signs were recorded within suitable breeding habitat.
- 3.2.20 Up to three golden plover territories were recorded within upland areas north of sections 4 and 5, beyond the 500m buffer, in 2016.
- 3.2.21 It is likely that common crossbill breeds within suitable habitat within proximity of Project 9, although it was only recorded beyond the 500m buffer.
- 3.2.22 A flock of 50 fieldfare was recorded in March 2016 – the species is very unlikely to breed in the area, and the survey area is likely to be used on occasion for migrating individuals.

Cairngorms National Park Priority Species

- 3.2.23 In 2015, lapwing were concentrated in sections 3 and 4 of Project 9, mainly in enclosed agricultural fields close to the River Spey in the Insh Marshes NNR. Approximately 27 pairs were present in these areas. The species was absent from areas of less-favoured moorland habitat in the south of Project 9 in particular. Lapwing breeding areas outside of the Insh Marshes are presented in **Drawing 12.45 in Volume 3**.

Birds of Conservation Concern: Red-listed Species

- 3.2.24 A total of 11 Red-listed species were recorded during 2015 surveys, all of which have been listed due to national declines rather than being inherently rare.
- 3.2.25 Ring ouzel was recorded on the hillside north of section 4 in 2016, and is likely to have bred there, albeit out with the 500m survey area.
- 3.2.26 Lesser redpoll, song thrush, spotted flycatcher and tree pipit were found associated with areas of woodland within Project 9, with starlings found in agricultural fields.

Birds of Conservation Concern: Amber-listed Species

- 3.2.27 Many of the amber listed species encountered during the surveys were passerines. These species are generally included on the Amber list due to national declines and were locally abundant along the A9 corridor. Furthermore, these species are not regarded as particularly sensitive to disturbance and attempting to record all observations could potentially lead to more sensitive species being missed. Consequently, only non-passerine Amber listed species were recorded.
- 3.2.28 Greylag goose was found within agricultural fields in the northern half of Project 9, to the north of the A9. At least two breeding pairs are thought to have been present in 2015. Other wildfowl present include teal, tufted duck and little grebe.
- 3.2.29 Oystercatcher were found mainly within section 3 and 4 in 2015, within agricultural fields around the River Spey in particular. Around 28 pairs were thought to be present. Redshank was also present in smaller numbers, in marshy ground in section 3 and 4. Common sandpiper distribution was more concentrated along watercourses within sections 1 and 2.

- 3.2.30 In 2015 kestrel bred approximately 800m south-east of the A9 road towards Ordan Shios. Activity was repeatedly recorded in the area, likely associated with the breeding pair. A pair was also likely to have bred approximately 1km north of the A9 road towards Creag Bheag, although this could not be confirmed. In 2016, kestrel bred approximately 500m from the A9 road towards Ordan Shios, and likely to forage within the survey area.
- 3.2.31 A juvenile tawny owl was heard calling near Milton of Nuide Farm in 2015, and an adult was recorded further east in section 3, north of the A9.

4 Discussion

- 4.1.1 This report summarises the ornithological survey results from the 2015 and 2016 breeding seasons. In general, data obtained suggest that the Project 9 survey area was host to a typical upland breeding bird assemblage, and in particular a healthy breeding wader population in marshy fields along the River Spey. Land within the Insh Marshes SPA (not systematically searched during these surveys) is likely to be important for a number of species such as lapwing, curlew, and marsh harrier which were all recorded. Osprey is a qualifying interest of the SPA, and one pair was recorded breeding nearby, albeit at a location and distance (over 900m from the A9) that is unlikely to cause direct disturbance to the nest.
- 4.1.2 There were limited areas of habitat suitable for other breeding raptors, and this is reflected in the low numbers recorded (kestrel being the only other target raptor species recorded breeding within 1km, with peregrine breeding over 1 km away).
- 4.1.3 Not only does the site appear important for nesting waders, but also for post-breeding aggregations of adults and juveniles (*e.g.* lapwing, with flocks of up to 30 individuals recorded from late May) which may need to be safeguarded from construction disturbance by avoiding key areas or key breeding periods.
- 4.1.4 Direct habitat loss is unlikely to be a significant issue for waders since much nesting has taken place adjacent to the River Spey, where dualling is unlikely to occur. An exception to this is where the road currently crosses the Spey within section 4, near Kingussie, where works during spring and summer may disrupt breeding activity. Some territories may be lost, either permanently, or until habitat reinstatement occurs after the construction phase.
- 4.1.5 Three black grouse leks were recorded, with high numbers of males recorded at the Raliabeag lek in particular. This, and the Tom na Crualaich lek are within potential disturbance distance for A9 work. Habitat loss (*e.g.* tree removal) may also be a factor for this species.
- 4.1.6 Depending on the nature, location, timing and duration of construction works, there is a possibility that breeding may be interrupted for some scarce breeding bird species and black grouse due to disturbance, potentially out to 500m from source (*e.g.* Reijnen *et al.* 1995¹⁶) (and possibly out to 750m for black grouse leks). Conducting this work during the non-breeding season (August to March) in particularly sensitive areas would avoid this issue (or for black grouse, avoiding work earlier than one hour after dawn during April and May).

16 Reijnen, R., Foppen, R., Terbraak, C. and Thissen, J. 1995. The effects of car traffic on breeding bird populations in woodland. III. Reduction of density in relation to the proximity of main roads. *Journal of Applied Ecology*, 32, 187-202.

- 4.1.7 Woodland patches held a range of passerines of conservation concern (*e.g.* Red-listed species). These species may be subject to direct habitat loss if dualling requires any tree felling. Densities may also be suppressed up to at least 500m from the road.

Annex A

Woodland Grouse Survey Rationale

Annex A Woodland Grouse Survey Rationale

A.1.1.1 The Woodland Grouse sensitivity was formulated using the following information:

- Ordnance survey 1:25,000 scale basemaps to determine habitat types and study area (500m buffer from A9 corridor). [GIS Ref – OS_25k]
- A combination of aerial imagery of route provided by CFJV [GIS ref – A9_10cm_Ortho and Google Imagery (Accessed March 2016), to determine habitat types
- Phase 1 habitat survey results from 2015 provided by CFJV, to confirm habitat types [GIS ref – Annex 1 and GWDTE (Phase_1_Habitats_A9_Polygon). Note that survey coverage did not extend to 500m buffer, but does provide an indication of habitat type within the local area
- National Vegetation Classification (NVC) survey results carried out in 2015 [GIS ref – NVC_Poly_Project_7, NVC_Poly_Project_8, NVC_Poly_Project_9], and associated Project 9 to Project 9 National Vegetation Classification Survey Reports to confirm habitat types and quality (e.g. understory of plantation woodland)
- Historic ornithological data provided by RSPB and the Scottish Ornithologists Club [GIS ref - Derived from data received from CH2M, RSPB: RSPB_Black_Grouse_C_1km, SOC: Moy Filter Data Combined]. Data were filtered by species and clipped to a 2km buffer of the A9 corridor, to establish distribution within the A9 corridor and wider area
- Results from 2015 breeding bird surveys along the P7-P9 route with 500m buffer, including all observations and field signs of woodland grouse [SBBS_2015_L, SBBS_2015_P, BBS_2015_L, BBS_2015_P]
- Discussions with field surveyors that conducted the 2015 breeding bird surveys, to confirm habitat suitability in particular areas, gain information on their local knowledge of species distribution, and outcomes of informal discussions with gamekeepers/estate workers/farmers during previous site visits
- Survey methodologies for capercaillie (SNH, 2013) and black grouse (Gilbert *et al.* 1998) which identify key habitat types to search (see below)
- Literature review (e.g. Forrester *et al.* 2007 (Birds of Scotland), (<http://www.blackgrouse.info/> and www.capercaillie-life.info). These sources provide further information on species' distribution, preferred habitat types and food sources.

A.1.1.2 There are two categories for capercaillie and black grouse that have been used to determine likelihood of presence, and corresponding survey effort. These are:

- **Suitable habitat:** habitat is suitable for presence of leks, and/or historic records are present. Areas identified will be surveyed at least twice
- **Suitable habitat not present:** habitat is not generally suitable for woodland grouse, and there are no historic records. Areas will not be specifically surveyed, but will be covered as part of ongoing scarce breeding bird surveys. If evidence of woodland grouse is found, then further specific surveys will take place.

The following habitat types have been considered to be suitable for capercaillie and black grouse leks.

Capercaillie

A.1.1.3 Capercaillie can utilise almost any type of forest at certain times of the year. Males generally need at least 50 hectares of woodland to range within, and so suitable lek habitat is considered to be areas of woodland comprising at least this size. Focussed searching should be carried out in key areas of suitable habitat:

- Wooded knolls and ridges, particularly where tree growth has been stunted
- Wooded hill tops
- Rocky outcrops which are surrounded by trees
- Mature plantations (especially pine and larch with heather and blaeberry ground cover)
- Areas with granny (mature old growth) pine trees
- Bogs and open rides in forests
- Exposed root plates from fallen trees
- Tracks where capercaillie have been gritting.

Black Grouse

A.1.1.4 The preferred habitats for black grouse leks include mosaics of moorland or heathland, woodland, plantations, rough grazing, in-bye land and meadows. They are transitional or marginal between the enclosed fields on valley slopes and the lower edges of heather moorland. These habitats correspond to a distinct altitudinal range of 200-550m.

Moorland

A.1.1.5 Within northern Britain, heather moorland, often managed for red grouse, is the main habitat for black grouse. They tend to be found on the edges of moorland from which they have access to other habitats such as scrub or woods, rough grazing and herb-rich in-bye pastures.

Native Woodland

A.1.1.6 Black grouse favour two types of native woodland in the uplands: birch and birch/scots pine mixes. They prefer either small woods, woodland edges or even rows of shelterbelt trees. Open canopied woods are preferred as these allow sufficient light to reach the forest floor and create a field rich in herbs and dwarf scrubs. They avoid closed-canopy woods.

Forestry

A.1.1.7 Afforestation may result in short-term benefits for black grouse. Under relaxation from grazing and heather burning in the early stages of afforestation, heather, bilberry and scrub can provide increased food and nesting cover. However, the benefits are short-lived, and conditions rapidly deteriorate on canopy closure 10-15 years after planting.

Unsuitable Areas

A.1.1.8 The following areas are generally unsuitable for black grouse leks and may not be occupied: ground above 550m; built-up areas; enclosed arable farmland; the interiors of unbroken post-thicket stage forest blocks and dense native woodland.

