

Appendix 12.1

Determination of Importance

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1.1 Introduction

- 1.1.1 This appendix presents the ecological baseline used for determining the importance of ecological features and identifying potential impacts of the Proposed Scheme¹. The general approach to defining the importance of ecological features follows that of CIEEM (2016). The approach is also in line with advice given in DMRB IAN 130/10 ‘*Ecology and Nature Conservation: Criteria for Impact Assessment*’ (Department for Transport, 2010). Factors taken into account when determining the importance of an ecological feature are: rarity, ability to resist or recover from environmental change, uniqueness, function/ role within an ecosystem, and level of legal protection or designation afforded to a given ecological feature are all.
- 1.1.2 Importance is divided into six categories; international; national; regional; authority area; local; and less than local. Criteria used to determine the importance of ecosystems, habitats and species is defined by the characteristics of importance according to their; geographic context; legal protection; and biodiversity planning policy.
- 1.1.3 The study area for internationally designated sites (Ramsar sites, Special Protection Areas (SPA) and Special Areas of Conservation (SAC)) incorporates sites that have potential to be functionally connected to the Proposed Scheme. These sites have been assessed alongside **Chapter 12** in a separate Habitat Regulations Appraisal (HRA).
- 1.1.4 The study area for nationally designated sites (Sites of Special Scientific Interest (SSSI) and National Nature Reserves (NNR)) incorporates sites immediately adjacent or hydrologically connected to the Proposed Scheme.
- 1.1.5 Baseline tables are structured to consolidate relevant desktop information and survey findings to help determine the importance of affected ecological features within the context of the Proposed Scheme. Baseline information associated with this appendix is presented on **Drawings 12.1 to 12.63, Volume 3**. The extent of the study area is variable and is set out for each ecological feature in **Chapter 12, Volume 1**.
- 1.1.6 Baseline information for interest features of statutory designated sites are discussed under the relevant site with details provided in **Tables 12-1-2 to 12-1-8**.
- 1.1.7 Baseline tables have been prepared to record the determination of importance for notable habitats (see **Table 12-1-9**), ancient woodland (see **Table 12-1-10**), invasive non-native species (see **Table 12-1-11**), birds (see **Table 12-1-12**), amphibians (see **Table 12-1-13**), reptiles (see **Table 12-1-14**), bats (see **Table 12-1-15**) terrestrial mammals (see **Table 12-1-16**) and wood ant (see **Table 12-1-17**).
- 1.1.8 The Cairngorms National Park Authority (CNPA) provided a draft list of 360 priority non-protected species. Many of these species are not afforded legal protection or included in biodiversity policy, therefore do not meet the criteria for determining importance. However, they are important to the Cairngorms National Park (CNP) and have been considered within the ecological baseline. The habitat-based desktop review of CNPA non-protected species is provided in **section**

¹ A detailed description of design features included in the Proposed Scheme is presented in **Chapter 5**, including the new carriageway surface, structures, road drainage assets, earthworks, and signage. Consideration of typical construction methods has also been given to identify minimum working areas required to build the Proposed Scheme.

1.12. Potential impacts on habitats which may support these species will be considered as part of the Outline Habitat Management Plan (OHMP), **Appendix 12.13, Volume 2.**

1.1.9 This appendix should be read in conjunction with **Appendix 7-1 (Volume 2)** for **Chapter 7**, which presents a summary of relevant consultation with key stakeholders and statutory consultees.

1.2 Statutory Designated Sites

1.2.1 There are seven statutory designated sites within the study area:

- River Spey – Insh Marshes Ramsar site
- River Spey – Insh Marshes SPA
- River Spey SAC
- Insh Marshes SAC
- River Spey – Insh Marshes SSSI
- River Spey SSSI
- Insh Marshes NNR

River Spey – Insh Marshes Ramsar

1.2.2 The Joint Nature Conservation Committee (JNCC) information sheet states criterion one, two, three and six are applied to the River Spey – Insh Marshes Ramsar. These are as follows:

- Criterion one - holds outstanding examples within a UK context of a large, high-altitude slow-flowing river (the River Spey), a mesotrophic loch (Loch Insh), a floodplain mire (one of the largest in northern Britain) and a gravel fan.
- Criterion two - supports a large assemblage of nationally-rare and nationally-scarce aquatic plants and invertebrate (including species with a boreal pine distribution), and is one of the best freshwater sites in Britain for otter *Lutra lutra*.
- Criterion three - a nationally important genetic resource for floodplain mires. Supports an assemblage of breeding birds indicative of high wetland value and diversity.
- Criterion six - species/ populations occurring at levels of international importance. Species with peak counts in winter: whooper swan *Cygnus cygnus*. Insh marshes supports up to 200 migrant whooper swans in the winter months.

1.2.3 The Ramsar site boundary begins west of the existing A9, crossing to the east at the A9 River Spey Crossing. The location of the Ramsar in relation to the existing A9 is shown on **Drawings 12.1 to 12.7, Volume 3**. Ramsar sites are notified through the Convention on Wetlands of International Importance especially as waterfowl habitat; therefore, are of **international importance**.

1.2.4 In Scotland, Ramsar interest features are afforded protection by the equivalent qualifying features of Natura 2000 sites (SPA or SAC) or notified features of SSSIs. **Table 12-1-1**, provided by Scottish Natural Heritage (SNH), shows the equivalent SPA, SAC or SSSI interest feature for each River Spey – Insh Marshes Ramsar interest feature.

Table 12-1-1: Relationship between Ramsar site and equivalent SPA, SAC or SSSI

Ramsar interest feature	Equivalent SPA, SAC or SSSI name	Equivalent SPA, SAC or SSSI interest feature
Breeding bird assemblage Whooper swan (non-breeding)	River Spey – Insh Marshes SPA	Osprey <i>Pandion haliaetus</i> , breeding and foraging Wigeon <i>Anas penelope</i> , breeding Wood sandpiper <i>Tringa glareola</i> , breeding Spotted crane <i>Prozana porzana</i> , breeding Hen harrier <i>Circus cyaneus</i> , non-breeding Whooper swan, non-breeding
Large, high-altitude, slow flowing river	River Spey SAC	Sea lamprey <i>Petromyzon marinus</i> Atlantic salmon <i>Salmo salar</i> Otter Freshwater pearl mussel <i>Margaritifera margaritifera</i>
Mesotrophic Loch	Insh Marshes SAC	Oligotrophic to mesotrophic standing water
Floodplain mire	Insh Marshes SAC	Very wet mire often identified by an unstable quaking surface
Assemblage of nationally rare and scarce aquatic plants	River Spey- Insh Marshes SSSI	Vascular plant assemblage
Assemblage of nationally rare and scarce invertebrates	River Spey- Insh Marshes SSSI	Invertebrate assemblage
Otter	River Spey SAC	Otter

1.2.5 Potential impacts of the Proposed Scheme on the Ramsar sites' interest features will be considered under the equivalent SPA, SAC or SSSI interest feature; therefore, the Ramsar site will not be discussed any further in this appendix.

River Spey – Insh Marshes SPA

1.2.6 The River – Insh Marshes SPA has six qualifying features:

- Wigeon
- Osprey
- Wood sandpiper
- Spotted crane
- Hen harrier
- Whooper swan

1.2.7 The River Spey – Insh Marshes SPA boundary begins west of the existing A9, crossing to the east at the A9 River Spey crossing. The location of the SPA in relation to the existing A9 is shown in **Drawings 12.1 to 12.7, Volume 3**. SPAs are included within the Natura 2000 network and are notified through the Birds Directive (79/409/EEC respectively); therefore, are of **international importance**.

1.2.8 In the UK, the breeding range of osprey is predominately within Scotland. The species' UK distribution is limited by the availability of good fishing waters. Preferred nest sites in Scotland are mature conifers, especially Scots pine *Pinus sylvestris*, although the species occasionally uses other trees and man-made structures. During the breeding season, the River Spey – Insh

Marshes SPA supports four osprey pairs representing at least 4.0% of the breeding population in Great Britain (count as at early 1990s)².

- 1.2.9 In Britain, wood sandpiper only breeds in the Scottish Highlands at a few widely scattered locations. Breeding habitat is primarily open boggy moorland with scattered pools, and marshy areas. During the breeding season, the River Spey – Insh Marshes SPA supports two wood sandpiper pairs, representing at least 20.0% of the breeding population in Great Britain (5-year mean, 1990-1995)².
- 1.2.10 In Britain, spotted crane breed in a few widely dispersed locations from Shetland in the north to the south and east coasts of England. The species breeds on lowland fen-like habitats with very shallow fresh water interspersed with extensive stands of low plant cover, rich in invertebrates. During the breeding season, the River Spey – Insh Marshes SPA supports three individuals representing at least 6.0% of the breeding population in Great Britain (5-year mean, 1990-1995)².
- 1.2.11 Over 75% of the UK wigeon population breeds in Scotland and the species' range may be limited by water quality and availability of suitable nesting sites. When breeding, the species prefers open, shallow, mesotrophic fresh waters with ample submerged or floating vegetation, but lacking dense emergent or marginal vegetation. During the breeding season, the River Spey – Insh Marshes SPA supports 37 wigeon pairs representing <0.1% of the breeding Western Siberia/ Northwestern/ Northeastern Europe population (mid 1990s)².
- 12.1.1 The number of breeding wigeon within Insh Marshes between 2006 and 2015 varied between 11 and 35, as reported by the Scottish Ornithologists Club (2017). An overview of the distribution of breeding wigeon within Insh Marshes NNR reserve compartments is included in **Table 12-1-2** for the years 2015 – 2017. This data was provided by the Royal Society for the Protection of Birds (RSPB).

Table 12-1-2: Breeding wigeon distribution within Insh Marshes 2015 -2017

Year	National Nature Reserve survey compartments												
	Ruthven	Pitmain	Gordonhall	Invertromie	Cemetery Marsh	Balavil N	Balavil S	Lynchat	Dunachton	Eilean Vean	Loch Insh	Insh (Insh Fen N)	Coull (Insh Fen S)
2015	2	2	0	2	3	11	2	4	1	1	-	-	-
2016	0	-	0	1	4	6	3	1	-	1	0	-	-
2017	1	-	1	1	1	8	5	1	-	0	0	3	3

- 1.2.12 There is little good information on numbers of hen harriers in Britain outside the breeding season. However, based on breeding estimates in the mid-1980s, it was estimated that Scotland supported around 400 non-breeding hen harriers. During winter, hen harriers gather at communal roost sites at night typically located in wetlands such as carr woodland, marshes and reedbeds, although they sometimes occur on heather moorland, lowland heath and conifer plantations. During the winter, the River Spey – Insh Marshes SPA supports 11 individuals

² Joint Nature Conservation Committee (2005). SPA Description, River Spey – Insh Marshes. Available at: <http://jncc.defra.gov.uk/default.aspx?page=1909> (accessed 27.03.18)

representing at least 1.5% of the wintering population in Great Britain (5-year mean, 1990/1-1994/5)².

- 1.2.13 In the UK, most non-breeding whooper swans occur in northern Britain and Northern Ireland. Whooper swans winter on freshwater lakes and marshes, and, in western Europe especially, on low agricultural land, generally in coastal areas³. During the winter, the River Spey – Insh Marshes SPA supports 190 individuals representing at least 3.5% of the wintering population in Great Britain (5-year peak mean 1991/2-1995/6)².
- 1.2.14 Additional desktop information and survey results for each River Spey – Insh Marshes SPA qualifying species is provided in **Table 12-1-3**.

³ Mitchell C, Vines J, Moore P, Wilkinson G, Rotheray E (2007). Distribution and abundance of Whooper Swan *Cygnus Cygnus* at RSPB Insh Marshes 2005/06 and 2006 /07.

Table 12-1-3: Desktop information and survey results for River Spey – Insh Marshes SPA qualifying features

SPA qualifying species	Desktop review		Survey results	Importance
	Records in study area	Habitat appraisal		
Osprey, breeding	<p>British Trust for Ornithology (BTO) Atlas data</p> <p>A review of 2 x 2km tetrads (recording units) overlapping with, or adjacent to, the study area, did not identify records of breeding osprey.</p> <p>This included the following tetrads: NN69Y, NN69X, NN69W, NN79D, NN79D, NN79J, NN79P, NH70F, NH70K, NH70Q, NH80B, NH80C, NH80H and NH80.</p> <p>Consultation with RSPB highlighted an inactive nest site, which has been vacant for approximately 10 years, within the study area within River Spey - Insh Marshes SPA.</p>	<p>The River Spey and areas of woodland within and outside River Spey - Insh Marshes SPA, provides potential foraging and nesting habitat for osprey.</p>	<p>Scarce breeding bird survey 2015/ 2016 (Appendix 12.4, Volume 2) identified an osprey nest site beyond the study area, with flights likely associated with the breeding pair recorded within the study area. No hunting behaviour was observed.</p>	International
Spotted crane, breeding	<p>No desktop records within the study area</p>	<p>River Spey - Insh Marshes SPA comprises a variety of grasslands (marshy, rough and short) interspersed with patches of boggy ground and shallow pools which provides good quality habitat (nesting, roosting and foraging) for spotted crane. Outside Insh Marshes habitats within the study area comprise a range of heathland, woodland and grassland habitats which are generally unsuitable for spotted crane.</p>	<p>Breeding bird survey 2015, and scarce breeding bird survey 2015/ 2016 (both Appendix 12.4, Volume 2) did not record spotted crane within the study area.</p> <p>RSPB breeding bird data 2015 (Appendix 12.6, Volume 2) identified two individual spotted cranes approximately 400m and 500m from the existing A9 within Insh Marshes.</p>	International
Wood sandpiper, breeding	<p>No desktop records within the study area</p>	<p>River Spey - Insh Marshes SPA comprises a variety of grasslands (marshy, rough and short) interspersed with patches of boggy ground and shallow pools which provides good quality habitat (nesting, roosting and foraging) for wood sandpiper.</p> <p>Outside Insh Marshes habitats within the study area comprise a range of heathland, woodland and grassland habitats. Woodland and heathland habitats have been used as breeding sites by wood sandpiper and therefore offer some suitability.</p>	<p>Breeding bird survey 2015, and scarce breeding bird survey 2015/ 2016 (Appendix 12.4, Volume 2) did not record wood sandpiper within the study area.</p> <p>RSPB breeding bird data 2015 (Appendix 12.6, Volume 2) identified two individual wood sandpipers within Insh Marshes, however both were located beyond the study area.</p> <p>A possible record of feeding wood sandpiper was recorded within the study area during CFJV breeding vantage point surveys (Appendix 12.5, Volume 2) at the River Spey crossing. The possible wood sandpiper was recorded approximately 330m east of the existing A9 in Insh Marshes alongside the Burn of Ruthven.</p>	International

SPA qualifying species	Desktop review		Survey results	Importance
	Records in study area	Habitat appraisal		
Wigeon, breeding	<p>BTO Atlas data</p> <p>A review of 2 x 2km tetrads (recording units) overlapping with, or adjacent to, the study area, identified records of breeding wigeon.</p> <p>This included the following tetrads: NN69Y, NN69X, NN69W, NN79D, NN79D, NN79J, NN79P, NH70F, NH70K, NH70Q, NH80B, NH80C, NH80H and NH80.</p>	<p>River Spey - Insh Marshes SPA comprises a variety of grasslands (marshy, rough and short) interspersed with patches of boggy ground and shallow pools which provides good quality habitat (nesting, roosting and foraging) for wigeon.</p> <p>Outside of the Insh Marshes habitats within the study area comprise a range of heathland, woodland and grassland habitats. A number of waterbodies and watercourses are present within the study area, including the River Spey, which provide potential breeding and feeding habitat for wigeon.</p>	<p>RSPB Scotland breeding bird data 2015 - 2017 highlight wigeon are widely distributed within Insh Marshes, with most records over 200m from the existing A9. The closest wigeon record was approximately 160m from the existing A9. Some breeding records are present within 100m of the highland mainline railway.</p> <p>CFJV vantage point surveys (2017) (Confidential Appendix 12.15, Volume 2) identified a likely breeding location within the study area.</p> <p>Breeding bird surveys (2015) (Appendix 12.4, Volume 2) did not detect wigeon breeding within the study area though possible breeding was detected at greater distance.</p>	International
Hen harrier, non - breeding	<p>BTO Atlas data</p> <p>A review of 2 x 2km tetrads (recording units) overlapping with the study area, or adjacent to, the study area identified records of non – breeding hen harrier.</p> <p>This included the following tetrads: NN69Y, NN69X, NN69W, NN79D, NN79D, NN79J, NN79P, NH70F, NH70K, NH70Q, NH80B, NH80C, NH80H and NH80.</p> <p>RSPB satellite data from a single juvenile hen harrier tagged in 2017 indicates, based on the data timings, that roosting behaviour may occur within the 500m study area. The exact location of roosting behaviour cannot be determined as the resolution of the data is ranged between 250m to 750m.</p> <p>Established roosts are located over 500m from the existing A9.</p>	<p>River Spey - Insh Marshes SPA comprises a variety of grasslands (marshy, rough and short) interspersed with patches of boggy ground and shallow pools which provides good quality habitat roosting and foraging for non – breeding hen harrier during the winter months.</p> <p>Outside Insh Marshes, the study area comprises a mixture of heathland, woodland and grassland which also provides foraging and potential roosting habitat.</p>	<p>Some limited flight data was recorded during CFJV non-breeding vantage point surveys around the River Spey crossing (Appendix 12.5, Volume 2). No evidence of roosting behaviour was detected.</p>	International
Whooper swan, non - breeding	<p>BTO WeBS (The Wetland Bird Survey) data</p> <p>RSPB collect wetland bird survey data throughout Insh Marshes reserve during winter (October – March). Data between 2014 – 2015 and 2016 – 2017 identifies small numbers of non-breeding whooper swan within Insh Marshes Ruthven survey compartment, with larger counts in other compartments which partly overlap with the study</p>	<p>River Spey - Insh Marshes SPA comprises a variety of grasslands (marshy, rough and short) interspersed with patches of boggy ground and shallow pools which provides good quality habitat roosting and foraging for non – breeding whooper swan during the winter months. Whooper swan tend</p>	<p>CFJV non-breeding vantage point surveys (Appendix 12.5, Volume 2) undertaken around the River Spey crossing reported a peak count of 33 whooper swans within 1km of the existing A9, with a maximum count of 25 swans within the study area (500m).</p>	International

SPA qualifying species	Desktop review		Survey results	Importance
	Records in study area	Habitat appraisal		
	<p>area.</p> <p>RSPB Insh Marshes Report 2007</p> <p>A study of whooper swan abundance and distribution within Insh Marshes by Mitchell <i>et al</i> (2007)⁴ highlights the species is primarily recorded on <i>Carex rostrata</i> and mixed sedge swamp. A simple NVC habitat map of Insh Marshes illustrates the presence of 'dry grassland' and rush pasture within the Ruthven survey compartment surrounding the River Spey crossing; therefore, the majority of habitat within Ruthven compartment (i.e. the compartment closest to the existing A9) is suboptimal for whooper swan. However, Mitchell (2007) reports significant numbers of whooper swans foraging close to Ruthven Barracks (i.e. Ruthven survey compartment) during flood events.</p> <p>RSPB Data</p> <p>RSPB provided specific data illustrating the location of whooper swan during flood conditions between 2015 and 2018. This indicates that during flood conditions whooper swan is recorded within Ruthven compartment of the NNR in small numbers.</p>	<p>to forage on aquatic plants where they occur in wetland habitats during the winter.</p> <p>Outside Insh Marshes, there may at times be potential foraging habitat in some fields in arable use in the Spey valley (depending on crop type present). Outside the valley, habitats are dominated by heathland and woodland which are not considered suitable for whooper swan.</p>		

⁴ Mitchell C, Vines J, Moore P, Wilkinson G, Rotheray E (2007). Distribution and abundance of Whooper Swan *Cygnus Cygnus* at RSPB Insh Marshes 2005/06 and 2006 /07.

River Spey SAC

- 1.2.15 The River Spey SAC has four qualifying features:
- Otter *Lutra lutra*
 - Atlantic salmon *Salmo salmar*
 - Sea lamprey *Petromyzon marinus*
 - Freshwater pearl mussel *Margaritifera margaritifera*
- 1.2.16 The River Spey SAC is located west of the existing A9 from Invernahavon to the River Spey crossing at Kingussie. Beyond the crossing the SAC is located east of the existing A9. The location of the SAC in relation to the existing A9 is shown on **Drawings 12.1 to 12.7, Volume 3**. SACs are included within the Natura 2000 network and are notified through the Habitats Directive (92/43/EEC); therefore, are of **international importance**.
- 1.2.17 The following paragraphs provide information taken from the JNCC website for each SAC qualifying species.
- 1.2.18 The River Spey supports one of the largest Atlantic salmon populations in Scotland, with little evidence of modification by non-native stocks. Adults spawn throughout the whole length of the river, and good quality nursery habitat is found in abundance in the main river and numerous tributaries. Salmon in the Spey system are little affected by artificial barriers to migration, and the waters in the catchment are largely unpolluted (the river is oligotrophic throughout its length). For a system of its size, the Spey is also relatively free from flow modifications such as abstractions, diversions and impoundments. The salmon population includes fish of all ages including migrating smolts and returning adults, possibly reflecting genetic differences within the Spey stock.
- 1.2.19 The River Spey represents sea lamprey in the most northern part of its range in the UK. Sea lamprey is absent from rivers north of the Great Glen, and the River Spey is virtually at the northern limit for this species. Recent surveys show that sea lamprey larvae are widely distributed throughout the middle and lower reaches of the river, where the particularly fast-flowing waters provide ideal spawning conditions for this species. In addition, as an unpolluted and relatively unmodified system, the River Spey provides suitable habitat conditions for the sea lamprey, in terms of good water quality, clean gravels and marginal silts and an unhindered migration route to the sea.
- 1.2.20 The River Spey drains an extensive upland catchment and supports an outstanding freshwater pearl mussel population in its middle to lower reaches. In parts of the River Spey, extremely dense mussel colonies have been recorded (225m²) and the total population is estimated at several million. As the population also shows evidence of recent recruitment and a high proportion of juveniles, the River Spey is considered to support a pearl mussel population of great international significance.
- 1.2.21 The River Spey represents an important otter site in Scotland, with good quality freshwater habitat. Riverine habitat features which are known to be important to otters are present, such as reedbeds and islands, and populations of important prey species are relatively healthy. The persistence of a strong population of otter on this river indicates that habitat conditions are particularly favourable for the survival of the species.

1.2.22 Additional desktop information and survey results for each River Spey SAC qualifying species is provided in **Table 12-1-4**.

Table 12-1-4: Desktop information and survey results for River Spey SAC qualifying features

SAC qualifying Species	Desktop review		Survey Results	Importance
	Records in study area	Habitat Appraisal		
Atlantic salmon	No records within the study area	<p>The River Truim and River Spey provide good quality Atlantic salmon habitat (i.e. good water quality and natural substrates). Consultation with SNH, Scottish Environment Protection Agency (SEPA) and the Spey Fishery Board (SFB) has identified the River Truim (northern extent of the study area) as a key area for spawning Atlantic salmon within the upper Spey catchment.</p> <p>The River Spey is renowned for supporting Atlantic salmon and has one the largest populations in Scotland⁵. Salmon have been recorded spawning in Gynack Burn, a tributary of the River Spey which runs through Kingussie (beyond the study area): therefore, it is assumed Atlantic salmon may also spawn in other tributaries of the River Spey where suitable habitat is present.</p>	<p>A fish habitat assessment (Appendix 12.9, Volume 2) was carried out in 2017 to identify and characterise fish habitat within proximity to major watercourses crossed by existing A9.</p> <p>Suitable Atlantic salmon spawning and juvenile habitat was noted in the Burn of Inverton and Raitts Burn. Whilst the River Spey crossing was unsuitable for spawning, the presence of fish fry suggested it was suitable habitat for juvenile salmon.</p>	International
Sea lamprey	SNH sea lamprey habitat suitability data highlights three historical sea lamprey records in the River Spey, slightly upstream of the Ruthven Road bridge crossing (no date provided).	<p>The River Truim, and the River Spey provide good quality sea lamprey (i.e. good water quality and natural substrates). APEM (2004)⁶ noted that Insh Marshes offers areas of optimal sea lamprey habitat; however, upstream of Kingussie, a series of transect points noted the majority of habitat as sub-optimal.</p> <p>SNH sea lamprey suitability data identified two areas on the main stem of the River Spey which could potentially support sea lamprey, these were located slightly upstream and downstream of the River Spey crossing at Kingussie.</p>	<p>A fish habitat assessment (Appendix 12.9, Volume 2) was carried out in 2017 to identify and characterise fish habitat within proximity to major watercourses crossed by the existing A9.</p> <p>In summary, suitable sea lamprey spawning and juvenile habitat was noted in the Burn of Inverton and Raitts Burn. Whilst the River Spey crossing was considered unsuitable for spawning, it provides suitable habitat for juvenile sea lamprey.</p>	International
Fresh water pearl mussel (FWPM)	Data provided by SNH highlights records of FWPM in the mainstem of the River Spey (2008).	The presence of Atlantic salmon (FWPM host species) in the River Truim, mainstem of the River Spey and its notable tributaries, in addition to good water quality and natural substrates, provides good FWPM habitat.	FWPM deep water and shallow water surveys undertaken in 2016 (Confidential Appendix 12.10, Volume 2) identified two small populations of FWPM within the study area.	International

⁵ Spey Fishery Board (SFB). Salmon Information. Available at: <https://www.speyfisheryboard.com/salmon-information/> (accessed 13.11.17).

⁶ APEM (2004). Assessment of sea lamprey distribution and abundance in the River Spey: Phase II. Scottish Natural Heritage Commissioned Report No. 027 (ROAME No. F01AC608).

SAC qualifying Species	Desktop review		Survey Results	Importance
	Records in study area	Habitat Appraisal		
Otter	<p>Three Highland Biological Recording Group (HBRG) records at the following locations:</p> <p>Otter road causality near the River Spey crossing at Kingussie (2010)</p> <p>Otter road causality on the B9152 east of the existing A9 around (2013)</p> <p>Otter spraint recorded west of the existing A9 near Meadowside House (2006)</p>	<p>The River Truim, River Spey and the River Spey's notable tributaries provide potential foraging and commuting habitat for otter. Sheltering opportunities are available where dense riparian vegetation, boulders or woodland (i.e. tree roots) are in proximity to these watercourses.</p>	<p>Protected Vertebrate Survey 2015 (Appendix 12.7, Volume 2)</p> <p>Evidence of otter was recorded on the more significant watercourses within the study area, in particular, the River Spey. No natal or non-breeding holts were recorded during the survey however, one hover and three couches (i.e. resting sites) were identified at the following locations:</p> <ul style="list-style-type: none"> • Two couches located along the River Spey adjacent to Newtonmore Golf Course (approximately 110m from A9). • Hover and couch recorded underneath the River Spey crossing at Kingussie. <p>With the exception of the above resting sites, otter activity within the study area was low. Spraints were recorded along the Allt Eoghainn and Allt Cealgach however, all deposits were old.</p> <p>Protected Vertebrate Walkover Survey 2017 (Appendix 12.8, Volume 2)</p> <p>No otter resting sites were identified in 2017 however, spraints were noted at the Burn of Inverton, Raitts Burn, the River Spey crossing and the mainstem of the River Spey near Newtonmore Golf Course.</p> <p>In addition to the above surveys, otters were sighted feeding and resting around the River Spey crossing during ground investigation works in October/ November 2017.</p>	International

Insh Marshes SAC

- 1.2.23 The Insh Marshes SAC has four qualifying features:
- Transition mires and quaking bogs
 - Oligotrophic to mesotrophic standing water with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea*
 - Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion*, *Alnion incanae*, *Salicion albae*)
 - Otter
- 1.2.24 The Insh Marshes SAC boundary begins west of the existing A9, where the HML Railway crosses the River Spey near Newtonmore. Beyond the River Spey crossing at Kingussie, the SAC is located east of the existing A9. SACs are included within the Natura 2000 network and are notified through the Habitats Directive (92/43/EEC); therefore, are of **international importance**.
- 1.2.25 The following paragraphs provide information taken from the JNCC website for each SAC qualifying species.
- 1.2.26 Insh Marshes in north-east Scotland is the largest transition mire in the UK. This site is representative of the flood plain mire type. The vegetation is a relatively uniform area of S27 *Carex rostrate – Potentilla palustris* tall-herb fen in which *Sphagnum* is found locally. String sedge *Carex chordorrhiza* is a rare sedge that occurs at this site and only one other, Scottish, site in the UK. It is more frequently found in this mire type in continental Europe.
- 1.2.27 Insh Marshes is a major wetland site covering a representative section of the River Spey from Newtonmore to Kincaig. The flood-plain mire supports several waterbodies that are excellent representatives of oligotrophic to mesotrophic standing waters. The waterbodies range from the relatively large Loch Insh to small un-named lochans. Loch Insh is an excellent example of a mesotrophic, species-rich loch. The River Spey is one of the largest, least polluted and unmodified river systems in Britain and the waterbodies have a high degree of naturalness.
- 1.2.28 Insh Marshes supports woodland stands dominated by alder *Alnus glutinosa* and willow *Salix* spp. on floodplains.
- 1.2.29 Insh Marshes are a component part of the River Spey. These extensive marshes, together with their lochs, small lochans and ditches provide ideal feeding, resting and shelter areas for otter and support a good population which is linked to that of the River Spey SAC otter population.
- 1.2.30 Additional desktop information and survey results for the Insh Marshes SAC qualifying habitats is provided in **Table 12-1-5**. Desktop information and survey results for otter is provided under the River Spey SAC in **Table 12-1-4**.

Table 12-1-5: Desktop information and survey results for Insh Marshes SAC qualifying features

SAC qualifying habitats	UK status and distribution	NVC survey results (2015) Appendix 12.3, Volume 2	Abundance of SAC qualifying habitat within the study area	Importance
Transition mires and quaking bogs Annex 1 habitat 7140	Transition mires and quaking bogs are a widespread but local habitat type in the UK that is ecologically variable and occurs in a wide range of geomorphological contexts ⁷ .	This Annex 1 habitat is considered SAC qualifying habitat where it is present within the SAC boundary. No areas of Annex 1 habitat transition mires and quaking bogs were identified within Insh Marshes SAC boundary, within the study area.	No areas of this SAC qualifying habitat were identified within the study area. <i>This Annex 1 habitat, within the study area, but out with Insh Marshes SAC, is discussed under Notable Habitats in Table 12-1-9.</i>	N/A
Oligotrophic to mesotrophic standing water Annex 1 habitat 3130	This Annex 1 habitat is widespread and frequent in the north and west of the UK. It rarely occurs elsewhere in Britain ⁸ . This Annex 1 habitat relates to Loch Insh and small lochans within Insh Marshes floodplain.	This Annex 1 habitat is considered SAC qualifying habitat where it is present within the SAC boundary. The NVC survey 2015 recorded one standing water body within the Insh Marshes SAC boundary, within the study area. It is located at the northern extent east of the existing A9 between the A9 and HML railway line. Loch Insh is located out with the study area approximately 600m beyond the northern extent of Project 9. However, the loch is hydrologically connected to study area via the River Spey.	The single waterbody within the SAC boundary comprises 0.17 ha of the 1,313 ha study area.	International
Alluvial forests Annex 1 habitat 91E0	In general, alluvial forests are widespread in Europe, however where present, particularly in intensively agricultural and long-settled lowlands, they are often reduced to narrow strips ⁹ . Clearance of riverine woodland has eliminated most true alluvial forests in the UK. Most existing stands, as elsewhere in Europe, are fragmentary and often of recent origin ⁹ .	Stands of wet woodland characterised by NVC communities W5, W6 and W7 were assessed on a case-by-case basis to determine if they qualify as Annex 1 habitat alluvial forests. This assessment was based on factors such as size, location and flora. This Annex 1 habitat is considered SAC qualifying habitat where it is present within the SAC boundary. Three stands of SAC qualifying habitat were identified within Insh Marshes SAC, within the study area. These stands were characterised by the following NVC woodland communities: <ul style="list-style-type: none"> • One small patch of W5 east of the HML railway at the edge of the Insh Marshes near Lynchat • One stand of W6, abutting the River Spey near the crossing at Kingussie • One stand of W7 just north of Ralia Lodge (east of the existing A9) 	The three stands of alluvial forests within the SAC boundary comprise 2.22 ha of the 1,313 ha study area. <i>Stands of Annex 1 habitat alluvial forests within the study area but out with the Insh Marshes SAC boundary are discussed under Notable Habitats in Table 12-1-9.</i>	International

⁷ Joint Nature Conservation Committee (JNCC). Habitat account. Annex 1 Habitat 7140. Available at: <http://jncc.defra.gov.uk/protectedsites/sacselection/habitat.asp?FeatureIntCode=H7140> (accessed 09.11.17)

⁸ Joint Nature Conservation Committee (JNCC). Habitat account. Annex 1 Habitat 3130. Available at: <http://jncc.defra.gov.uk/protectedsites/sacselection/habitat.asp?FeatureIntCode=H3130> (accessed 09.11.17)

⁹ Joint Nature Conservation Committee (JNCC). Habitat Account. Annex 1 91E0 Alluvial Forests. Available at: <http://jncc.defra.gov.uk/protectedsites/sacselection/habitat.asp?FeatureIntCode=H91E0> (accessed 06.11.17)

River Spey – Insh Marshes SSSI

1.2.31 The River Spey - Insh Marshes SSSI has nine notified features:

- Invertebrate assemblage
- Vascular plant assemblage
- Arctic charr *Salvelinus alpinus*
- Breeding bird assemblage
- Floodplain fen
- Mesotrophic loch
- Osprey, breeding
- Whooper swan, non-breeding
- Otter

1.2.32 The River Spey – Insh Marshes SSSI boundary begins west of the existing A9, crossing to the east at the A9 River Spey crossing. The location of the SSSI in relation to the existing A9 is shown on **Drawings 12.1 to 12.7, Volume 3**. SSSIs are notified through the Nature Conservation (Scotland) Act 2004; and are of **national importance**.

1.2.33 As mesotrophic loch, breeding osprey, non-breeding whooper swan and otter are qualifying features of the SPA or SACs previously discussed; details on these features are provided under the relevant Natura 2000 site. Desktop information and survey findings for the remaining SSSI notified features is provided in the following paragraphs.

Invertebrate assemblage

1.2.34 The SSSI citation states that the River Spey – Insh Marshes SSSI is one of the largest floodplain fens in northern Britain, with the largest extent of single unit of poor-fen flood plain mire in Britain. The wetland is comprised of sedge dominated fen communities with reed-beds, herb rich swamp and willow carr (wet woodland with fen habitat). These extensive botanically rich habitats support Scotland’s best site for rare wetland invertebrates. Invertebrates associated with this rare wetland assemblage include 12 species, comprising of true flies (Diptera), a beetle (Coleoptera), moths (Lepidoptera) and a spider (Araneae).

1.2.35 The fly species *Thereva inornata*, *Tachydromia acklandi*, *Limonia omissinervis*, *Rhadiurgus variabilis* and *Rhabdomastix laeta* are all associated with watercourses, including river shingle and sandy banksides (Falk 1991¹⁰; Falk & Crossley 2005¹¹; Drake, C.M. 2017¹²). The adult form of the fly species *R. variabilis* is also a species of forest glades and margins, especially in ancient Caledonian pine forest where heather and other dwarf shrubs occur; it has also been recorded in

¹⁰ Falk, S.J. 1991. A review of scarce and threatened flies of Great Britain. Part 1. Research and Survey in Nature Conservation: Report No. 39. Joint Nature Conservation Committee, Peterborough.

¹¹ Falk, S.J. & Crossley, R. 2005. A review of scarce and threatened flies of Great Britain. Part 3: Empidoidea. Species Status 3: 1-134. Joint Nature Conservation Committee, Peterborough.

¹² Drake, C.M. 2017. A review of the status of Larger *Brachycera* flies of Great Britain - Species Status No.29. Natural England Commissioned Reports, Number 192.

coniferous woodland plantation (Drake, C.M. 2017¹²). The flies *Tipula marginella*, *Hybomitra lurida* as well as the spider *Wabasso replicatus* are species of wet peat and soil habitats such as fens, wet heath, blanket bog and carr. *W. replicatus* has also been recorded on dry *Molinia caerulea* tussocks (Falk 1991¹⁰; Drake 1991¹³; British Spiders 2017¹⁴). The larvae of the fly *Hammerschmidtia ferruginea* live under the bark of wet, decaying aspen branches over 30cm in diameter (Rotheray, E.L. *et al*, 2008¹⁵).

- 1.2.36 The moth species *Brachionycha nubeculosa* and *Protolampra sobrina* are associated with birch woodland, with *P. sobrina* also associated with *Ericaceae* plant species such as, heather and bilberry (UK Moths, 2015)¹⁶.
- 1.2.37 The beetle *Donacia aquatica* is found in *Carex* swamp away from open water and in fen or marsh (Freshwater Habitats Trust, 2008)¹⁷. *W. replicates* (spider) is also associated with this habitat.
- 1.2.38 A desktop review of NVC survey data (2015) (**Appendix 12.3, Volume 2**) has been undertaken to highlight potential habitat within the study area which may support invertebrate species listed on the SSSI citation. The study area comprises all NVC communities within 250m either side of the existing A9 that overlap the SSSI boundary. It also includes two distinct areas where the SSSI is not present but the habitat forms part of the Insh Marshes NNR. The first area includes all NVC communities between Ruthven Road (the B970) and the B9152, where the NNR surrounds the existing A9. The second area occurs where Insh Marshes NNR extends up to the existing A9 (south of Lynchat). NVC communities which overlapped with the SSSI but were located beyond the HML Railway were scoped out, as habitats beyond the railway are unlikely to be affected.
- 1.2.39 The desktop review indicates that habitats within the study area could support all 12 of the invertebrate species listed as part of the SSSI assemblage (see **Table 12-1-6**). The most common habitats which have the potential to support a variety of SSSI invertebrate species are swamp and mire communities. These are present throughout the study area along the banks of the River Spey and the flat low-lying areas of Insh Marshes at the northern extent study area. Birch woodland is scattered throughout the study area and has the potential to support moth species such as *B. nubeculosa* and *P. sobrina*. Wet woodland within the study area has potential to qualify as carr woodland that could support *T. marginella*. Running water within the study area has potential to support species associated with shingle and sandy river banks such as *T. inornata*, *T. acklandi*, *L. omissinervis*, *R. variabilis* and *R. laeta*. Areas of aspen woodland have potential to support *H. ferruginea*, however aspen was limited within the study area, scattered at the northern extent of the study area between the HML railway and the B9152 road.
- 1.2.40 Potential habitat for all invertebrate species listed as part of the assemblage is present within the study area; therefore, the assemblage is of **national importance**.

¹³ Falk, S.J. 1991. A review of scarce and threatened flies of Great Britain. Part 1. Research and Survey in Nature Conservation: Report No. 39. Joint Nature Conservation Committee, Peterborough.

¹⁴ Spider and Harvestman Recording Scheme Website. Summary for *Wabasso replicatus* (Araneae) Available at: <http://srs.britishtspiders.org.uk/portal.php/p/Summary/s/Wabasso+replicatus> (accessed 2017)

¹⁵ E. L. Rotheray, I. MacGowan, G. E. Rotheray, J. Sears, A. Elliott 2008. The conservation requirements of an endangered hoverfly, *Hammerschmidtia ferruginea* (Diptera, Syrphidae) in the British Isles, Journal of insect conservation

¹⁶ UK Moths. Available at: <http://www.ukmoths.org.uk/> (accessed March 2018)

¹⁷ Fresh Water Habitats Trust (2015). Available at: https://freshwaterhabitats.org.uk/wp-content/uploads/2013/09/Zircon-Reed-Beetle_v2-Feb15.pdf (accessed January 2018)

Table 12-1-6: Components of the SSSI invertebrate assemblage and associated habitat within the study area

SSSI invertebrate species	Associated broad habitat type/ NVC communities within the study area
<i>Wabasso replicates</i> <i>Hybomitra lurida</i>	Swamp and tall herb fens - S4a S9a S10 S10a S10b S11a
	Mires and flushes - M6a M6d M23a M25a M25c M27 M27a
	Wet heaths - M15b
<i>Donacia aquatica</i>	Swamp and tall herb fens - S4a S9a S10 S10a S10b S11a
	Standing water - Non NVC community SW
<i>Tipula marginella</i>	Swamp and tall herb fens - S4a S9a S10 S10a S10b S11a
	Wet woodland habitat that has potential to support carr habitat - W3 W6 W6b W7 W7a
	Mires and flushes - M6a M6d M23a M25a M25c M27 M27a
	Wet heaths - M15b
<i>Hammerschmidtia ferruginea</i>	Wet woodland - Aspen is present in two areas of W3, located at the northern extent between the HML railway and B9152 road
	Birch woodland - Aspen is present in one area of W11d, located at the northern extent between the HML railway and B9152 road
<i>Brachionycha nubeculosa</i>	Wet woodland - W3 (where birch is present)
	Deciduous broadleaved woodland - W10 (predominantly oak woodland however, may also support birch trees)
	Birch woodland - W11 W11d W6e
<i>Protolampra sobrina</i>	Wet woodland - W3 (where birch is present)
	Deciduous broadleaved woodland - W10 (predominantly oak woodland however, may also support birch trees)
	Birch woodland - W11 W11d W6e
	Mires and flushes - M6a M6d M23a M25a M25c M27 M27a
	Wet heaths - M15b
<i>Rhadiurgus variabilis</i>	Semi-natural coniferous woodland - W18c
	Conifer plantation - Non NVC community CP (habitat sub-optimal for species but may provide some suitable habitat)
	Standing water - Non NVC community SW
<i>Thereva inornata</i> <i>Tachydromia acklandi</i> <i>Limonia omissinervis</i> <i>Rhabdomastix laeta</i>	Running water (where shingle and sandy banks are present) – Non NVC community

Vascular plant assemblage

- 1.2.41 The SSSI citation highlights that the vegetation consists mainly of sedge dominated ‘poor’ fen communities but reed bed, herb-rich swamp and willow carr wetland habitats are well represented. Insh Marshes supports an extraordinary quantity of water sedge *Carex aquatilis*, which is a northern species, found locally in abundance. It is also the main UK stronghold for string sedge *Carex chordorrhiza*. Other rare plants include the least water-lily *Nuphar pumila*, awlwort *Subularia aquatica*, cowbane *Cicuta virosa* and the shady horsetail *Equisetum pratense*.
- 1.2.42 A desktop review of NVC survey data (2015) (**Appendix 12.3, Volume 2**) has been undertaken to highlight NVC communities within the study area which correlate to habitats listed as part of the SSSI vascular plant assemblage. The SSSI citation does not provide specific NVC communities which characterise components of the vascular plant assemblage, therefore the River Spey – Insh Marshes Ramsar data form was used. The Ramsar data form states the following:
- The floodplain mires are varied, but S9 *Carex rostrata* swamp, S11 *Carex vesicaria* swamp, S27 *Carex rostrata-Potentilla palustris* tall herb fen and M5 *Carex rostrata-Sphagnum squarrosum* mire are the most important communities. There are also areas of M15 *Scirpus cespitosus-Erica tetralix* wet heath; grasslands, particularly MG9 *Holcus lanatus-Deschampsia cespitosa*. Woodland includes carr W3 *Salix pentandra-Carex rostrata* and W4 *Betula pubescens-Molinia caerulea*, riparian woodland W7 *Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum*, and small areas of birch woodland on better drained soils W11 *Quercus petraea-Betula pubescens-Dicranum majus*.
- 1.2.43 The study area comprises all NVC communities within 250m either side of the existing A9 that overlap the SSSI boundary. It also includes two distinct areas where the SSSI is not present but the habitat forms part of the Insh Marshes. The first area includes all NVC communities between Ruthven Road (the B970) and the B9152 where the NNR surrounds the existing A9. The second area occurs where Insh Marshes NNR extends up to the existing A9 (south of Lynchat). NVC communities which overlapped with the SSSI but were located beyond the HML railway were scoped out, as habitats beyond the railways are unlikely to be affected.
- 1.2.44 The following NVC communities, which correlate with components of the SSSI vascular plant assemblage, were recorded within the study area:
- S9a - *Carex rostrata* swamp
 - S11a - *Carex vesicaria* swamp
 - M5 - *Carex rostrata-Sphagnum squarrosum* mire
 - MG9 - *Holcus lanatus-Deschampsia cespitosa*
 - W3 - *Salix pentandra-Carex rostrata*
 - W4 - *Betula pubescens-Molinia caerulea*
 - W7 - *Alnus glutinosa-Fraxinus excelsior-Lysimachia nemorum*
 - W11 - *Quercus petraea-Betula pubescens-Dicranum majus*
- 1.2.45 All components of the SSSI vascular plant assemblage, with the exception of S27 *Carex rostrata-Potentilla palustris*, are present within the study area. NVC community W3 and sub-community S9a are the most common and are most extensive between the HML Railway and B9152 road. Components of the vascular plant assemblage are present within the study area; therefore, the assemblage is of **national importance**.

Breeding bird assemblage

- 1.2.46 The River Spey – Insh Marshes SSSI breeding bird assemblage includes osprey, rare ducks (including wigeon, shoveler *Anas clypeata* and goldeneye *Bucephala clangula*) and an important concentration of waders (including common snipe *Gallinago gallinago*, curlew *Numenius arquata* and redshank *Tringa totanus*).
- 1.2.47 Osprey and wigeon are qualifying species of the River Spey – Insh Marshes SPA; therefore, have been considered under the SPA in **Table 12-1-3**. The following discussion will focus on shoveler, goldeneye, curlew, redshank and snipe.
- 1.2.48 **Table 12-1-7** presents RSPB breeding bird data for Insh Marshes NNR. It shows the number shoveler, goldeneye, curlew, redshank and snipe recorded within each Insh Marshes survey compartment across the 2015/ 2016/ 2017 breeding season.

Table 12-1-7: Overview of SSSI breeding assemblage throughout Insh marshes survey compartments

Compartment	Species														
	Curlew			Redshank			Snipe			Goldeneye			Shoveler		
	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017
Ruthven	3	4	2	11	11	6	14	10	3	0	1	1	0	0	0
Pitmain	2	-	-	2	-	-	4	-	-	0	-	-	0	-	0
Gordonhall	11	9	7	22	23	7	11	27	20	0	0	0	0	0	0
Invertromie	9	8	9	10	8	6	22	10	13	0	0	2	0	0	0
Cemetery marsh	5	5	1	7	5	3	9	11	6	0	0	0	0	0	0
Balavil (North)	4	9	16	18	12	11	20	21	21	0	0	0	0	0	0
Balavil (South)	2	4	4	10	9	9	12	22	20	0	0	0	0	0	0
Lynchat	4	5	6	10	?	1	19	4	11	0	4	0	0	0	0
Dunachton	3	-	-	1	-	-	9	-	-	0	-	0	0	-	0
Eilean Vean	0	0	0	0	0	0	4	4	3	3	2	0	0	0	0
Loch Insh	-	0	0	-	0	0	-	0	0	-	2	1	-	0	0
Insh	-	-	23	-	-	-	-	-	-	-	-	3	-	-	1
Coull	-	-	11	-	-	-	-	-	-	-	-	1	-	-	0

- 1.2.49 It is important to note that not all of the SSSI breeding bird assemblage species recorded within Insh Marshes is within the SSSI boundary, for example much of Ruthven compartment lies outwith the SSSI. For the purposes of this assessment, where species are within the SSSI boundary, or are located within habitats directly adjacent to the SSSI, which includes Insh Marshes NNR land, they are considered to form part of the SSSI breeding bird assemblage.
- 1.2.50 Additional desktop information and survey findings for shoveler, goldeneye, curlew, redshank and snipe is presented in **Table 12-1-8**.

*Arctic charr *Salvelinus alpinus**

- 1.2.51 The SSSI citation states there is a breeding population of Arctic charr within the River Spey, which closely resembles the form found in Lake Windermere in England and is markedly different from most Scottish forms. It is the only site in Scotland where charr are known to spawn in streams, and they also spawn along the main stem of the River Spey, within the SSSI.
- 1.2.52 Desktop information and survey findings for Arctic charr is presented in **Table 12-1-8**.

Floodplain fen

1.2.53 Baseline conditions for floodplain fen is presented in **Table 12-1-8**.

Table 12-1-8: SSSI notified features breeding bird assemblage, Arctic charr and floodplain fen

SSSI notified feature	Desktop review		Survey results	Importance
	Records in study area	Habitat appraisal		
Breeding bird assemblage (snipe, curlew, redshank, shoveler and goldeneye)	<p>BTO Atlas data</p> <p>A review of 2 x 2km tetrads (recording units) overlapping with, or adjacent to, the study area identified records of curlew, redshank, snipe and shoveler.</p> <p>This included the following tetrads: NN69Y, NN69X, NN69W, NN79D, NN79D, NN79J, NN79P, NH70F, NH70K, NH70Q, NH80B, NH80C, NH80H and NH80.</p>	Insh Marshes comprises a variety of grasslands (marshy, rough and short) interspersed with patches of boggy ground and shallow pools which provides good quality habitat (nesting, roosting and foraging) for these wader and waterfowl species.	RSPB breeding bird data (2015 - 2017) (Appendix 12.6, Volume 2) confirms the presence of snipe, curlew, redshank, and goldeneye within the SSSI boundary (and adjacent habitats i.e. NNR) within the study area.	National
Arctic charr	On the River Spey, a 2006 study found that Arctic charr have been confirmed breeding near Newtonmore (NN 724 986) and Kingussie (NN 745 994) ¹⁸ .	In Scotland Arctic charr typically spawn in still water, however spawning in running water does occur but it is considered rare. The River Spey and its notable tributaries could provide potential Arctic charr spawning habitat.	<p>A fish habitat assessment (Appendix 12.9, Volume 2) was undertaken in 2017 to identify and characterise fish habitat within proximity to major watercourses crossed by existing A9.</p> <p>Of the seven watercourses surveyed, Arctic charr habitat is restricted to the River Spey crossing, where the slow flowing conditions with deep pools and gravel sediment provides optimal in-stream spawning and juvenile habitat. Smaller tributaries such as the Burn of Inverton and Raitts Burn do have areas of slower flowing water that could be used by Arctic charr, however the size and depth of the flow at these locations suggest the watercourses offer sub-optimal habitat.</p>	National
Floodplain fen	N/A	River Spey - Insh Marshes SSSI is an internationally important wetland site. Some 15km long, it forms the floodplain of the River Spey, between Newtonmore and Kincaig and includes Loch Insh. The site is one of the largest floodplain fens in northern Britain.	<p>NVC Survey 2015 (Appendix 12.3, Volume 2):</p> <p>Scottish Biodiversity List (SBL) habitats identified within the study area included upland flushes, fens and swamps (characterised by NVC communities M6 and M23a) and lowland fens (characterised by NVC communities (M27, S9, S10, S11 and S19). Where these habitats are within the SSSI boundary, within the study area they are considered to be components of the floodplain fen.</p> <p>Upland flushes, fens and swamps within the SSSI boundary comprise 9.35 ha of the 1,313 ha study area.</p> <p>Lowland fens within the SSSI boundary comprise 22.57 ha of the 1,313 ha study area.</p> <p><i>Upland flushes, fens and swamps and lowland fens which are out with the SSSI boundary are discussed under Notable Habitats in Table 12-1-9.</i></p>	National

¹⁸ Walker AF. Stream spawning of Arctic charr in Scotland. Ecology of Freshwater Fish 2007: 16: 47–53. 2006 The Author. Journal compilation 2006 Blackwell Munksgaard.

River Spey Site of Special Scientific Interest (SSSI)

1.2.54 The River Spey SSSI has four notified features:

- Atlantic salmon
- Freshwater pearl mussel
- Sea lamprey
- Otter

1.2.55 The River Spey SSSI is located west of the existing A9, from the beginning of Project 9 to where the HML railway crosses the River Spey, where the SSSI site boundary ends. At its closest point, the SSSI boundary is 320m from the existing A9. The location of the SSSI in relation to the existing A9 is shown on **Drawings 12.1 to 12.7, Volume 3**.

1.2.56 As the River Spey SSSI underlies the River Spey SAC, both sites are designated for the same features. The River Spey SAC has the highest conservation status (international) therefore, Atlantic salmon, freshwater pearl mussel sea lamprey and otter will be considered under the SAC. The River Spey SSSI is not discussed any further in this appendix.

Insh Marshes National Nature Reserve (NNR)

1.2.57 The key purpose of National Nature Reserves is to showcase some of the best wildlife in Scotland for everyone to see and appreciate. This purpose is unique and distinguishes the NNR from the other designated sites previously discussed.

1.2.58 Important species and habitats within the Insh Marshes NNR overlap with many of the notified features of the of the River Spey – Insh Marshes SSSI.

1.2.59 The Insh Marshes NNR site boundary begins where the existing A9 crosses Ruthven Road (the B970) near Kingussie. The NNR is located to the east and west of the existing A9 up to the River Spey crossing at Kingussie. Beyond the crossing, the NNR is located to the east of the existing A9. The location of the NNR in relation to the existing A9 is shown on **Drawings 12.1 to 12.7, Volume 3**. NNRs are notified through the Nationals Parks and Access to the Countryside Act 1949; and are of **national importance**.

1.3 Notable Habitats

Table 12-1-9: Determining the importance of notable habitats

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Alluvial forests Annex 1 habitat 91E0	Annex 1 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Alluvial forests are widespread in Europe, however where present, particularly in intensively agricultural and long-settled lowlands, they are often reduced to narrow strips. Clearance of riverine woodland has eliminated most true alluvial forests in the UK. Most existing stands, as elsewhere in Europe, are fragmentary and often of recent origin ¹⁹ .	Six stands of Annex 1 habitat alluvial forest were identified within the study area (out with Insh Marshes SAC boundary). These stands were characterised by NVC community W7 and were located at the following locations: <ul style="list-style-type: none"> • Three stands around the existing Kingussie junction • Two stands adjacent to Ruthven road (east of existing A9) • One stand alongside the Burn of Inverton This NVC community was assessed on a case-by-case basis to determine if they qualify as Annex 1 habitat alluvial forests. This assessment was based on factors such as size, location and flora.	The six stands of alluvial forest comprise 3.28 ha of the 1,313 ha study area.	Authority Area
Transition mires and quaking bogs Annex 1 habitat 7140	Annex 1 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Transition mires and quaking bogs are a widespread but local habitat type in the UK that is ecologically variable and occurs in a wide range of geomorphological contexts ²⁰ .	Examples of M4 mire within the study area, where they form the dominant NVC community, were assigned to this Annex 1 habitat. One discrete area of this Annex 1 habitat was identified within the study area (out with Insh Marshes SAC boundary).	The single area of transition mire and quaking bogs comprises 0.03 ha of the 1.313 ha study area.	Local

¹⁹ Joint Nature Conservation Committee (JNCC). Habitat Account. Annex 1 91E0 Alluvial Forests. Available at: <http://jncc.defra.gov.uk/protectedsites/sacselection/habitat.asp?FeatureIntCode=H91E0> (accessed 06.11.17)

²⁰ Joint Nature Conservation Committee (JNCC). Habitat account. Annex 1 Habitat 7140. Available at: <http://jncc.defra.gov.uk/protectedsites/sacselection/habitat.asp?FeatureIntCode=H7140> (accessed 09.11.17)

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Juniper formations Annex 1 habitat 5130	Annex 1 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	A widespread but very local habitat type that is unevenly distributed in Europe. Juniper scrub has a scattered and patchy distribution across the UK, occurring mainly in the eastern parts of northern Scotland. The Cairngorms has the third-largest extent of juniper formations in the UK and is one of several sites representing the habitat type in north-east Scotland ²¹ .	Examples of W19 within the study area, where it forms the dominant community, have been assigned to this Annex I habitat. W19, and more specifically W19a, was recorded in the northern extent of the study area near Kerrow and the Highland Wildlife Park (west of the existing A9).	There are a few small and isolated stands of juniper formations in the northern extent of the study area. Juniper comprises 1.07 ha of the 1,313 ha study area.	Regional

²¹ Joint Nature Conservation Committee (JNCC). Habitat account. Annex 1 Habitat 5130. Available at: <http://jncc.defra.gov.uk/ProtectedSites/SACselection/habitat.asp?FeatureIntCode=H5130> (accessed 09.11.17)

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Blanket bogs Annex 1 habitat 7130	Annex 1 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	<p>Blanket bogs have a widespread distribution in Europe and Scotland. It is one of the most extensive semi-natural habitats in Scotland, covering an estimated 1.8 million hectares²².</p> <p>Blanket bogs are a qualifying feature of the Drumochter Hills SAC and Cairngorms SAC, located approximately 10km and 6km, respectively, from the study area. It is unlikely blanket bog habitat within the study area is functionally linked to these designated sites due to distance, topography and hydrogeology.</p>	<p>Examples of M3, M17, M19, M20 and M25 within the study area, where they form the dominant community, were assigned to this Annex 1 habitat.</p> <p>Areas of M3 are uncommon within the study area. Where present, the community forms a minor component of mixed vegetation mosaics and occurs mainly in association with M17 mire and M15 wet heath.</p> <p>M17 is the most common blanket mire type within the study area, although its distribution is localised, and it does not cover large areas. It is mainly in the southern sections of the study area, and small scattered fragments also occupy depressions, level areas and gentle inclines on the slopes surrounding the existing A9.</p> <p>M19 is present within the study area but is not extensive or widespread.</p> <p>One small pocket of M20 vegetation was found, forming a small part of fragmented mire by Milton of Nuide.</p> <p>M25 is not extensive within the study area, although it is common in smaller patches as marginal areas and in mosaics with blanket bog, wet heaths and occasionally swamps. Much of the M25 present takes the form of M25a; M25c and M25b were rarely recorded.</p>	Blanket bogs are present within the study area, comprising 25.77 ha of the 1,313 ha study area. They are most prominent in the southern extent, where blanket bog is generally present in small patches in association with larger areas of Northern Atlantic wet heath.	Authority Area

²² Scottish Natural Heritage (SNH). Available at: <https://www.nature.scot/habitats-and-ecosystems/habitat-types/mountains-heaths-and-bogs> (accessed 18.10.17)

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Alkaline fens Annex 1 habitat 7230	Annex 1 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	A significant proportion of the Alkaline fens surviving in Europe are believed to occur in the UK. Alkaline fens occur over a widely scattered geographical range in the UK. Alkaline fen vegetation has declined dramatically in the past century in the UK, and in many parts of the country only small, fragmentary stands survive ²³ .	Examples of M10 mire in the study area, where they form the dominant community, were assigned to this Annex 1 habitat. This mire was generally recorded to community level, but on occasion M10a was recorded. Within the study area M10 flushes were recorded in only five mapped polygons, forming the dominant community in only one location.	Only one discrete area of alkaline fens was identified within the study area, east of the existing A9 between the Burn of Inverton and Knappach, which comprises 0.25 ha of the 1,313 ha study area.	Authority Area
Northern Atlantic wet heaths Annex 1 habitat 4010	Annex 1 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora	Northern Atlantic wet heaths are restricted to the Atlantic fringe of Europe between Norway and Normandy. A high proportion of the EU resource occurs in the UK. In Scotland wet heaths are extensive, with upland heathland (which also includes dry heaths) estimated to cover 1.7 to 2.5 million hectares in Scotland ²⁴ . Northern Atlantic wet heaths are a qualifying feature of the Drumochter Hills SAC and Cairngorms SAC, located approximately 10km and 6km, respectively, from the study area. It is unlikely wet heath habitat within the study area is functionally linked to these sites due to distance, topography and hydrogeology.	Examples of M15 wet heaths within the study area, where they form the dominant community, were assigned to this Annex 1 habitat. M15 is widespread throughout the study area, particularly towards the southern extent where the general character of the study area becomes more upland. M15 within the study area shows large variations, highlighted by the presence of three sub-communities; in order of decreasing abundance within the study area, these are M15b, M15a and M15c.	Northern Atlantic wet heaths are widespread within the study area, particularly in the southern extent. This habitat comprises 49.20 ha of the 1,313 ha study area. Wet heaths within the study area have been impacted by burning, grazing and drainage, with many areas suffering from encroachment by abundant young <i>Betula</i> spp.	Authority Area

²³ Joint Nature Conservation Committee (JNCC). Habitat Account. 7230 Alkaline Fens. Available at: <http://jncc.defra.gov.uk/protectedsites/sacselection/habitat.asp?FeatureIntCode=H7230> (accessed 01.11.17)

²⁴ Scottish Natural Heritage (SNH). Available at: http://jncc.defra.gov.uk/pdf/UKBAP_BAPHabitats-61-UplandHeathland.pdf (accessed 18.10.17)

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
<p>European dry heaths</p> <p>Annex 1 habitat 4030</p>	<p>Annex 1 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora</p>	<p>This habitat is widespread in Europe, but it is only extensive in the western oceanic fringes of Europe, including the UK.</p> <p>Dry heaths occur throughout the UK. They are particularly abundant in the uplands, where they may form extensive stands which dominate the landscape. Upland heathland (which also includes wet heaths) are estimated to cover 1.7 to 2.5 million hectares in Scotland ²⁵.</p> <p>European dry heaths are a qualifying feature of the Drumochter Hills SAC and Cairngorms SAC, located approximately 10km and 6km, respectively, from the study area. It is unlikely European dry heath habitat within the study area is functionally linked to these designated sites due to distance, topography and hydrogeology.</p>	<p>Examples of H10, H12 and H18 within the study area, where they form the dominant community, were assigned the Annex 1 type European dry heaths.</p> <p>H10 is relatively sparse and fragmented within the study area, rarely forming larger homogenous stands. It is found mainly on shallow and dry soils on moderate to steep slopes, usually in mosaics with H12 heath or calcifugous grasslands.</p> <p>H12 vegetation is the most common and widespread dry heath community within the study area. It forms large homogenous and continuous stands in the southern part of the study area (east of the existing A9), as well as forming many smaller stands and mosaics throughout the study area.</p> <p>Only one very small area of H18 heath was recorded within the study area. This is in the most southerly section of the study area, to the west of the existing A9, in a mosaic with U4, U2 and H12 communities.</p>	<p>European dry heaths are widespread and extensive within the study area, particularly in the southern extent on the steeper and drier slopes to the east of the existing A9. This habitat comprises 198.15 ha of the 1,313 ha study area.</p>	<p>Authority Area</p>

²⁵ Joint Nature Conservation Committee (JNCC). Habitat account. Annex 1 Habitat 5130. Available at: <http://jncc.defra.gov.uk/ProtectedSites/SACselection/habitat.asp?FeatureIntCode=H5130> (accessed 09.11.17)

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Upland Birchwoods	SBL priority habitat	<p>This woodland occurs on well-drained to rather poorly-drained acidic soils in the Scottish Highlands and the Hebrides²⁶. Limited information is available on the extent of upland birchwoods within the UK however, its estimated around 45,000 hectares is present²⁷.</p>	<p>Examples of W4, W11, W16 and W17, within the study area, where they the dominant community, were assigned to this SBL habitat.</p> <p>W4 occurs mainly as small, scattered and fragmented stands, and does not form any large expanses of woodland.</p> <p>W11 is widespread throughout the whole study area, as stands of natural woodland and also stands of planted origin, the latter being mainly in shelter-belts along the existing A9.</p> <p>Only three small areas of the W16 community were noted in this survey, as patches with larger mosaics of <i>Betula</i>-dominated W11 and W17 woodland, the W16 often on small areas of steep slope with thin dry soils.</p> <p>W17 is widespread throughout the study area, often as single stands of the community, but also in mosaics with W11 woodland.</p>	<p>Upland birchwoods are scattered throughout the study area however, they are most extensive in the northern extent. Upland birchwoods comprise 127.81 ha of the 1,313 ha study area.</p> <p>Many areas of upland birchwoods within the study area overlap with the Ancient Woodland Inventory (AWI); therefore, are considered under ancient woodland in Table 12-1-10.</p> <p>The importance of uplands birchwoods which do not overlap with the AWI is assigned according to their association with ancient woodland:</p> <p>Upland birchwoods connected to ancient woodland are of national importance.</p> <p>Upland birchwoods not connected to ancient woodland are of local importance.</p>	National/ Local

²⁶ Biodiversity Scotland. Woodland Management. Available at: <http://www.biodiversityscotland.gov.uk/advice-and-resources/woodland-management/> (accessed 15.01.17)

²⁷ The Wildlife Trust. Upland Birchwoods. Available at: <http://www.wildlifetrusts.org/wildlife/habitats/upland-birchwoods> (accessed 15.01.17)

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Lowland mixed deciduous woodland	SBL priority habitat	This habitat brings together a wide range of lowland woodland types, on well-drained basic to acidic soils on steeply sloping to more or less level ground in the southern and eastern Scottish Lowlands ²⁸ .	<p>Examples of W8 and W10 within the study area, where they form the dominant community, were assigned to this SBL habitat.</p> <p>A single, small area of W8 woodland was recorded within the study area. It occurs in a mosaic with W10 woodland, flanking Raitts Burn just north of Balavil Cottage.</p> <p>A number of predominately small stands of W10 are scattered throughout the study area, in relatively lowland settings. They are commonly within, or on the fringes of, improved agricultural land, or around the periphery of towns.</p>	<p>This habitat is restricted to the northern extent of the study area with the most extensive area located north of Kerrow (west of the existing A9). Elsewhere it is present in small and isolated patches. This habitat comprises 19.58 ha of 1,313 ha study area.</p> <p>Areas of lowland mixed deciduous woodland within the study area which overlap with the Ancient Woodland Inventory (AWI) are discussed under ancient woodland in Table 12-1-9.</p> <p>The importance of lowland mixed deciduous woodland which do not overlap with the AWI is assigned according to their association with ancient woodland:</p> <p>Lowland mixed deciduous woodland connected to ancient woodland are of national importance.</p> <p>Lowland mixed deciduous woodland not connected to ancient woodland are of local importance.</p>	National/ Local

²⁸ Joint Nature Conservation Committee (JNCC). Habitat account. Annex 1 Habitat 5130. Available at: <http://jncc.defra.gov.uk/ProtectedSites/SACselection/habitat.asp?FeatureIntCode=H5130> (accessed 09.11.17)

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Wet woodlands	SBL priority habitat	This habitat is widespread in Scotland, in both upland and lowland areas. Associated habitats are equally varied and include drier woodland of all priority types found in Scotland, heaths, bogs, other mires, fens, reedbeds, open water, grasslands and enclosed farmland ²⁹ .	<p>All examples W3, W4b, W6 and W7³⁰ within the study area, where they form the dominant community, were assigned to this SBL habitat.</p> <p>There are a number of W3 stands within the study area, centred on wet marshy and fen areas. The largest stands are present around the fringes of the Insh Marshes, particularly in a band of trees between the B9152 and the railway.</p> <p>A few very small stands of the wetter W4b are present within the study area, forming the dominant community in an a very small area, west of the A9 near the Highland Wildlife Park.</p> <p>Areas of W6 and W7 are scattered within the study area, with a notable strip of W6 present alongside the existing A9 just south of the River Spey crossing.</p>	<p>The only extensive stands of wet woodland within the study area are present between the B9152 and HML railway at the northern extent. Elsewhere it is present in small and isolated patches. Wet woodlands comprise 14.38 ha of the 1,313 ha study area.</p> <p>Areas of wet woodland within the study area which overlap with the Ancient Woodland Inventory (AWI) are discussed under ancient woodland in Table 12-1-9.</p> <p>The importance of wet woodlands which do not overlap with the AWI is assigned according to their association with ancient woodland:</p> <p>Wet woodland connected to ancient woodland are of national importance.</p> <p>Wet woodland not connected to ancient woodland are of local importance.</p>	National/ Local
Upland flushes, fens and swamps	SBL priority habitat	Upland flushes, fens and swamps is a broad and variable habitat classification. These habitats occur where there is groundwater flushing or standing water within floodplains. They are widespread but local throughout the uplands of Scotland ³¹ .	<p>Examples of M6 and M23a within the study area, where they form the dominant community, have been assigned this SBL habitat.</p> <p>M6 is widespread throughout the study area in both upland and lowland settings, mostly as small flushes, runnels or soakways along and within occluding ditches and minor watercourses.</p> <p>M23a is scattered throughout the length of the study area and is mostly associated with surface water movement.</p>	Upland flushes, fens and swamps within the study area (outwith River Spey – Insh Marshes SSSI boundary) comprise 26.66 ha of the 1,313 ha study area.	Local

²⁹ Joint Nature Conservation Committee (JNCC). Habitat account. Annex 1 Habitat 5130. Available at: <http://jncc.defra.gov.uk/ProtectedSites/SACselection/habitat.asp?FeatureIntCode=H5130> (accessed 09.11.17)

³⁰ NVC communities W6 and W7 were classed as wet woodland where this did not qualify as Annex 1 habitat alluvial forests.

³¹ Manx Wildlife Trust. Upland Flushes, Fens and Swamps. Available at: <http://www.manxwt.org.uk/wildlife/habitats/upland-flushes-fens-and-swamps> (accessed 10.11.17)

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Lowland fens	SBL priority habitat	The UK is thought to host a large proportion of the fen surviving in the EU. As in other parts of Europe fen vegetation has declined dramatically in the past century ³² .	Areas of SBL habitat lowland fens within the study area were characterised by NVC communities S9 and S10. S9 is common and widespread throughout the study area, from small marginal stands around wet hollows and pools to larger stands in marshes and around waterbodies and rivers. S10 was recorded frequently in relatively small stands in marshy areas and around pools and waterbody margins throughout the study area.	Lowland fens within the study area (out with River Spey – Insh Marshes SSSI boundary) comprise 3.49 ha of 1,313 ha study area.	Local
Reedbeds	SBL priority habitat	There are estimated to be 5,000 hectares of reedbeds in the UK ³³ . Many reedbeds in Scotland and are important as patches of semi-natural wetland within much larger areas of more modified, intensively-managed and ecologically less diverse farmland. Scottish reedbeds can be important habitats for birds and mammals. It is estimated 52 hectares of reedbeds are present within the Cairngorms ³⁴ .	Examples of S4a within the study area, where they form the dominant community, were assigned to this SBL habitat. A few stands of S4a occur within fen complexes along the fringes of Insh Marshes.	A few areas of reedbed are present within the study area, restricted to the northern extent, along the fringes on the Insh Marshes. Reedbeds comprise 2.8 ha of the 1,313 ha study area which is 5% of reedbeds within the Cairngorms.	Regional

³² UK Biodiversity Action Plan Priority Habitats Descriptions (2008). Lowland Fens. Available at: http://jncc.defra.gov.uk/pdf/UKBAP_BAPHabitats-27-LowlandFens.pdf (accessed 15.01.18)

³³ The Wildlife Trust. Available at: <http://www.wildlifetrusts.org/wildlife/habitats/reedbeds> (accessed 20.10.17)

³⁴ Cairngorms. Wetland and Water habitats. Available at: http://www.cairngorms.co.uk/uploads/documents/Look%20After/cons%20projects/Wetland_water_habitats (accessed 20.10.17)

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Wet grasslands	CNPA priority habitat	Wet grasslands are the products of agricultural management, part of traditional farming systems. Almost all areas are grazed and some areas are cut for hay. Inundated pastures or meadows with ditches that maintain the water levels contain seasonal water-filled hollows and permanent ponds with tall fen species such as reeds. They are not extensive in the Cairngorms National Park, and are often in low-lying poorly drained areas of fields where crop yield and productivity is low ³⁵ .	<p>Examples of MG9, MG10, MG11a and M23b within the study area, where they form the dominant community, were assigned to this CNPA habitat.</p> <p>MG9 is present as frequent small stands in and around wetter parts of the study area; it is mostly in mosaics with MG10 and M23 and is often grazed by livestock.</p> <p>MG10 forms widespread small stands within the study area, mostly within wetter hollows, flow lines and poorly drained parts of agricultural fields.</p> <p>Only one very small area of MG11a was recorded within the study area.</p> <p>M23b is scattered along the lower ground, within depressions where water collects, and alongside minor watercourses and ditches. It is usually associated here with grasslands used as pasture.</p>	<p>Small patches of wet grassland are scattered throughout the study area. However, an extensive area surrounds the Burn of Ruthven which flows across the Insh Marshes into the River Spey. These habitats are dominated by common grass species which are ubiquitous and easily re-creatable.</p> <p>Wet grasslands comprise 31.09 ha of the 1,313 ha study area.</p>	Local
Non-priority grasslands	None	Common and widespread habitat with limited botanical interest.	The majority of the study area is dominated by agricultural land, primarily used for livestock grazing therefore, non-priority grasslands are the most abundant habitat within the study area. In these areas, flora is indicative of nutrient enrichment and/ or infrequent management, which contain NVC communities: U1b, U2, U2a, U2b, U4, U4a, U4b, U5, U5a, U20, U20a, U20b, U20c, MG1, MG1a, MG1b, MG6, MG6b, MG7, MG7b.	Non-priority grasslands comprise 403.44 ha of the 1,313 ha study area.	Less than local

³⁵ Cairngorms Nature Action Plan (CNAP) 2013-2018. Wet grasslands. Available at: <http://www.cairngorms.co.uk/resource/docs/publications/13052013/CNPA.Paper.1898.Cairngorms%20Nature%20Action%20Plan%202013-2018.pdf> (accessed 15.01.18)

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Non-priority woodlands	Scottish Government's Policy on Control of Woodland Removal	Common and widespread habitat.	<p>NVC communities W9, W18 and W23 within the study area were associated with non-priority woodlands.</p> <p>One area of W9 was mapped around Balavil, although this is not typical W9 woodland and its canopy is very mixed and includes exotic conifers and non-native broadleaved species.</p> <p>W18 was recorded in only two small patches within the study area.</p> <p>W23 was recorded as infrequent small patches within the study area, mainly along roadsides or around the edges of farmland.</p>	<p>Non-priority woodlands were recorded within the study area, predominantly in small and isolated patches.</p> <p>Non-priority woodlands comprise 13.50 ha of the 1,313 ha study area.</p> <p>Areas of non-priority woodland within the study area which overlap with the Ancient Woodland Inventory (AWI) are discussed under ancient woodland in Table 12-1-9.</p> <p>Non-priority woodlands which do not overlap with the AWI are assigned importance according to their association with ancient woodland:</p> <p>Non-priority woodland connected to ancient woodland are of local importance.</p> <p>Non-priority woodland not connected to ancient woodland are of less than local importance.</p>	Local/ Less than local

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Non- priority vegetation of open habitats	None	Common and widespread habitat with limited botanical interest.	<p>All examples of OV24, OV25, OV27, OV28 within the study area have been associated with non-priority vegetation of open habitats.</p> <p>Within the study area there are some small areas of OV24 and OV25, tall-herb weed communities, usually found on disturbed or nutrient enriched lowland ground, or by tracks.</p> <p>The OV27 community is marked by the dominant tall growth of <i>Chamerion angustifolium</i>. Patches of OV27 are present in the study area, usually in association with a variety of other vegetation types, but especially grasslands such as MG1 and U4b, and some woodlands.</p> <p>OV28 is one of the open communities typical of periodically inundated habitats (e.g. ditches). One patch of herb-rich OV28 was mapped within the study area, and this belongs to the OV28a sub-community. The vegetation occupies a silty, low-level and flat bank directly adjacent to the River Spey, just upstream of the existing A9 River Spey bridge crossing by Kingussie.</p>	This habitat type comprises 3.08 ha of the 1,313 ha study area.	Less than local

Notable habitat	Policy and legal status	UK status and distribution	NVC survey results 2015 (Appendix 12.3, Volume 2)	Area (ha) of notable habitat within the study area	Importance
Plantation woodland (Non - NVC feature)	Scottish Government's Policy on Control of Woodland Removal	Common and widespread habitat with limited botanical interest.	Plantation areas within the study area were generally unremarkable in terms of their flora and species composition. In more mature plantations, coniferous ones in particular, there is often no ground flora except for some scattered mosses; the ground instead is blanketed in woody debris and conifer needles. Younger plantations generally have a grassy understorey, most often resembling that of the U4 grassland community.	<p>Plantation woodland comprises 62.57 ha of the 1,131 ha study area, of which 58.02 ha is conifer plantation, and 4.55 ha is broadleaved plantation.</p> <p>Areas of plantation woodland within the study area which overlap with the Ancient Woodland Inventory (AWI) are discussed under ancient woodland in Table 12-1-9.</p> <p>Plantation woodlands which do not overlap with the AWI are assigned importance according to their association with ancient woodland:</p> <p>Plantation woodland connected to ancient woodland are of local importance.</p> <p>Plantation woodland not connected to ancient woodland are of less than local importance.</p>	Local/ Less than local
Other non – NVC features	None	N/A	Features that do not correspond with any NVC community are common throughout the study area.	Other non – NVC features comprise 149.55 ha of the 1,131 ha study area.	Less than local

1.4 Ancient Woodland Inventory (AWI)

Table 12-1-10: Determining the importance of ancient woodland

Notable habitats	Policy and legal status	Ancient Woodland Inventory (AWI)	Area (ha) of ancient woodland within the study area	Importance
SNH ancient woodland Inventory (AWI)	Scottish Government Policy on Control of Woodland Removal	<p>CFJV have refined the Ancient Woodland Inventory (AWI) using aerial imagery and the National Forest Inventory (NFI) to produce a verified dataset showing both existing and lost ancient woodland sites within the study area.</p> <p>This highlights category 1a, 1b, 2a and 2b of existing ancient woodland are within the study area.</p> <p>Categories 1a and 2a are interpreted as semi-natural woodland from maps of 1750 (1a) or 1860 (2a) and continuously wooded to the present day. If planted with non-native species during the 20th century they are referred to as Plantations on Ancient Woodland Sites (PAWS).</p> <p>Categories 1b and 2b are interpreted as plantation from maps of 1750 (1b) or 1860 (2b) and continuously wooded since. Many of these sites have developed semi-natural characteristics, especially the oldest ones.</p> <p>Ancient woodland is one of Scotland’s richest wildlife assets and once destroyed it cannot be replaced.</p>	<p>Ancient woodland is scattered throughout the study area but is most extensive in the northern extent, particularly around Ralia Lodge and the Highland Wildlife Park.</p> <p>The 2015 NVC survey highlights that areas of ancient woodland within the study area are typically characterised by the following NVC communities: W3, W4, W7, W9, W10, W11 and W17, with some areas overlapping with plantation woodland (a non-NVC community).</p> <p>Ancient woodland comprises 144.11 ha of the 1,313 ha study area. The abundance of each category is provided below:</p> <p>AWI 1a: 62.37 ha AWI 1a: 0.98 ha AWI 2a: 42.20 ha AWI 2b: 38.56 ha</p>	National

1.5 Invasive Non-native Species

Table 12-1-11: Determining the importance of invasive non-native species

Species	Policy and legal status	Desktop review		Survey results	Importance
		Records in study area	Habitat appraisal		
Japanese knotweed <i>Fallopia japonica</i>	An invasive non-native species within the meaning of Section 14 of the Wildlife and Countryside Act 1981	No records within the study area.	Japanese knotweed can spread along linear features including roads, railway lines and watercourses; therefore, there is potential for this species to be present within the study area.	Not recorded during any habitat/ species walkover surveys (2014, 2015 and 2017).	Less than local
Himalayan balsam <i>Impatiens glandulifera</i>		No records within the study area.	Himalayan balsam can spread along linear features including roads, railway lines and watercourses; therefore, there is potential for this species to be present within the study area.	Not recorded during any habitat/ species walkover surveys (2014, 2015 and 2017).	Less than local
Giant hogweed <i>Heracleum mantegazzianum</i>		No records within the study area.	Giant hogweed can spread along linear features including roads, railway lines and watercourses; therefore, there is potential for this species to be present within the study area.	Not recorded during any habitat/ species walkover surveys (2014, 2015 and 2017).	Less than local
Rhododendron <i>Rhododendron ponticum and hybrids</i>		No records within the study area.	Rhododendron occurs in woodland and adjacent habitat; therefore, there is potential for this species to be present within the study area.	Phase 1 Habitat Survey 2014 (Appendix 12.2, Volume 2): Recorded in three locations within the study area: Ralia Café, east of existing A9 (opposite Ralia lodge) and along track leading to Croftcarnoch. Protected Vertebrate Update Survey 2017 (Appendix 12.8, Volume 2): Recorded on the edge of woodland in three locations within the study area: Ralia café, East Lodge (northern extent) and along track leading to Croftcarnoch (northern extent).	Less than local
American mink <i>Neovison vison</i>		No records within the study area.	American mink is habitually found in riparian habitats using tall vegetation along margins of watercourses as cover to move throughout their range. The study area supports suitable habitat and prey species (e.g. birds, fish and small mammals); therefore, there is potential this species to be present within the study area.	Not recorded during any habitat/ species walkover surveys (2014, 2015 and 2017).	Less than local

1.6 Ornithology

Table 12-1-12: Determining the importance of birds

Feature	Policy and legal status	Desktop review		Survey results	Importance
		Records in the study area	Habitat appraisal		
<p>Breeding birds</p> <p><i>Note: Species associated with the SPA and SSSI are discussed under Statutory Designated Sites.</i></p>	<p>Annex 1 of Council Directive 79/409/EEC on the conservation of wild birds</p> <p>Note: Areas used regularly by more than 1% of the national population, or by more than 1% of the biogeographic population of regularly occurring migratory species, meet SPA selection criteria.</p>	<p>BTO Atlas Data:</p> <p>A review of 2km x 2km tetrads (recording units) which overlap, or are directly adjacent to, the study area did not highlight any Annex 1 species.</p> <p>This includes the following tetrads: NN69Y, NN69X, NN69W, NN79D, NN79D, NN79J, NN79P, NH70F, NH70K, NH70Q, NH80B, NH80C, NH80H and NH80.</p>	<p>The study area is dominated by agricultural grasslands and areas of woodland in the northern extent of the study area. Notable areas of marsh and swamp are present throughout Insh Marshes. Heathland is abundant in the southern extent. This mosaic of habitats is suitable habitat for a wide range of breeding birds. In particular, habitats within Insh Marshes comprise a variety of wetland habitats in combination with boggy ground, shallow pools and the River Spey, which provides good breeding and foraging habitat for a number of birds, particularly wader and waterfowl species.</p>	<p>2015/ 2016 scarce breeding bird surveys (Appendix 12.4, Volume 2) recorded the following Annex 1 species within the study area: golden eagle <i>Aquila chrysaetos</i>, white-tailed eagle <i>Haliaeetus albicilla</i>, marsh harrier <i>Circus aeruginosus</i> and black grouse <i>Tetrao tetrix</i>.</p> <p>Golden eagle</p> <p>No evidence of breeding was identified however, the species may forage within the study area.</p> <p><i>Status in Scotland</i></p> <p>Records of individual golden eagle represent >5% of the regional (central highland population), in accordance with populations cited by Wilson et al (2015)³⁶.</p>	Regional

³⁶ Wilson, M. W., Austin, G. E., Gillings S. and Wernham, C. V. (2015). Natural Heritage Zone Bird Population Estimates. SWBSG Commissioned report number SWBSG_1504. pp72

Feature	Policy and legal status	Desktop review		Survey results	Importance
		Records in the study area	Habitat appraisal		
				<p>White-tailed eagle and marsh harrier</p> <p>White-tailed eagle and marsh harrier are scarce raptor species. Both species may hunt within the study area and it is possible that both species could find suitable breeding opportunities.</p> <p><i>Status in Scotland</i></p> <p>While 82 pairs of white tailed eagle breed in Scotland none are currently reported from central highlands. Similarly, marsh harrier are a scarce breeding bird and an individual would represent >1% of the Scottish population in line with population data presented by Forrester and Andrews (2007)³⁷.</p>	National

³⁷ Forester and Andrews (2007). The Birds of Scotland. Scottish Ornithologists Club, Aberlady.

Feature	Policy and legal status	Desktop review		Survey results	Importance
		Records in the study area	Habitat appraisal		
				<p>Black grouse</p> <p>CFJV breeding bird surveys undertaken in 2016 (Appendix 12.4, Volume 2) identified two black grouse lekking sites. These were located approximately 250m from the existing A9. A total of 31 males were recorded at the lekking sites.</p> <p><i>Status in Scotland</i></p> <p>SOC (2017)³⁸ report a total of 147 lek sites within strathspey comprising at total of 694 lekking males. The number of lekking males within the study area comprises 4.3% of the regional population.</p>	Regional
	Schedule 1 of the Wildlife and Countryside Act 1981	<p>BTO Atlas Data:</p> <p>A review of 2km x 2km tetrads (recording units) which overlap, or are directly adjacent to, the study area identified records of crossbill spp.</p> <p>This includes the following tetrads: NN69Y, NN69X, NN69W, NN79D, NN79D, NN79J, NN79P, NH70F, NH70K, NH70Q, NH80B, NH80C, NH80H and NH80.</p>	<p>The study area is dominated by agricultural grasslands and areas of woodland in the northern extent of the study area. Notable areas of marsh and swamp are present throughout Insh Marshes. Heathland is abundant in the southern extent. This mosaic of habitats is suitable habitat for a wide range of breeding birds. In particular, habitats within Insh Marshes comprise a variety of wetland habitats in combination with boggy ground, shallow pools and the River Spey, which provides good breeding and foraging habitat for a number of birds, particularly wader and waterfowl species.</p>	<p>Common crossbill</p> <p>Breeding bird surveys (Appendix 12.4, Volume 2) reported that common crossbill could breed within suitable habitat (i.e. coniferous woodland) within the study area. While no confirmed breeding was reported within the 500m study area during breeding bird surveys in 2015 and 2016, based on the presence within the wider area and habitat availability within the study area, the species is considered within the assessment.</p> <p><i>Status in Scotland</i></p> <p>Common crossbill is a common and widespread breeding species in Scotland with a highly variable population noted as between 5,000 and 50,000 (Forester and Andrews 2007)³⁹.</p>	Local
	Strathspey breeding wader assemblage (curlew, redshank, snipe, lapwing and	<p>BTO Atlas Data:</p> <p>A review of 2km x 2km tetrads (recording units) which overlap, or are directly adjacent to, the</p>	<p>The study area is dominated by agricultural grasslands and areas of woodland in the northern extent of the study area, notable areas of marsh and</p>	<p>Redshank, snipe and curlew are components of the River Spey – Insh Marshes SSSI breeding bird assemblage. Where RSPB breeding bird data (2015 -2017) (Appendix 12.6, Volume 2)</p>	Regional

³⁸ Scottish Ornithologists Club (2017. Highland Bird Report 2015. SOC, Aberlady.

³⁹ Forester and Andrews (2007). The Birds of Scotland. Scottish Ornithologists Club, Aberlady.

Feature	Policy and legal status	Desktop review		Survey results	Importance
		Records in the study area	Habitat appraisal		
	oystercatcher)	<p>study area identified records of lapwing and oystercatcher.</p> <p>This includes the following tetrads: NN69Y, NN69X, NN69W, NN79D, NN79D, NN79J, NN79P, NH70F, NH70K, NH70Q, NH80B, NH80C, NH80H and NH80.</p> <p>Strathspey Breeding Wader Study:</p> <p>A study of breeding waders within Strathspey outlines the importance of the study area for breeding waders including oystercatcher, lapwing, snipe and curlew.</p> <p>The study sets out the presence of breeding waders at a number of locations within the study area.⁴⁰</p>	<p>swamp are present surrounding the River Spey through Insh Marshes. Heathland is abundant in the southern extent.</p> <p>Breeding waders associated with the Strathspey breeding wader assemblage are found in a range of habitats, depending on the species. However, they are typically found in damp grasslands where soil structure is soft enough to probe for invertebrates, riverbanks, mire and swamp habitats.</p> <p>Habitats suitable to support the species associated with Strathspey breeding waders are located in the non-wooded areas of the study area, notably around the Insh Marshes but also in other agricultural areas such as those around Nuide.</p>	<p>highlights the presence of these species within the SSSI boundary or adjacent habitats, they are of national importance and are discussed under Statutory Designated Sites (SSSI) (See Table 12-1-8).</p> <p>However, where redshank, snipe and curlew occur out with the Insh Marshes, they are considered under the Strathspey breeding wader assemblage along with lapwing and oystercatcher.</p> <p>CFJV breeding bird surveys (2015) (Appendix 12.4, Volume 2) confirm the presence of aggregations of breeding lapwing and oystercatcher and small numbers of curlew and snipe in land both north and south of the existing A9 around Nuide Farm (south of the Burn of Inverton). All species noted within the assemblage are present. Lapwing and oystercatcher are present in high densities in grassland habitat east of the existing A9 River Spey crossing (Insh Marshes NNR).</p> <p>The Strathspey breeding wader assemblage is a recognised regionally important feature and a significant proportion of the Strathspey population is present within the study area.</p>	
	Red/ Amber listed birds of conservation concern (BoCC)	<p>BTO Atlas Data:</p> <p>A review of 2km x 2km tetrads (recording units) which overlap, or are directly adjacent to, the study area identified records of a range of passerine species, waders, gulls and raptors.</p> <p>A full list of species identified are included in Table 12-15 of Chapter 12, Volume 1.</p>	<p>The study area is dominated by agricultural grasslands and areas of woodland in the northern extent of the study area. Notable areas of marsh and swamp are present surrounding the River Spey through Insh Marshes. Heathland is abundant in the southern extent.</p>	<p>CFJV breeding bird surveys (2015) (Appendix 12.4, Volume 2) identified a range of primarily passerine species included on the Red and Amber lists of the BoCC. The number of observations of each species during the 2015 survey are summarised below:</p> <p>Song thrush (11), mistle thrush (5), spotted flycatcher (11), lesser redpoll (24), linnnet (1), tree pipit (5), starling (2), grasshopper warbler (1) and grey wagtail (2).</p> <p>Amber list species including common gull (1), black headed gull (20), common sandpiper (7),</p>	Authority Area

⁴⁰ Mitchell C. (2006). Badenoch and Strathspey breeding farmland waders survey 2005.

Feature	Policy and legal status	Desktop review		Survey results	Importance
		Records in the study area	Habitat appraisal		
				kestrel (1-2), little grebe (1), mallard (10), red grouse (1) and tawny (1) owl (1-2). While these species are targeted for conservation action, they are present in relatively low numbers.	
Overwintering bird species	Annex 1 of Council Directive 79/409/EEC on the conservation of wild birds	<p>BTO Atlas Data: A review of 2km x 2km tetrads (recording units) which overlap, or are directly adjacent to, the study area identified records of non-breeding merlin <i>Falco columbarius</i>, peregrine falcon <i>falco peregrinus</i>, kingfisher <i>Alcedo atthis</i>, golden plover <i>Pluvialis apricaria</i> and black grouse.</p> <p>This includes the following tetrads: NN69Y, NN69X, NN69W, NN79D, NN79D, NN79J, NN79P, NH70F, NH70K, NH70Q, NH80B, NH80C, NH80H and NH80.</p> <p>BTO WeBS Data: A review of BTO WeBS data provided by RSPB for Insh Marshes includes isolated reports of small numbers of barnacle goose <i>Branta leucopsis</i> (3) and white fronted goose <i>Anser albifrons</i> (11). Detailed locations are not available for the records; however, they are reported within reserve compartments which are predominantly outwith the study area.</p>	The study area is dominated by agricultural grasslands and areas of woodland in the northern extent of the study area. Notable areas of marsh and swamp are present surrounding the River Spey through Insh Marshes. Heathland is abundant in the southern extent. The combination of agricultural land, woodland and heathland is likely to provide suitable foraging and roosting habitat for a range of overwintering species. Notably, the undisturbed wetlands around the Insh Marshes provide a good foraging and roosting resource for a range of non-breeding birds.	<p>During the CFJV winter vantage point survey 2016-2017 (Appendix 12.5, Volume 2) around the River Spey crossing, golden eagle, merlin and peregrine falcon flights were recorded within the study area. All records were obtained on a single occasion.</p> <p>While no detailed information on populations of the species present during winter is available, the numbers present are <1% of national populations reported by Forrester and Andrews (2007), but are considered likely to represent >1% of regional wintering populations.</p>	Regional
					No incidental sightings of white fronted goose or barnacle goose were noted during the winter vantage point survey
		Red/ Amber listed birds of conservation	<p>BTO Atlas Data: A review of 2km x 2km tetrads</p>	The study area is dominated by agricultural grasslands and areas of	CFJV winter vantage point surveys around the Spey Crossing 2017 (Appendix 12.5, Volume

Feature	Policy and legal status	Desktop review		Survey results	Importance
		Records in the study area	Habitat appraisal		
	<p>concern (BoCC) CNPA Priority Species</p>	<p>(recording units) which overlap, or are directly adjacent to, the study area identified numerous records of non-breeding species comprising a range of passerines, waders, and wildfowl an overview of records of non-breeding species identified in BTO data are presented in Table 12-18 of Chapter 12.</p> <p>BTO WeBS Data: RSPB collect wetland bird survey data throughout the Insh Marshes reserve throughout the winter (October – March annually). Data from between 2014 – 2015 and 2016 – 2017 shows the following species are present within survey compartments which overlap with the study area: black-headed gull, common gull, curlew, goosander, great black-backed gull, greylag goose, herring gull, kingfisher, lapwing, little grebe, long tailed duck, mallard, moorhen mute swan, oystercatcher, pink footed goose, pochard, redshank, scaup, snipe, teal, tufted duck, wigeon.</p>	<p>woodland in the northern extent of the study area. Notable areas of marsh and swamp are present surrounding the River Spey through Insh Marshes. Heathland is abundant in the southern extent. The combination of agricultural land, woodland heathland is likely to provide suitable foraging and roosting habitat for a range of overwintering species. Notably, the undisturbed wetlands around the Insh Marshes provide a good foraging and roosting resource for a range of non-breeding birds.</p>	<p>2) confirms the presence of wigeon, teal, goldeneye, greylag goose, pink footed goose, pochard, tufted duck, lapwing and oystercatcher within the study area.</p> <p>Peak counts of greylag geese within Insh Marshes comprise >1% of the Scottish population. Presence within the study area is lower and, whilst regional population data isn't available, the population is considered to be of regional value.</p> <p>The presence of populations of a wider assemblage wetland bird species within the undisturbed wetland of Insh Marshes are considered to be of regional importance, and an overall value of regional importance is assigned to for non-breeding birds which are red/ amber listed or CNPA priority species.</p> <p>No targeted survey work for non-breeding passerines or other non-breeding birds within the study area has been undertaken, and they are not considered further within this appendix.</p>	

1.7 Amphibians

Table 12-1-13: Determining the importance of amphibians

Species	Policy and legal status	Desktop review		Survey results	Importance
		Records in the study area	Habitat appraisal		
Great crested newt (GCN) <i>Triturus cristatus</i>	Annex 2 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora European Protected Species (EPS) - listed on Schedule 2 of the Conservation (Natural Habitats &c.) Regulations 1994 SBL priority species	No records within the study area.	There are a number of waterbodies throughout the study area which provide potential breeding habitat for GCN. The grassland and woodland habitat surrounding many of the waterbodies provides suitable terrestrial habitat.	A Habitat Suitability Index (HSI) assessment of 19 ponds within 250m from the existing A9 was carried out to determine if they provide suitable breeding habitat for GCN (see Appendix 12.8, Volume 2). Primarily due to the geographic location and presence of waterfowl, all ponds were considered to offer 'poor' to 'below average' habitat for breeding GCN; therefore, GCN are assumed absent from the study area.	Less than local
Common toad <i>Bufo bufo</i>	Protected under Section 9 of the Wildlife and Countryside Act 1981 (only against trade) SBL priority species	No records within the study area.	There are a number of waterbodies throughout the study area which provide potential breeding habitat for common toad. The grassland and woodland habitat surrounding many of the waterbodies provides suitable terrestrial habitat.	Common toad is a common and widespread species in the UK, therefore no targeted surveys were carried out. No incidental sightings were recorded during species/ habitat walkover surveys (2014, 2015 and 2017).	Less than local

1.8 Reptiles

Table 12-1-14: Determining the importance of notable reptiles

Species	Policy and legal status	Desktop review		Survey results	Importance
		Records in the study area	Habitat appraisal		
Adder <i>Vipera berus</i>	Protected under Section 9 of the Wildlife and Countryside Act 1981 SBL priority species	No records within the study area.	The southern extent of the study area has abundant heathland which provides suitable foraging, basking and sheltering habitat for reptiles. In the northern extent, the abundance of improved agricultural grasslands may be less attractive to reptiles. However, areas of rough grassland, woodland edges and boundary features (e.g. dry-stone walls) do provide suitable habitat for reptiles.	No targeted surveys were carried out for adder. No incidental sightings were recorded during protected species walkover surveys (2014, 2015 and 2017). Adder are assumed present in suitable habitat within the study area.	Authority area
Common lizard <i>Lacerta vivipara</i>		Highland Biological Recording Group (HBRG): one record 2012, east of existing A9 opposite Raliabeg.	<i>Refer to adder habitat appraisal for description of suitable habitat within the study area.</i>	No targeted surveys were carried out for common lizard. However, a number of incidental sightings were noted during protected species walkover surveys (2014, 2015 and 2017).	Authority area
Slow worm <i>Anguis fragilis</i>		No records within the study area.	<i>Refer to adder habitat appraisal for description of suitable habitat within the study area.</i>	No targeted surveys were carried out slow worm. No incidental sightings during protected species walkover surveys (2014, 2015 and 2017). Slow worm are assumed present in suitable habitat within the study area.	Authority area

1.9 Bats

Table 12-1-15: Determining the importance of bats

Species	Policy and legal status	Desktop review			Survey results	Importance
		Records in study area	UK status	Habitat appraisal		
Common pipistrelle <i>Pipistrellus pipistrellus</i>	Annex 2 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora. EPS - listed on Schedule 2 of The Conservation (Natural Habitats &c.) Regulations 1994 SBL priority species	Five historic NESBReC records of <i>Pipistrellus</i> species were identified at the following locations: <ul style="list-style-type: none"> • 70m west of the existing A9 near the Highland Wildlife Park (2002) • 470m west of the existing A9 just north of Chapelpark (1973) • Two records directly east of the existing A9 at Chapelpark (1900 – 1970 and 2002) • 250m west of the existing A9 in Kingussie (1996) 	Common pipistrelle is one of the most common and widespread bat species in the UK, with an estimated population of 2.4 million ⁴¹ . The UK distribution of common pipistrelle includes the Scottish Highlands; therefore, suitable habitat within the study area may support this species.	Areas of woodland within the study area is present in small isolated patches or thin strips alongside the existing A9. Woodland, particularly broadleaved woodland, is the most extensive in the northern extent of the study area. This habitat offers potential commuting, foraging and roosting opportunities for bats. Man-made structures such as houses and farm buildings, also provide potential roosting sites.	<p>Preliminary Bat Roost Potential (BRP) assessment 2015 (Appendix 12.7, Volume 2):</p> <p>Structures classified as BRP 1 within the study area were predominantly man-made structures, with only two stands of woodland and two individual trees classified as BRP 1.</p> <p>Over 50 trees or stands of woodland were classified as BRP 2.</p> <p>No diagnostic signs of bats e.g. droppings or staining was recorded during 2015 surveys.</p> <p>Bat activity surveys (trees/ woodland) 2016 (Appendix 12.7, Volume 2):</p> <p>Common pipistrelle was frequently recorded throughout the study area during the 2016 bat activity surveys.</p> <p>The highest levels of common pipistrelle activity were recorded in a strip of mature oak and birch woodland (classified as BRP 1) at the northern extent of the study area, between the existing A9 and B1952 road.</p> <p>No common pipistrelle tree roosts were identified within the study area.</p>	Local

⁴¹ Bat Conservation Trust (BCT). Common Pipistrelle trends for Great Britain. Available at: http://www.bats.org.uk/pages/-common_pipistrelle-821.html (accessed 20.10.17)

Species	Policy and legal status	Desktop review			Survey results	Importance
		Records in study area	UK status	Habitat appraisal		
					<p>Bat activity surveys (man – made structures) 2017 (Appendix 12.8, Volume 2):</p> <p>Four structures had confirmed common pipistrelle roosts, with a total of 15 roosts recorded. These roosts supported a total of 31 bats.</p>	
<p>Soprano pipistrelle <i>Pipistrellus pygmaeus</i></p>	<p>Annex 2 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora</p> <p>EPS - listed on Schedule 2 of The Conservation (Natural Habitats &c.) Regulations 1994</p> <p>SBL priority species</p>	<p>Five historic NESBReC records of <i>Pipistrellus</i> species were identified at the following locations:</p> <ul style="list-style-type: none"> • 70m west of the existing A9 near the Highland Wildlife Park (2002) • 490m west of the existing A9 just north of Chapelpark (1973) • Two records directly east of the existing A9 at Chapelpark (1900 – 1970 and 2002) • 250m west of the existing A9 in Kingussie 	<p>Soprano pipistrelle is one of the most common and widespread bat species in the UK, with an estimated population of 1.3 million in the UK⁴².</p> <p>The UK distribution of soprano pipistrelle includes the Scottish Highlands; therefore, suitable habitat within the study area may support this species.</p>	<p><i>Refer to common pipistrelle habitat appraisal for description of suitable habitat within the study area.</i></p>	<p><i>Refer to common pipistrelle for results of the preliminary BRP assessment (2015).</i></p> <p>Bat activity surveys (trees/ woodland) 2016 (Appendix 12.7, Volume 2):</p> <p>Soprano pipistrelle was frequently recorded throughout the study area during the 2016 bat activity surveys.</p> <p>The highest levels of soprano pipistrelle activity were recorded in a strip of mature oak and birch woodland (classified as BRP 1) at the northern extent of the study area, between the existing A9 and B1952 road. The only confirmed tree roost within the study area was located within this woodland and was identified as a soprano pipistrelle which supported seven bats in total.</p> <p>Bat activity surveys (man – made structures) 2017 (Appendix 12.8, Volume 2):</p> <p>Two structures had confirmed soprano pipistrelle roosts, with a total of three roosts recorded. Each roost supported a single bat (i.e. total of</p>	Local

⁴² Bat Conservation Trust (BCT). Soprano pipistrelle trends for Great Britain. Available at: http://www.bats.org.uk/pages/-soprano_pipistrelle-823.html (accessed 20.10.17)

Species	Policy and legal status	Desktop review			Survey results	Importance
		Records in study area	UK status	Habitat appraisal		
		(1996)			three bats).	
Nathusius' pipistrelle <i>Pipistrellus nathusius</i>	Annex 2 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora EPS - listed on Schedule 2 of The Conservation (Natural Habitats &c.) Regulations 1994 SBL priority species	No records within the study area.	Nathusius' pipistrelle is rare within the UK, occurring mainly in south England and Northern Ireland. In Scotland, Nathusius pipistrelle has been primarily recorded in southern Scotland, Orkney and Shetland, with some records in northeast Scotland, with the closest record approximately 50km southeast of to the study area ⁴³ .	N/A – the distribution of Nathusius' pipistrelle suggests the Scottish Highlands may be out with the known within the UK; therefore, the species is likely to be absent from the study area.	No activity recorded during 2016/2017 bat activity surveys.	Less than local
Brown long-eared <i>Plecotus auritus</i>	Annex 2 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora EPS– listed on Schedule 2 of The Conservation (Natural Habitats &c.) Regulations 1994 SBL priority species	One historic (1973) NESBReC record 470m east of the existing A9 near Chapelpark.	The estimated UK population of brown long-eared bats is 245,000, with approximately 27,500 in Scotland ⁴⁴ . The UK distribution of brown long-eared bats includes the Scottish Highlands; therefore, suitable habitat within the study area may support this species.	<i>Refer to common pipistrelle habitat appraisal for description of suitable habitat within the study area.</i>	<i>Refer to common pipistrelle for results of the preliminary BRP assessment (2015).</i> Bat activity surveys (trees/ woodland) 2016 (Appendix 12.7, Volume 2): Brown long-eared bats were rarely recorded during the 2016 bat activity surveys, and when the species was encountered only a very low number of calls were recorded. A slightly higher number of calls, in comparison to elsewhere in the study area, was recorded in the strip of mature oak and birch woodland (classified as BRP 1) at the northern extent of the study area, between the existing A9 and B1952 road.	Local

⁴³ Joint Nature Conservation Committee (JNCC). Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006. Available at: <http://jncc.defra.gov.uk/pdf/Article17/FCS2007-S1317-audit-Final.pdf> (accessed 20.10.17)

⁴⁴ Bat Conservation Trust (BCT). Brown long-eared bat trends for Great Britain. Available at: http://www.bats.org.uk/pages/-brown_long-eared_bat-829.html (accessed 20.10.17)

Species	Policy and legal status	Desktop review			Survey results	Importance
		Records in study area	UK status	Habitat appraisal		
					<p>The only confirmed tree roost within the study area was located within this strip of woodland. The roost was identified as a soprano pipistrelle roost however, it was suspected brown-long eared bats may have entered the same roost or another roost in a nearby tree, however this was not confirmed.</p> <p>Bat activity surveys (man – made structures) 2017 (Appendix 12.8, Volume 2): One structure had a confirmed brown long-eared roost, supporting one bat.</p>	
<p>Daubenton's bat <i>Myotis daubentonii</i></p>	<p>Annex 2 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora EPS – listed on Schedule 2 of The Conservation (Natural Habitats &c.) Regulations 1994 SBL priority species</p>	<p>One historic (1973) NESBReC record 470m east of the existing A9 near Chapelpark.</p>	<p>The estimated UK population of Daubenton's bats is 560,000, with an estimated 40,000 in Scotland⁴⁵. The UK distribution of Daubenton's bats includes the Scottish Highlands; therefore, suitable habitat within the study area may support this species.</p>	<p>Daubenton's bats typically forage over waterways near their roosts. Within the study area, the River Truim, the River Spey and their tributaries provide potential foraging habitat for Daubenton's bats where they are in proximity to potential roosting habitat (e.g. broadleaved woodland or man-made structures).</p>	<p><i>Refer to common pipistrelle for results of the preliminary BRP assessment (2015).</i></p> <p>Bat activity surveys (trees/ woodland) 2016 (Appendix 12.7, Volume 2): Similar to brown long-eared bats, Daubenton's bats were rarely recorded during the 2016 bat activity surveys, and when the species was encountered only a very low number of calls were recorded. No tree roosts identified.</p> <p>Bat activity surveys (man – made structures) 2017 (Appendix 12.8, Volume 2): No Daubenton's bat roosts were identified.</p>	Local
<p>Natterer's bat</p>	<p>Annex 2 of Council Directive 92/43/EEC</p>	<p>No records within study area.</p>	<p>The estimated UK population of Natterer's bats is 148,000, with</p>	<p><i>Refer to common pipistrelle habitat appraisal for description</i></p>	<p><i>Refer to common pipistrelle for results of the preliminary BRP assessment</i></p>	Local

⁴⁵ Bat Conservation Trust (BCT). Daubenton's bat trends for Great Britain. Available at: http://www.bats.org.uk/pages/-daubentons_bat-815.html (accessed 20.10.17)

Species	Policy and legal status	Desktop review			Survey results	Importance
		Records in study area	UK status	Habitat appraisal		
<i>Myotis natterii</i>	on the conservation of natural habitats and of wild fauna and flora EPS – listed on Schedule 2 of The Conservation (Natural Habitats &c.) Regulations 1994 SBL priority species		17,500 in Scotland. ⁴⁶ The UK distribution of Natterer's bats includes the Scottish Highlands; therefore, suitable habitat within the study area may support this species.	<i>of suitable habitat within the study area.</i>	(2015). Bat surveys (trees/ woodland) 2016 (Appendix 12.7, Volume 2): Natterer's bats were only recorded in the strip of mature oak and birch woodland (classified as BRP 1) at the northern extent of the study area, between the existing A9 and B1952 road. Very low levels of activity were recorded (two passes). No tree roosts identified. Bat activity surveys (man – made structures) 2017 (Appendix 12.8, Volume 2): No confirmed Natterer's bat roosts were identified.	
Leisler's bat <i>Nyctalus leisleri</i>	Annex 2 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora EPS – listed on Schedule 2 of The Conservation (Natural Habitats &c.) Regulations 1994 SBL priority species	No records within study area.	The UK distribution of Leisler's bat is primarily confined to Northern Ireland and south and central England. A small number of locations within Northern England and Scotland are included within the species' distribution map ⁴⁷ , however the closest records to the study area are confined to Aberdeen.	N/A - The Scottish Highlands is out with the known range of noctule within the UK; therefore, the species is likely to be absent from the study area.	Not recorded within the study area during 2016/ 2017 activity surveys.	Less than local
Noctule <i>Nyctalus</i>	Annex 2 of Council Directive 92/43/EEC	No records within the study area.	The distribution of noctule within Scotland is primarily limited to the	N/A - The Scottish Highlands is out with the known range of	Not recorded within the study area during 2016/ 2017 bat activity surveys.	Less than local

⁴⁶ Bat Conservation Trust (BCT). Natterer's bat trends for Great Britain. Available at: http://www.bats.org.uk/pages/-natterers_bat-817.html (accessed 20.10.17)

⁴⁷ Joint Nature Conservation Committee (JNCC). Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006. Available at: <http://jncc.defra.gov.uk/pdf/Article17/FCS2007-S1331-Final.pdf> (accessed 20.10.17)

Species	Policy and legal status	Desktop review			Survey results	Importance
		Records in study area	UK status	Habitat appraisal		
<i>noctula</i>	on the conservation of natural habitats and of wild fauna and flora EPS - listed on Schedule 2 of The Conservation (Natural Habitats &c.) Regulations 1994 SBL priority species		south west, with no records north of Perth ⁴⁸ .	noctule within the UK; therefore, the species is likely to be absent from the study area.		
Whiskered bat <i>Myotis mystacinus</i>	Annex 2 of Council Directive 92/43/EEC on the conservation of natural habitats and of wild fauna and flora EPS – listed on Schedule 2 of The Conservation (Natural Habitats &c.) Regulations 1994 SBL priority species	No records within the study area.	The distribution of whiskered bat within Scotland is restricted to the South and Central belt, with no records north of Perth ⁴⁹ .	N/A - The Scottish Highlands is out with the known range of whiskered bat within the UK; therefore, the species is likely absent from the study area.	Not recorded within the study area during 2016/ 2017 bat activity surveys.	Less than local

⁴⁸ Joint Nature Conservation Committee (JNCC). Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006. Available at: <http://jncc.defra.gov.uk/pdf/Article17/FCS2007-S1312-Final.pdf> (accessed 20.10.17)

⁴⁹ Joint Nature Conservation Committee (JNCC). Second Report by the UK under Article 17 on the implementation of the Habitats Directive from January 2001 to December 2006. Available at: <http://jncc.defra.gov.uk/pdf/Article17/FCS2007-S1330-audit-Final.pdf> (accessed 20.10.17)

1.10 Terrestrial mammals

Table 12-1-16: Determining the importance of terrestrial mammals

Species	Policy and legal status	Desktop review		Survey results	Importance
		Records in study area	Habitat appraisal		
Badger <i>Meles meles</i>	Protected under the Protection of Badgers Act 1992	<p>Scottish Badgers:</p> <p>Three badger road casualties at the following locations:</p> <ul style="list-style-type: none"> • Just north of Lochan an Tairbh (2013) • West of existing A9, near Kerrow Cottage (2013) • Northern extent of the study area, nearby the Highland Wildlife Park (2014) 	<p>The extensive heathland and limited woodland within the southern extent suggests badger are unlikely to be present. However, in the northern extent the combination of woodland and agricultural grasslands provides good badger habitat.</p>	<p>No evidence of badger was recorded during protected species walkover surveys (2014, 2015, 2017).</p>	<p>Less than local</p>
Pine marten <i>Martes martes</i>	<p>Protected under the Wildlife and Countryside Act 1981</p> <p>SBL priority species</p> <p>CNAP priority species</p>	<p>No records within the study area.</p>	<p>Pine marten require extensive areas of woodland within their territory and generally avoid open ground.</p> <p>Woodland within the study area is present in small isolated blocks or thin strips alongside the existing A9. Pine marten are considered unlikely to den within the study area due to the small and isolated nature of the woodland present, along with the high disturbance levels from the existing road. However, they may forage or commute through these areas of woodland, particularly in the northern extent, where they are connected to more extensive woodland (e.g. Craighui wood) beyond the study area.</p> <p>Pine marten occasionally use buildings, such as residential homes, for breeding. Dwellings in the villages of Newtonmore and Kingussie may provide potential breeding sites.</p>	<p>No evidence of pine marten was recorded during protected species walkover surveys (2014, 2015, 2017).</p>	<p>Less than local</p>

Species	Policy and legal status	Desktop review		Survey results	Importance
		Records in study area	Habitat appraisal		
Red squirrel <i>Sciurus vulgaris</i>	Protected under the Wildlife and Countryside Act (1981) SBL priority species CNAP priority species	Highland Biological Recording Group (HBRG): West of existing A9 in Highland Wildlife Park (2009). National Biodiversity Network (NBN): <ul style="list-style-type: none"> • Scottish Wildlife Trust record within 1km² grid square near Highland Wildlife Park (2008) • Scottish Wildlife Trust record within 1km² near Lynchat (2007) • Scottish Wildlife Trust record within 100m² just north of River Spey Crossing (2010) • HBRG record within 1km² grid square near Ralia Lodge (2007) • HBRG record within 1km² southern extent (2011) 	The estimated population of red squirrel in Scotland is 120,000 which is 75% of the UK population ⁵⁰ . Areas of woodland within the study area are present in small isolated patches or thin strips alongside the existing A9. However, where they are connected to larger woodlands, notably in the northern extent (e.g. Craighui wood), they offer good quality foraging and sheltering habitat for red squirrel.	<p>Protected Vertebrate Survey (2015) (Appendix 12.7, Volume 2):</p> <p>Red squirrel activity (sightings, dreys and feeding remains) was recorded across the study area. Activity was particularly high in the coniferous woodland between Ralia Beg and Ralia Lodge. At this location, a red squirrel was recorded, along with several active dreys and foraging signs.</p> <p>Protected Vertebrate Update Survey (2017) (Appendix 12.8, Volume 2):</p> <p>Similar to findings from the 2015 survey, red squirrel activity was recorded throughout the study area and was particularly high around Ralia Lodge.</p> <p>An additional area of particularly high activity was noted in the coniferous woodland (Craighui wood) surrounding Croftcarnoch where a red squirrel was recorded, along with numerous dreys and foraging signs.</p>	Regional

⁵⁰ Saving Scotland’s Red Squirrels. Available at: <https://scottishsquirrels.org.uk/squirrel-facts/where-to-see-red-squirrels/> (accessed 23.10.17)

Species	Policy and legal status	Desktop review		Survey results	Importance
		Records in study area	Habitat appraisal		
<p>European wildcat <i>Felis silvestris silvestris</i></p>	<p>EPS – listed on Schedule 2 of The Conservation (Natural Habitats &c.) Regulations 1994 SBL priority species CNAP priority species</p>	<p>Cairngorms National Park Authority (CNPA): Wildcat recorded on two separate occasions using camera traps located nearby the Highland Wildlife Park at the northern extent of the study area (2010). National Biodiversity Network (NBN): SNH wildcat record near Highland Wildlife Park within 100m² grid square (2005).</p>	<p>Wildcat have extensive home ranges, which can increase and contract based on levels of disturbance. Habitats of most importance to sustaining wildcat populations include woodland (denning), woodland edge (commuting) and moorland/ rough grassland (foraging). Areas of woodland within the study area are present in isolated patches or thin strips parallel to the existing A9. These stands of woodland are unlikely to support wildcat dens due to high levels of disturbance from the existing road. However, wildcat may commute through these areas to reach more extensive woodland in the wider landscape. Heathland in the southern extent and areas rough grassland throughout the study area may provide potential foraging habitat.</p>	<p>No targeted surveys for wildcat were carried out, and no incidental sightings of wildcat presence or activity was noted during walkover surveys (2014, 2015, 2017).</p>	<p>National</p>
<p>Water vole <i>Arvicola amphibius</i></p>	<p>Protected under the Wildlife and Countryside Act 1981 SBL priority species</p>	<p>RSPB highlighted a sighting of water vole around the River Spey crossing (2015).</p>	<p>Tributaries of the River Spey within the study area (e.g. Burn of Inverton) provide potential habitat for water vole where there is sufficient riparian vegetation. Ponds, small lochans and agriculture ditches within the study area may also provide potential water vole habitat.</p>	<p>Protected Vertebrate Survey 2015 (Appendix 12.7, Volume 2): Water vole activity within the study area was low, with evidence of water vole identified in only one location near the Allt Torr an Daimh watercourse, east of the existing A9. This discrete area of activity consisted of runs and latrines although no burrows were recorded. Protected Vertebrate Survey 2017 (Appendix 12.8, Volume 2): Water vole activity was very limited, similar to findings of the 2015 survey. Signs of water vole was recorded in only one location, not previously identified in 2015. The evidence of water vole was noted along a drainage ditch adjacent to the existing A9 and consisted of a single burrow, latrines and feedings remains.</p>	<p>Authority area</p>

Species	Policy and legal status	Desktop review		Survey results	Importance
		Records in study area	Habitat appraisal		
Brown hare <i>Lepus europaeus</i> Mountain hare <i>Lepus timidus</i>	Partially protection under the Wildlife and Countryside Act 1981 SBL priority species Mountain hare is a CNPA priority species	Highland Biological Recording Group (HBRG): One record east of brown hare east of the existing A9 near Newtonmore (2013).	Heathland and rough grassland within the study area provide potential habitat for hare species.	Hare species are common and widespread throughout the UK, therefore, no targeted surveys carried out. Incidental sightings of brown hare were noted within the study area during the Phase 1 habitat survey (2014) and protected vertebrate survey (2015).	Local

1.11 Wood ant

Table 12-1-17: Determining the importance of wood ant

Species	Policy and legal Status	Desktop review		Survey results	Importance
		Records in study area	Habitat appraisal		
Wood ant <i>Formica</i> spp.	SBL priority species Four species of wood ant are identified as priority species within the CNPA	No records within the study area.	Areas of woodland are present in small isolated patches or thin strips parallel to the existing A9 throughout the study area, notably in the northern extent. These woodlands could provide potential foraging and nest building habitat for wood ant.	2017 walkover surveys did not identify any wood ant nests within the study area; therefore, they are assumed absent.	Less than local

1.12 CNPA draft priority non-protected species

- 1.12.1 The Cairngorms National Park (CNP) is a stronghold for a variety of wildlife; conservation action for 26 key species are described in the 'Cairngorms Nature Action Plan' (CNAP) 2013 – 2018. Through environmental consultation, the CNPA provided a draft list of 360 priority non-protected species. Many of these species are not afforded legal protection or included in biodiversity policy, however they are important to the CNP. The broad habitat-based list was compiled using desktop information, species experts and local interest groups, and incorporates many of the 26 key species.
- 1.12.2 To inform the EclA process, the CNPA agreed that a broad habitat-based mitigation approach was a suitable means to consider potential impacts on priority non-protected species of invertebrate, bryophytes, fungus and plant species. The CNPA highlighted broad habitat features that could support priority non-protected species using the Phase 1 habitat survey and consultation with key stakeholders. The CNPA classified the resulting habitat features as:
- Red (highest priority) - records of species and habitats within the study area which are of high priority for conservation
 - Amber (high priority) - no records, however potential habitat for a particular species or group is present within the study area
- 1.12.3 The CNPA desktop review highlighted 54 red (highest priority) and 57 amber (high priority) areas within the study area. Details of these priority areas (i.e. broad habitat type, specific habitat features and location) and associated interest group (interest groups are made up of various fungi types, invertebrates and plant species) are provided in **Table 12-1-18**.

Table 12-1-18: Potential habitat for CNPA priority non-protected species within the study area

Phase 1 habitat type	Interest group	Comment	Priority category	Location
Broadleaved Semi-Natural Woodland	Lepidoptera	Regenerating birch woodland, bog myrtle & heath has potential for rare moths	Amber	NN6916094767
Broadleaved Semi-Natural Woodland	Lepidoptera	Regenerating birch woodland, bog myrtle & heath has potential for rare moths	Amber	NN6906195048
Broadleaved Semi-Natural Woodland	Lepidoptera	Regenerating birch woodland, bog myrtle & heath has potential for rare moths	Amber	NN6931095567
Broadleaved Plantation Woodland	Lepidoptera	Regenerating birch woodland, bog myrtle & heath has potential for rare moths	Amber	NN6914795676
Dry Dwarf Shrub Heath	Lepidoptera/ funji	Bearberry present - check for <i>Anarta cordigera</i> , <i>Macaria carbonaria</i> and <i>Exobasidium sydowianum</i>	Red	NN6954796081
Broadleaved Semi-Natural Woodland / Dry Dwarf Shrub Heath	Lichens	Mature trees have lichen potential	Amber	NN6942696108
Broadleaved Semi-Natural Woodland	Moss, lichen, fungi	Aspen noted, mature trees may support moss, lichen and fungi associates	Red	NN6944096133
Dry Dwarf Shrub Heath	Lepidoptera	Area of interest for Lepidoptera	Red	NN7024896803
Dry Dwarf Shrub Heath	Lepidoptera	Area of interest for Lepidoptera	Red	NN6979296837
Dry Dwarf Shrub Heath / Coniferous Plantation Woodland and Watercourse	Lepidoptera	Ralia Beg is a known hotspot for rare moths	Red	NN7040096869
Acid Semi-Improved Grassland	Fungi	Good diversity of waxcaps recorded	Red	NN7042196953
Dry Dwarf Shrub Heath / Coniferous Plantation Woodland	Lepidoptera	Railway embankment known hotspot for species dependent on bearberry	Red	NN6995296954
Dry Dwarf Shrub Heath / Coniferous Plantation Woodland	Lepidoptera	Records nearby of moth species associated with bearberry	Red	NN6995296954
Broadleaved Semi-Natural Woodland	Fungi	Potential fungi interest	Amber	NN7010496972
Coniferous Plantation Woodland	Fungi	<i>Goodyera repens</i> present - potential fungi interest	Amber	NN7067897249
Acid Grassland Unimproved	Fungi	Waxcaps recorded here	Red	NN7095097460
Cottage Garden - No Phase 1 habitat type	Fungi	Fungi potential	Amber	NN7141197550
Broadleaved Semi-Natural Woodland	Lichens	Woodland has lichen potential	Amber	NN7151597645
Broadleaved Semi-Natural Woodland	Lichens	Woodland has lichen potential	Amber	NN7189597722
Broadleaved Semi-Natural Woodland	Fungi	Fungi potential	Amber	NN7193697741

Phase 1 habitat type	Interest group	Comment	Priority category	Location
Broadleaved Semi-Natural Woodland	Fungi	Fungi potential	Amber	NN7191697876
Broadleaved Semi-Natural Woodland	Lichens	This woodland has lichen potential	Amber	NN7193397885
Dry Dwarf Shrub Heath	Invertebrates, fungi	If bearberry present - potential for <i>Anarta cordigera</i> , <i>Macaria carbonaria</i> and <i>Exobasidium sydowianum</i>	Amber	NN7287198222
Open Water	Invertebrates	Northern damselfly potential	Red	NN7316998285
Dry Dwarf Shrub Heath	Invertebrates, fungi	If bearberry present - potential for <i>Anarta cordigera</i> , <i>Macaria carbonaria</i> and <i>Exobasidium sydowianum</i>	Amber	NN7328698330
Acid Semi-Improved Grassland	Plants, fungi	Botanical interest and waxcaps recorded	Red	NN7301598415
Open Water	Invertebrates	Northern damselfly potential	Red	NN7303098455
Acid Grassland Unimproved	Invertebrates, fungi	Waxcaps recorded, common rock rose recorded - potential for <i>Aricia artaxerxes</i>	Red	NN7327998516
Open Water	Invertebrates	Northern damselfly potential	Red	NN7337998526
Dry Dwarf Shrub Heath	Invertebrates, fungi	If bearberry present - potential for <i>Anarta cordigera</i> , <i>Macaria carbonaria</i> and <i>Exobasidium sydowianum</i>	Amber	NN7472798856
Dry Dwarf Shrub Heath	Invertebrates, fungi	If bearberry present - potential for <i>Anarta cordigera</i> , <i>Macaria carbonaria</i> and <i>Exobasidium sydowianum</i>	Amber	NN7510598941
Broadleaved Semi-Natural Woodland	Fungi	Riparian woodland has fungi potential	Amber	NN7445798995
Open Water	Invertebrates	Northern damselfly potential	Red	NN7491499065
Acid Grassland Unimproved	Fungi, Lepidoptera	Common rock rose noted, <i>Aricia artaxerxes</i> and fungi potential	Red	NN7505799100
Broadleaved Semi-Natural Woodland	Fungi	Fungi potential	Amber	NN7530699231
Neutral Semi-Improved Grassland	Fungi	Waxcap potential	Amber	NN7558299425
Broadleaved Semi-Natural Woodland/ Coniferous Plantation Woodland	Lichen	This woodland has lichen potential	Amber	NN7594599670
Coniferous Plantation Woodland	Fungi	Potential for <i>Lactarius pornisis</i> on larch	Amber	NN7608599714
Mature trees on Poor Semi-Improved Grassland	Lichens	Old alders have lichen potential	Amber	NN7604099807
Broadleaved Semi-Natural Woodland	Lichens	Old alders have lichen potential	Amber	NN7613299885
Open Water	Invertebrates	Northern damselfly potential	Red	NN7619199984
Neutral Semi-improved grassland	Fungi	Waxcap potential	Amber	NH7615000045
Open Water	Invertebrates	Northern damselfly potential	Red	NH7637700064

Phase 1 habitat type	Interest group	Comment	Priority category	Location
Poor Semi-Improved Grassland	Fungi	Waxcap potential	Amber	NH7619600142
Neutral Semi-improved grassland	Fungi	Waxcap potential	Amber	NH7631200276
Neutral Semi-improved grassland	Fungi	Waxcap potential	Amber	NH7648300392
Broadleaved Semi-Natural Woodland	Fungi	Fungi potential, potential for <i>Cytidia salicina</i> on <i>Salix</i> Spp.	Red	NH7633600413
Poor Semi-Improved Grassland	Fungi	Waxcap potential	Amber	NH7643500667
Poor Semi-Improved Grassland	Fungi	Waxcap potential	Amber	NH7657600685
Poor Semi-Improved Grassland	Fungi	Waxcap potential	Amber	NH7669300962
Broadleaved Plantation Woodland	Fungi, lichen, moss	Mature elm and aspen - potential for moss, lichen, fungi associates	Red	NH7651501009
Broadleaved Plantation Woodland	Aspens	Mature aspens around Kerrow Cottage - potential for lichen, moss & fungi associates	Red	NH7666601270
Broadleaved Semi-Natural Woodland	Aspen	Planted aspen here - potential mature trees for moss, lichen, fungi associates	Red	NH7671801351
Broadleaved Semi-Natural Woodland	Invertebrates	Abundant <i>Succisa</i> Sp. - potential for <i>Andrena marginata</i> & other <i>Hymenoptera</i> Spp.	Red	NH7668201402
Acid Semi-Improved Grassland	Invertebrates, fungi	Drier areas have potential for <i>Andrena marginata</i> & other <i>Hymenoptera</i> Spp. and waxcaps	Red	NH7713001519
Open Water	Invertebrates	Northern damselfly potential	Red	NH7764501662
Acid Semi-Improved Grassland	Lichens	Pile of stones/boulders have lichen potential	Amber	NH7767501882
Coniferous Plantation Woodland	Fungi	Potential for <i>Lactarius pornisis</i> on larch	Amber	NH7884102041
Mixed Plantation Woodland	Fungi	Potential for tooth fungi	Amber	NH7874502113
Coniferous Plantation Woodland	Fungi	Potential for <i>Lactarius pornisis</i> on larch	Amber	NH7895102127
Broadleaved Semi-Natural Woodland / Dense Scrub	Fungi	Dog's mercury suggests potential for fungi	Amber	NH7895302184
Mature trees	Lichens	Stone wall & corridor of mature broadleaves / mixed species - known lichen interest	Red	NH7912602237
Mature trees	Fungi	Mature lime, beech, sycamore, elm - potential for fungi associates	Amber	NH7911302240
Marsh / Marshy Grassland	Fungi	Willows present - potential for <i>Cytidia salicina</i> , close to known sites	Red	NH7939002455
Broadleaved Semi-Natural Woodland / Stone Wall	Lichens	Mature trees and stone fall have lichen potential	Amber	NH7938002546
Mixed Semi-Natural Woodland	Fungi	Mature larch, check for <i>Lactariaus pornisis</i>	Amber	NH7963502839
Broadleaved Semi-Natural Woodland	Fungi	<i>Encoelia furfuracea</i> recorded on hazel here	Red	NH7988202848

Phase 1 habitat type	Interest group	Comment	Priority category	Location
Rocks on Improved Grassland	Lichen	Pile of stones has lichen potential	Amber	NH7998503009
Broadleaved Semi-Natural Woodland	Aspen	Aspen present - potential for lichen, moss, fungi associates & aspen hoverfly	Red	NH8026003065
Open Water	Invertebrates	Northern damselfly potential	Red	NH8026903077
Broadleaved Semi-Natural Woodland	Fungi	Willows present - known location for <i>Cytidia salicina</i>	Red	NH8022703096
Broadleaved Semi-Natural Woodland	Fungi	Mature oak present, potential for fungi associates	Amber	NH8007403096
Broadleaved Semi-Natural Woodland	Lichens	Mature oak has lichen potential	Red	NH8008403100
Broadleaved Semi-Natural Woodland	Fungi	Fungi potential (mature woodland with oak)	Amber	NH8026403189
Broadleaved Semi-Natural Woodland	Lichens	Woodland has lichen potential	Red	NH8040503231
Broadleaved Semi-Natural Woodland	Fungi	Potential for birch, hazel, aspen associates	Amber	NH8041503241
Broadleaved Semi-Natural Woodland	Aspen	Mature trees have potential to support moss, lichen, fungi associates and aspen hoverfly	Red	NH8040303244
Broadleaved Semi-Natural Woodland	Aspen	Mature trees have potential to support moss, lichen, fungi associates and aspen hoverfly	Red	NH8055003314
Mature Trees/ Dense Scrub	Fungi	Mature birch - potential for fungi associates	Amber	NH8081903323
Stone Wall/ Acid Semi-Improved Grassland	Lichens	Dry stone wall has lichen potential	Amber	NH8034903331
Mature trees/ Acid Semi-Improved Grassland	Aspen	Mature trees have potential to support moss, lichen, fungi associates and aspen hoverfly	Red	NH8045603349
Broadleaved Semi-Natural Woodland	Lichens	Mature oak has lichen potential	Red	NH8074703387
Broadleaved Semi-Natural Woodland	Fungi	Mature oak - potential for fungi associates as well as fungi potential in wider woodland	Amber	NH8075603394
Mature Trees/ Continuous Bracken	Fungi	Mature oak - potential for fungi associates	Amber	NH8070803452
Mature Trees/ Continuous Bracken	Lichens	Mature oak has lichen potential	Red	NH8072303458
Mature Trees/ Continuous Bracken	Lichens	Mature birch has lichen potential	Red	NH8094403569
Mature Trees/ Other Tall Herb/ Tall Ruderal	Lichens	Mature oak has lichen potential	Red	NH8119603715
Mature Trees/ Other Tall Herb/ Tall Ruderal	Fungi	Mature oak - potential for fungi associates	Amber	NH8120903723
Broadleaved Semi-Natural Woodland	Lichens	Woodland has lichen potential	Red	NH8111003782
Broadleaved Semi-Natural Woodland	Aspen	Mature aspens have potential for moss, lichen, fungi associates and aspen hoverfly	Red	NH8112003796
Broadleaved Semi-Natural Woodland	Fungi	Mature birch, oak - potential for fungi associates	Amber	NH8110703796

Phase 1 habitat type	Interest group	Comment	Priority category	Location
Broadleaved Semi-Natural Woodland	Fungi	Fungi potential (mature oak & birch) in mature trees & woodland generally	Amber	NH8141903901
Broadleaved Semi-Natural Woodland	Aspen	Locally abundant aspen - potential for lichen, moss, fungi associates and aspen hoverfly	Red	NH8142603911
Broadleaved Semi-Natural Woodland	Lichens	Woodland has lichen potential	Red	NH8144103912
Broadleaved Semi-Natural Woodland / Wet Woodland	Fungi	Willows have potential for <i>Cytidia salicina</i>	Red	NH8150703936
Broadleaved Semi-Natural Woodland / Wet Woodland	Fungi	Wet woodland - willows have potential for <i>Cytidia salicina</i>	Red	NH8186104159
Broadleaved Semi-Natural Woodland	Lichens	Mature oaks and wider woodland have lichen potential	Red	NH8185004195
Broadleaved Semi-Natural Woodland	Fungi	Habitat description of mature trees & woodland suggests fungi potential	Amber	NH8184204206
Broadleaved Semi-Natural Woodland / Mixed Plantation Woodland	Aspen	Aspen present - potential for lichen, moss, fungi associates and aspen hoverfly	Red	NH8184704216
Mature Trees / Broadleaved Plantation Woodland	Fungi	Veteran willow at NH8176704216 - potential for fungi associates	Amber	NH8176704217
Broadleaved Semi-Natural Woodland	Lichens	Woodland has lichen potential	Red	NH8192804259
Inland Cliff	Lichens	Rock exposure has lichen potential	Amber	NH8180004269
Broadleaved Semi-Natural Woodland	Fungi	Habitat description of mature trees & woodland (including oak) suggests fungi potential	Amber	NH8178804289
Coniferous Woodland Plantation	Fungi	Fungi potential around mature trees, potential <i>Lactarius pommis</i> on larch	Amber	NH8204304341
Acid Semi-Improved Grassland	Fungi	Waxcaps recorded in this area in oak pasture	Red	NH8200404435
Neutral Semi-Improved Grassland	Fungi	Waxcaps recorded in this area in oak pasture	Red	NH8207804463
Mature trees / Poor Semi-Improved Grassland	Fungi	Mature black poplar - potential for fungal associates	Amber	NH8201904502
Mature trees / Poor Semi-Improved Grassland	Lichens	Mature poplars have lichen potential	Red	NH8200804506
Broadleaved Semi-Natural Woodland	Fungi	Habitat description of mature trees & woodland suggests fungi potential	Amber	NH8228104852
Broadleaved Semi-Natural Woodland	Fungi & lichens	Woodland known to be species rich, suggesting fungi and lichen potential	Red	NH8248905000
Broadleaved Semi-Natural Woodland	Lepidoptera	This woodland of known interest for Lepidoptera	Red	NH8256205180

