

APPENDIX G2

2007 Ecological Survey

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1 Introduction

This report presents the results of specialist ecological surveys undertaken in 2007 in relation to the A75 Hardgrove to Kinmount Improvement Scheme. It is anticipated that this report will form an appendix to the Environmental Statement (ES) for this scheme.

2 Methodology

2.0 Flora

An Extended Phase 1 Habitat Survey was carried out on 12th and 18th July 2007 and covered the proposed scheme area plus the surrounding area within ~30m. Habitats found were identified using the standard Phase 1 Habitat Survey methodology (JNCC 2003) with target notes made to describe features of interest. Figure 1 illustrates the location of the various habitats present, target notes are presented in Appendix 1 and a plant species list is included at Appendix 2.

2.1 Breeding birds

The breeding bird survey involved four survey visits, in suitable weather conditions just after dawn or before dusk (see Table 1), based on the methodology described in Bibby *et al* 2000. The surveys covered the scheme area plus the surrounding land within ~100m. In accordance with the standard methodology, during each visit all field boundaries were walked all bird observations were recorded on a scale map using standard British Trust for Ornithology (BTO) notation. The results of the surveys were then subject to territory mapping analysis in accordance with the methodology described in Bibby *et al* 2000. Unfortunately, the survey visits could not be spread throughout the breeding season, as recommended in Bibby *et al* 2000; and it is therefore possible that some species, e.g. early-breeders, may have been under-recorded or over-looked during the surveys. Nonetheless, it is considered that the surveys provide a good indication of the ornithological value of the study area during the breeding season.

Specialist surveys for barn owl *Tyto alba* were undertaken based on the methodology described in Gilbert *et al* 1998. This involved searching potential nest/roost sites within ~100m of the scheme area for signs of barn owl such as pellets, faeces or the birds themselves. Subsequent to the day-time searches of potential nest/roost sites, dusk emergence surveys were undertaken at suitable sites during the first and third breeding bird surveys. Any observations of barn owls during the breeding bird survey and other surveys were also recorded.

Table 1: Breeding bird survey dates, times and conditions

Date	Time	Weather conditions
10 th July 2007	19:00 – 22:00	Dry, 14°C
11 th July 2007	06:00 – 07:45	Dry, overcast, 15°C
18 th July 2007	19:20 – 21:30	Dry, 19°C
19 th July 2007	06:00 – 08:00	Dry, 14°C

2.2 Water vole

Specialist surveys for water vole *Arvicola terrestris* covered all potentially suitable watercourses within ~250m of the scheme area on 10th and 11th July 2007 in order to provide an update following surveys in 2003. The surveys were based on the methodology described in Strachan and Moorhouse (2006) and involved detailed searches for field signs such as droppings, latrines, feeding stations, burrows, footprints and runs.

2.3 Otter

In conjunction with the surveys for water vole, all potentially suitable watercourses within 250m of the scheme area were subject to detailed searches for signs of otter such as spraint, feeding remains and footprints based on the methodology described in Chanin (2003), paying particular attention to likely sprainting sites such as around bridges.

2.4 Red squirrel

Surveys for red squirrel *Sciurus vulgaris* were based on the methodology described in Practical Techniques for Surveying and Monitoring Squirrels (Forestry Commission 2001) and covered all potentially suitable woodland within ~250m of the scheme area on two occasions (see Table 2). This involved slowly walking the perimeter and interior of the woodlands with stops every few minutes. The woodland canopy, tree trunks and woodland floor were searched for red squirrels, dreys and squirrel feeding signs (e.g. stripped and discarded pine cones).

Table 2 shows the survey dates, times and prevailing weather conditions at the two main woodlands within the study area; Kelhead Moss Plantation and Poppinwell Wood. Particular attention was paid to the area west the access road leading to Nether Stenries during the Kelhead Moss Plantation survey, as this area was considered more likely to support red squirrels due to the dominance of Scots pine and anecdotal evidence (from the occupier of Nether Stenries) suggesting that red squirrels have been seen at this location.

Table 2: Dates, times and conditions during red squirrel transect surveys

Location	Kelhead Moss Plantation (0.3ha) NY118709			Poppinwell Wood (2.2 ha) NY126705		
Date	11 th July 2007	12 th July 2007	18 th July 2007	11 th July 2007	12 th July 2007	18 th July 2007
Times	06:00 – 07:25	07:00 – 08:30	19:30 – 20:30	07:35 – 08:45	08:40 – 10:00	20:40 – 21:30
Weather conditions	Dry, no wind, cloud 7/8, temp ~10°C - ~15°C	Constant rain, overcast, wind SW2, temp ~14°C	Dry, cloud 2/8, temp ~19°C	Dry, no wind, cloud 7/8, temp ~10°C - ~15°C	Constant rain, overcast, wind SW2, temp ~14°C	Dry, cloud 2/8, temp ~19°C

2.5 Bats

Potential bat roosts within ~50m of the scheme area were identified during the survey in December 2006 (see Table 3). Specialist bat surveys in 2007 involved daytime searches of these potential roost sites for signs of bats such as droppings, staining and bat corpses; followed by dusk and dawn emergence surveys at these locations aimed at locating roost sites if present.

The dusk and dawn surveys involved experienced bat surveyors positioned at potential roost sites, in accordance with the methodology outlined in The Bat Mitigation Guidelines (Mitchell-Jones 2004). The surveys were undertaken during suitable weather conditions using hand-held heterodyne / frequency-division bat detectors (model: Duet Bat-Box). Survey dates, times and prevailing weather conditions are summarised in Table 4 below.

Table 3: Potential of features within 30m of the Proposed Scheme to support bat roosts

Target note (see Figure 1)	Feature	Roost potential
2	Mature beech tree	Medium
4	Row of mature beech trees along southern edge of woodland	High
14	Mixed plantation woodland	Medium
15	Mixed plantation woodland	Medium
24	Seven mature ash trees around garden edge	Medium
26	Stenriesgate bungalow and outbuildings	Medium
28	Two mature beech trees	Medium/high
37	Several beech trees and an oak tree	Low/medium

Table 4: Conditions during bat dusk emergence and dawn surveys

Location (Target Note number as described in 2007 ES)	Target Note 4 Mature Beech Tree <i>Fagus sylvatica</i> Along the northern edge of Breamoss wood NY106716	Target Note 26 Disused bungalow at Stenriesgate NY123706	Target Note 35 Mature sycamore <i>Acer pseudoplatanus</i> At the western tip of Kelhead moss plantation NY129701	Target Note 37 Mature beeches and oak <i>Quercus robur</i> Nether Stenries access road NY126704
Date Surveyed	10 th July 2007	5 th May 2007 & 6 th May 2007	5 th May 2007	4 th May 2007
Times	21:10 – 22:35 Sunset 21:35	03:45 – 04:45 Sunrise 04:44 03:15 – 04:55 Sunrise 04:43	21:15 – 22:45 Sunset 21:37	21:05 – 23:05 Sunset 21:36
Weather Conditions	Dry, no wind, 65% cloud cover Start temp 15°C Finish temp 10°C	Dry, no wind, 100% cloud cover. Start temp ~5°C Finish temp ~7°C both mornings.	Dry, no wind 100% cloud cover. Start temp ~12°C Finish temp ~8°C	Dry, light wind, 0% cloud cover. Start temp ~13°C Finish temp ~11°C

3 Results

3.0 Flora

The results of the surveys in 2007 are presented as target notes in Appendix 1 with a species list included at Appendix 2.

3.1 Breeding birds

45 bird species were recorded during the surveys in 2007; of which 39 species are believed to have bred within the study area in 2007. Full results of the breeding bird survey and territory mapping analysis are presented in Appendix 3.

The surveys revealed that six species listed on the Red List of Birds Conservation Concern (Gregory *et al* 2002) breed within the study area. These are; house sparrow *Passer domesticus*; yellowhammer *Emberiza citronella*; starling *Sturnus vulgaris*; song thrush *Turdus philomelos*; bullfinch *Pyrrhula pyrrhula*; and reed bunting *Emberiza schoeniclus*.

In addition, nine species listed on the Amber List of Birds of Conservation Concern were found to be breeding within the study area.

The specialist barn owl survey did not identify any nest or roost sites. However, a barn owl was observed on 5th May 2007 hunting over fields immediately north of the existing A75 opposite Stenriesgate. This is in addition to the dead barn owl found in December 2006 on the verge of the existing A75 opposite Braemoss woods (target note 18; grid ref: NY111713); likely to have been killed in a collision with a vehicle.

The results of the barn owl nest/roost surveys at potentially suitable locations are summarised below:

Fostermeadows Farm

Fostermeadows Farm is situated approximately 380m south of the A75. Including the farmhouse, a total of nine buildings were surveyed for their potential to support nesting/roosting barn owls.

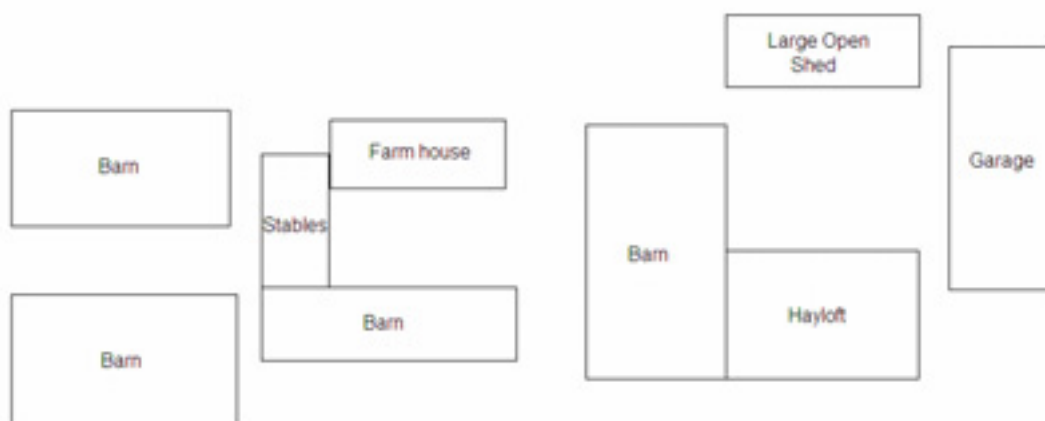


Figure 1: Fostermeadows Farm – buildings surveyed for barn owls

The main farmhouse is occupied and appeared to be in good repair with no openings wide enough to allow access for barn owls. The four barns have very good potential to support nesting barn owls, having a number of access points and available roost areas; however searches revealed no evidence of barn owls. The large storage shed, garage and hayloft also have good potential to support barn owls. The stable building also has a number of sites

which barn owls might use; however it is a busy building with both horses and stablehands and the human disturbance may discourage the use of the building by barn owls.

The farm supports a large number of breeding swallows. In excess of 30 nests were counted within the outbuildings although the true number is likely to be higher.

Oakbank

Oakbank House is situated in Braehill Oak Woods within 100m of the existing A75. The house appears to be well maintained with no suitable access points noted and it is very unlikely that barn owls would be nesting within this building. The property has a number of sheds and greenhouses, all of which are relatively new and all are well tended. These have low to negligible potential to support barn owls.

Stenriesgate

The now derelict Stenriesgate property has been the subject of vandalism and as such, many windows and doors have been broken or removed and there are a number of access points into the property for birds to use.

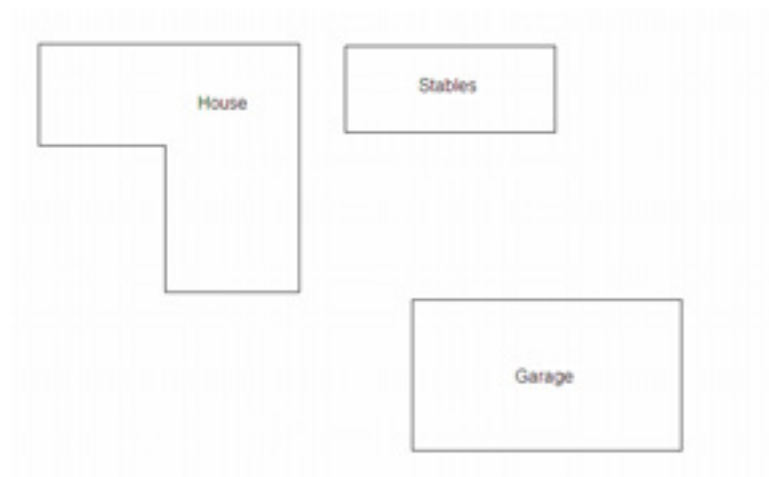


Figure 2: Stenriesgate – buildings surveyed for barn owls

The disused stable building has good potential to support breeding/nesting barn owls though no evidence was found of their presence. Both the house and garage have low-medium potential to support barn owls. Being more recent structures than the stables, there are few suitable ledges in the main house, whilst the garage appears to have been recently plastered. It is likely that the relatively recent human occupation has deterred barn owls.

There is evidence of nesting swallows in all three buildings and a dead fledgling pied wagtail was also found on site, which suggests that pied wagtails are also breeding in one of the buildings.

Stenries Farm

Stenries Farm is a large cattle farm approximately 500m north of the A75. It has a number of barns and outbuildings of varying age and size. The farm is considered to have moderate potential to support breeding/roosting owls although no evidence of barn owls was found here. The barn supports a number of breeding birds such as house sparrows, starlings, feral pigeons and house martins.

Nether Stenries

Nether Stenries is situated approximately 425m north of the A75. It is a medium-sized farm with 5 large barns housing cattle. The farmhouse itself is in good condition and is considered to have poor potential to support barn owls. The barns are of relatively recent construction and support a number of nesting birds including house martins, swallows, house sparrows and feral pigeons. The barns are assessed as having low potential to support barn owls and no signs of the species were found.

Upper Mains Farm

Upper Mains Farm was not fully accessible for survey. The landowner stated that a barn owl box was installed in a barn in the farmyard several years ago, although the landowner stated that it was not used by barn owls and was subsequently taken down.

Trees and other structures

No trees or other structures with features capable of supporting barn owl roosts/nests were identified within the study area.

3.2 *Water vole and Otter*

No field signs of water vole or otters were observed along any of the watercourses within the study area. Otter signs were, however, found on all the watercourses surveyed in 2003 with otters known to have been killed at Glen Burn and Carrutherstown Junction (Mouchel Parkman 2003).

3.3 *Red Squirrel*

Despite a specific search, no red squirrels or field signs of red squirrel were observed within the study area.

3.4 *Bats*

The surveys did not reveal any bat roosts within the potential roost sites surveyed. Bat activity during the surveys was relatively low with small numbers of just one species, common pipistrelle *Pipistrellus pipistrellus*, recorded.

A single common pipistrelle was observed foraging along the northern edge of Kelhead Moss Plantation during the survey on the 5th May 2007 and a single common pipistrelle was observed foraging along the eastern edge of Whitcroftgate Plantation and the northern edge of Breamoss Wood on the survey on the 10th July 2007.

4 Appendix 1 – target notes

Target note (refer to Figure 1)	Description
1	Road embankment with mixed scattered scrub; mainly hawthorn <i>Crataegus monogyna</i> .
2	Medium mature copper beech <i>Fagus sylvatica purpurea</i> ; with medium bat roost potential.
3	Mixed plantation woodland; with European larch <i>Larix europaeus</i> , gorse <i>Ulex europaeus</i> and Scots pine <i>Pinus sylvestris</i> .
4	Broadleaved woodland (Braemoss Wood); dominated by silver birch <i>Betula pendula</i> and downy birch <i>Betula pubescens</i> with alder <i>Alnus glutinosa</i> , sycamore <i>Acer pseudoplatanus</i> , holly <i>Ilex aquifolium</i> , willows <i>Salix</i> spp., European larch, ash <i>Fraxinus excelsior</i> , pedunculate oak <i>Quercus robur</i> , elder <i>Sambucus nigra</i> , beech <i>Fagus sylvatica</i> and sitka spruce <i>Picea sitchensis</i> . The ground layer includes species such as bramble <i>Rubus fruticosus</i> agg., rhododendron <i>Rhododendron ponticum</i> , bracken <i>Pteridium aquilinum</i> , bluebell <i>Hyacinthoides non-scripta</i> , cock's-foot <i>Dactylis glomerata</i> , rosebay willowherb <i>Chamerion angustifolium</i> , common nettle <i>Urtica dioica</i> . Some areas are marshy and have locally abundant climbing corydalis <i>Ceratocarpus claviculata</i> , frequent soft rush <i>Juncus effusus</i> and creeping buttercup <i>Ranunculus repens</i> . There are also occasional areas of developing bog communities with very locally frequent heather <i>Calluna vulgaris</i> , bog stitchwort <i>Stellaria uliginosa</i> , wild angelica <i>Angelica sylvestris</i> , marsh thistle <i>Cirsium palustre</i> and a very small patch of sphagnum moss <i>Sphagnum</i> sp. The moisture is provided by the wet ditch running through woodland. Situated along the southern boundary of the woodland are a number of mature beeches that have medium bat roost potential.
5	Trimmed hawthorn hedgerow, interspersed with immature silver birch trees.
6	Stand of Japanese knotweed <i>Fallopia japonica</i> measuring ~40m x ~10m. At the time of survey in July 2007, this stand showed signs of having been treated with herbicide. There is also a small stand of Japanese knotweed (measuring ~10m by ~1m) on the northern verge of the existing A75 a short distance east of this point.
7	n/a
8	Rocky outcrops.
9	Small patch of exposed rock and scattered shrubs, mainly broom <i>Cytisus scoparius</i> .
10	Continuous scrub along embankment of existing A75; mainly hawthorn with ash and Scots pine.
11	Broad-leaved woodland (Braehill Birch Bank); mainly beech and holly with a ground layer dominated by bracken and bluebell.
12	Stream; ~1m wide flowing southwards on the eastern side of minor road. Reasonable flow at time of survey and un-shaded. Potentially suitable for otter movement, sub-optimal water vole potential.
13	Minor stream running along the edge of woodland. Reasonable flow ~20cm wide by up to ~10cm deep.
14	Mixed plantation woodland (Poppin Well Wood) dominated by sycamore, larch, Scot's pine with alder by the stream. Trees appear to be at least 50 years old. Predominantly hazel <i>Corylus avellana</i> under-storey with elder and also including bramble, bracken, wood sorrel <i>Oxalis acetosella</i> , opposite-leaved golden-saxifrage <i>Chrysosplenium oppositifolium</i> , foxglove <i>Digitalis purpurea</i> , marsh marigold <i>Caltha palustris</i> , climbing corydalis, enchanter's nightshade <i>Circaea lutetiana</i> , common nettle and creeping buttercup. Woodland also contains a rookery, consisting of 10-12 nests.
15	Dwelling at Oakbank with small domestic garden bordered by mixed plantation woodland to the west with improved pasture to the east.
16	Mixed plantation woodland (Braehill Oak Wood) of similar composition to that on opposite side of the A75 (see TN 14) but with a greater frequency of Scot's pine and sycamore including several over 100 years old. A line of mature beech characterise

Target note (refer to Figure 1)	Description
	the western edge of the woodland. The understorey consists includes locally frequent rhododendron and occasional elder and hawthorn over a ground flora of bracken, red campion <i>Silene dioica</i> , violet <i>Viola</i> sp., wood avens <i>Geum urbanum</i> , ground ivy <i>Glechoma hederacea</i> and some semi-mature ash.
17	Ditch running parallel to the eastbound A75; slow-flowing ditch running from broken ground drain, bordered by species poor hedgerow dominated by hawthorn and locally frequent elder <i>Sambucus nigra</i> . Aquatic species are limited but include watercress <i>Rorippa nasturtium-aquaticum</i> , emergent locally frequent soft rush <i>Juncus effusus</i> , and marginal great willowherb <i>Epilobium hirsutum</i> , common nettle and false oat grass <i>Arrhenatherum elatius</i> . Low potential as water vole habitat as the area is grazed short and vegetation is fairly sparse.
18	Barn owl carcass found on 5th December 2006 on road-side.
19	Lay-by with scrub border; including birch broom, bracken, hawthorn and gorse.
20	Solitary mature ash (~100 years old).
21	House with associated maintained garden.
22	Track and woodland; green lane bordered by trimmed hedgerow to east. Woodland to west of track appears to be dominated by semi-mature silver birch with a dense understorey of rhododendron.
23	Bungalow with associated well maintained garden.
24	Seven mature ash trees around the edge of garden; all with low-medium bat roost potential.
25	Two immature ash trees, low bat roost potential.
26	Bungalow, outbuildings and garden; all apparently abandoned within last 1-3 years. Stables have medium-high bat potential, other buildings low-medium. Swallow nests found in stables. Gardens characterised by ornamental shrubs and out-grown amenity grassland.
27	Species-poor semi-improved grassland; currently waterlogged with soft rush abundant.
28	Two mature beech trees; medium-high bat potential.
29	Small patch of marshy grassland; soft rush and tufted hair grass.
30	Immature coniferous plantation, dominated by larch, approx. 3m tall. Area also includes gorse, Norway spruce <i>Picea albies</i> , rosebay willowherb, cock's-foot and common knapweed <i>Centaurea nigra</i> . The area lying to the north west bordering the A75 has an interesting marshy grassland floral assemblage with frequent greater bird's foot trefoil <i>Lotus pedunculatus</i> , meadowsweet <i>Fillipendula ulmaria</i> , sharp flowered rush <i>Juncus acutiflorus</i> and occasional sneezewort <i>Achillea ptarmica</i> and common fleabane <i>Pulicaria dysenterica</i> .
31	Small patch of broad-leaved plantation woodland; willows <i>Salix</i> sp, cherry laurel <i>Prunus laurocerasus</i> and cypresses.
32	Woodland dominated by semi-mature Scot's-pine (mostly approx 12-15m tall and at least 100 years old). Fairly closed canopy, with hawthorn, alder, beech, larch and Norway spruce amongst under-storey. Many old wind-throws are present. Ground flora is fairly limited to patches of acid preferring flora such as climbing corydalis, broad buckler fern <i>Dryopteris dilatata</i> , wavy hair-grass <i>Deschampsia flexuosa</i> and common woodland species such as herb robert <i>Geranium robertianum</i> , ground ivy <i>Glechoma hederacea</i> , bracken <i>Pteridium aquilinum</i> and red campion <i>Silene dioica</i> .
33	Trimmed hedge dominated by beech and hawthorn.
34	Stream; ~1.5m wide with good flow at time of survey. Grazed grassy banks within fenced pasture. Possibly suitable for water voles and otters. Scrub of alder and gorse present adjacent to existing A75.
35	Broad-leaved woodland; oak, willow species, Elm species <i>Ulmus</i> spp. sycamore, gorse, hawthorn, bramble, rosebay willowherb and cock's-foot. Fairly open canopy. Two mature sycamore with low bat roost potential. One standing dead tree.
36	Immature planted broad-leaved woodland adjacent to A75 road; dominated by birch and goat willow <i>Salix cinerea</i> . The woodland appears to have been planted

Target note (refer to Figure 1)	Description
	<p>approximately 20 years ago on fairly waterlogged ground (a bog is present within 250m to the north east). A network of ditches is present throughout for drainage purposes. The ground flora is reminiscent of a successional bog community with a typically acidic sward of herbs and grasses but with limited diversity due to the evident closing of the tree canopy. Typical species include tufted hair grass <i>Deschampsia cespitosa</i>, creeping soft grass <i>Holcus mollis</i>, tormentil <i>Potentilla erecta</i>, climbing corydalis, and occasional wood sorrel, violet <i>Viola</i> sp., marsh thistle <i>Cirsium palustre</i>, bog stitchwort <i>Stellaria uliginosa</i>, honeysuckle <i>Lonicera periclymenum</i>, moss <i>Hylocomium splendens</i> and foxglove.</p>
37	Several beech trees and one oak with low-medium bat roost potential.

5 Appendix 2 – plant species list

Latin name	Vernacular name
<i>Aesculus hippocastanum</i>	Horse chestnut
<i>Acer pseudoplatanus</i>	Sycamore
<i>Achillea millefolium</i>	Yarrow
<i>Achillea millefolium</i>	Yarrow
<i>Achillea ptarmica</i>	Sneezewort
<i>Aegopodium podagraria</i>	Ground eler
<i>Agrostis stolonifera</i>	Creeping bent
<i>Alnus glutinosa</i>	Alder
<i>Alopecurus geniculatus</i>	Marsh foxtail
<i>Angelica sylvestris</i>	Wild angelica
<i>Anthoxanthum odoratum</i>	Sweet vernal grass
<i>Anthriscus sylvestris</i>	Cow parsley
<i>Arctium minus</i>	Lesser burdock
<i>Arrhenatherum elatius</i>	False oat grass
<i>Bellis perennis</i>	Daisy
<i>Betula pendula</i>	Silver Birch
<i>Brassica napus</i>	Rape
<i>Calluna vulgaris</i>	Heather
<i>Caltha palustris</i>	Marsh marigold
<i>Calystegia sepium</i>	Hedge bindweed
<i>Campanula rotundifolia</i>	Harebell
<i>Capsella bursa-pastoris</i>	Shepherd's purse
<i>Centaurea nigra</i>	Common knapweed
<i>Cerastium glomeratum</i>	Common Mouse-ear
<i>Ceratocarpus claviculata</i>	Climbing corydalis
<i>Chamerion angustifolium</i>	Rosebay Willowherb
<i>Chrysplenium oppositifolium</i>	Opposite leaved golden saxifrage
<i>Circea lutetiana</i>	Enchanter's nightshade
<i>Cirsium arvense</i>	Creeping thistle
<i>Cirsium palustre</i>	Marsh thistle
<i>Cirsium vulgare</i>	Spear Thistle
<i>Conopodium majus</i>	Pignut
<i>Crataegus monogyna</i>	Hawthorn
<i>Cytisus scoparius</i>	Broom
<i>Dactylis glomerata</i>	Cock's foot

Latin name	Vernacular name
<i>Deschampsia cespitosa</i>	Tufted hair grass
<i>Deschampsia flexuosa</i>	Wavy hair grass
<i>Digitalis purpurea</i>	Foxglove
<i>Dryopteris dilatata</i>	Broad buckler fern
<i>Dryopteris filix-femina</i>	Lady fern
<i>Dryopteris filix-mas</i>	Male fern
<i>Elytrigia repens</i>	Common couch
<i>Epilobium hirsutum</i>	Great willowherb
<i>Epilobium montanum</i>	Broad leaved willowherb
<i>Epilobium obscurum</i>	Short fruited willowherb
<i>Equisetum arvense</i>	Field horsetail
<i>Fagus sylvatica</i>	Beech
<i>Fallopia japonica</i>	Japanese knotweed
<i>Festuca pratensis</i>	Meadow fescue
<i>Festuca rubra</i>	Red Fescue
<i>Fillependula ulmaria</i>	Meadowsweet
<i>Fraxinus excelsior</i>	Ash
<i>Fumaria officinalis</i>	Common fumitory
<i>Galeopsis speciosa</i>	Large flowered hemp nettle
<i>Galeopsis tetrahit</i>	Commo hemp nettle
<i>Galium aparine</i>	Cleavers
<i>Geranium robertianum</i>	Herb robert
<i>Geum urbanum</i>	Wood avens
<i>Glechoma hederacea</i>	Ground ivy
<i>Hedera helix</i>	Ivy
<i>Heracleum sphondylium</i>	Hogweed
<i>Holcus lanatus</i>	Yorkshire-fog
<i>Holcus mollis</i>	Creeping soft grass
<i>Hyacinthoides non-scripta</i>	Bluebell
<i>Hypericum imperforatum</i>	Imperforate St. John's wort
<i>Hypericum perforatum</i>	Perforated st.john's wort
<i>Hypericum tetrapterum</i>	Square stalked st.john's wort
<i>Ilex aquifolium</i>	Holly
<i>Juncus articulatus</i>	Jointed rush
<i>Juncus conglomeratus</i>	Compact rush
<i>Juncus effusus</i>	Soft rush
<i>Lamium album</i>	White dead nettle
<i>Lamium purpureum</i>	Red dead nettle

Latin name	Vernacular name
<i>Lapsana communis</i>	Nipplewort
<i>Larix decidua</i>	European larch
<i>Lathyrus pratensis</i>	Meadow Vetchling
<i>Lathyrus sylvestris</i>	Narrow leaved everlasting pea
<i>Ligustrum vulgare</i>	Wild privet
<i>Linaria vulgaris</i>	Common Toadflax
<i>Lolium perenne</i>	Perennial Rye-grass
<i>Lonicera periclymenum</i>	Honeysuckle
<i>Lotus corniculatus</i>	Bird's foot trefoil
<i>Lotus pedunculatus</i>	Greater bird's foot trefoil
<i>Matricaria discoidea</i>	Pineappleweed
<i>Melica uniflora</i>	Wood melick
<i>Mercurialis perennis</i>	Dog's mercury
<i>Myosotis laxa</i>	Tufted forget me not
<i>Oxalis acetosella</i>	Wood sorrel
<i>Papaver rhoeas</i>	Common poppy
<i>Persicaria maculosa</i>	Redshank
<i>Phleum pratense</i> agg.	Timothy
<i>Picea abies</i>	Norway spruce
<i>Pinus sylvestris</i>	Scot's pine
<i>Plantago lanceolata</i>	Ribwort plantain
<i>Plantago major</i>	Greater plantain
<i>Poa annua</i>	Annual meadow grass
<i>Poa pratensis</i> agg.	Smooth Meadow-grass agg.
<i>Poa trivialis</i>	Rough meadow grass
<i>Polygonum aviculare</i>	Knotgrass
<i>Polystichum aculeatum</i>	Hard shield fern
<i>Populus alba</i> x <i>P. tremula</i>	Grey poplar
<i>Potentilla anserina</i>	Silverweed
<i>Potentilla erecta</i>	Tormentil
<i>Prunella vulgaris</i>	Self heal
<i>Prunus spinosa</i>	Blackthorn
<i>Pteridium aquilinum</i>	Bracken
<i>Pulicaria dysenterica</i>	Common Fleabane
<i>Quercus patreaa</i>	Sessile oak
<i>Quercus robur</i>	Pedunculate Oak
<i>Ranunculus acris</i>	Meadow buttercup
<i>Ranunculus ficaria</i>	Lesser celandine

Latin name	Vernacular name
<i>Ranunculus flammula</i>	Lesser spearwort
<i>Ranunculus repens</i>	Creeping buttercup
<i>Ribes uva-crispus</i>	Gooseberry
<i>Rosa canina</i> agg.	Dog rose
<i>Rubus fruticosus</i> agg.	Bramble agg.
<i>Rubus idaeus</i>	Raspberry
<i>Rumex conglomeratus</i>	Clustered dock
<i>Rumex crispus</i>	Curled Dock
<i>Rumex obtusifolius</i>	Broad leaved dock
<i>Salix alba</i>	White willow
<i>Salix cinerea</i>	Goat Willow
<i>Salix fragilis</i>	Crack willow
<i>Sambucus nigra</i>	Elder
<i>Scrophularia nodosa</i>	Common figwort
<i>Senecio jacobaea</i>	Common ragwort
<i>Silene dioica</i>	Red Campion
<i>Sisymbrium officinale</i>	Hedge mustard
<i>Solanum dulcamara</i>	Bittersweet
<i>Sonchus asper</i>	Prickly sow thistle
<i>Sorbus aucuparia</i>	Rowan
<i>Sphagnum</i> spp.	Sphagnum species
<i>Stachys palustris</i>	Marsh woundwort
<i>Stachys sylvatica</i>	Hedge woundwort
<i>Stellaria graminea</i>	Lesser stitchwort
<i>Stellaria holostea</i>	Greater stitchwort
<i>Stellaria media</i>	Common Chickweed
<i>Stellaria uliginosa</i>	Bog stitchwort
<i>Symphoricarpos albus</i>	Snowberry
<i>Symphytum asperum</i> x <i>S. officinale</i>	Russian comfrey
<i>Tanacetum parthenium</i>	Feverfew
<i>Teucrium scorodonia</i>	Wood sage
<i>Torilis japonica</i>	Upright Hedge parsley
<i>Trifolium dubium</i>	Lesser trefoil
<i>Trifolium pratense</i>	Red clover
<i>Trifolium repens</i>	White clover
<i>Tripleurospermum inodorum</i>	Scentless mayweed
<i>Tussilago farfara</i>	Colt's foot
<i>Ulex europaeus</i>	Gorse

Latin name	Vernacular name
<i>Ulmus glabra</i>	Wych Elm
<i>Ulmus spp.</i>	Elm species
<i>Urtica dioica</i>	Common nettle
<i>Vicia cracca</i>	Tufted vetch
<i>Vicia hirsuta</i>	Hairy tare
<i>Vicia sativa</i>	Common vetch
<i>Vicia sepium</i>	Bush vetch
<i>Viola arvensis</i>	Field pansy
<i>Viola spp.</i>	Violet species

6 Appendix 3 – Results of breeding bird survey

Latin Name	Common Name	Conservation Status	Breeding Pairs	Notes
<i>Accipiter nisus</i>	Eurasian sparrowhawk		1	A sparrowhawk was observed hunting in the Kelhead plantation. It is highly likely that this plantation supports a breeding pair.
<i>Aegithalos caudatus</i>	Long-tailed tit		2+	Long-tailed tits were found in both Braemoss wood and Kelhead plantation.
<i>Apus apus</i>	Common swift		Numerous	Swifts were observed flying above the scheme regularly and there are a number of potential roost sites along the scheme footprint.
<i>Ardea cinerea</i>	Grey heron		-	No heronries were found on site; however the watercourses are used regularly for foraging.
<i>Buteo buteo</i>	Common buzzard		2	Buzzards were observed hunting across the length of the scheme. It is expected that breeding pairs can be found in both Braemoss wood and Kelhead plantation.
<i>Carduelis cabaret</i>	Lesser redpoll	Amber list*** UKBAP Priority species**	1	A lesser redpoll was heard in Braemoss wood, which provides excellent breeding habitat for the species.
<i>Carduelis carduelis</i>	European goldfinch		3+	Goldfinches were observed in the small area of woodland near Searigg Cottage, Poppin Well wood and Kelhead plantation.
<i>Carduelis chloris</i>	European greenfinch		4+	Greenfinches were found in Carrutherstown, Braemoss wood, Braehill Oak wood and the area of Poppin Moss plantation and Kelhead plantation.
<i>Certhia familiaris</i>	Eurasian treecreeper		1	A treecreeper was spotted foraging in Braehill Oak wood.

Latin Name	Common Name	Conservation Status	Breeding Pairs	Notes
<i>Columba livia</i>	Feral pigeon		Numerous	Feral pigeons were observed nesting at Nether Stenries and Stenries farms. They were also observed in pairs or more along the length of the scheme.
<i>Columba palumbus</i>	Common wood pigeon		Numerous	Wood pigeons were found in all areas of woodland and scrub within the scheme footprint.
<i>Corvus corone</i>	Carrion crow		Numerous	Crows were spotted on all surveys and along the length of the scheme. There are a number of nesting opportunities for the species and it can be considered that they are breeding in relatively high numbers.
<i>Corvus frugilegus</i>	Rook		Numerous	There is a large rookery in Poppin Well wood consisting of in excess of 10 nests. Rooks were found in large numbers in the surrounding areas with flocks of up to 35 individuals.
<i>Corvus monedula</i>	Eurasian jackdaw		1	A pair of jackdaws was observed to the east of Poppin Well wood.
<i>Cyanistes caeruleus</i>	Blue tit		12+	Blue tits were found extensively along the length of the scheme. Poppin Well wood and Kelhead plantation provide excellent foraging and nesting opportunities for titmice species.
<i>Delichon urbicum</i>	House martin	Amber list D&G BAP Priority species****	Numerous	A number of house martin nests were found at Nether Stenries, Upper Mains and Stenries farms. House martins were observed foraging over arable land for the whole length of the scheme.
<i>Dendrocopos major</i>	Great spotted woodpecker		1	A great spotted woodpecker was observed flying between Kelhead and Poppin Moss plantations.
<i>Emberiza citrinella</i>	Yellowhammer	Red list**** UKBAP Priority	10+	Yellowhammers were found extensively in hedgerows across the farmland surrounding the A75.

Latin Name	Common Name	Conservation Status	Breeding Pairs	Notes
		species**		
<i>Emberiza schoeniclus</i>	Reed bunting	Red list UKBAP Priority species D&G BAP Priority species	1	Reed buntings were observed in the marshy grassland opposite Stenriesgate.
<i>Erithacus rubecula</i>	European robin		5+	Robins were found along the length of the scheme in both scrub and woodland habitats.
<i>Falco tinnunculus</i>	Common kestrel	Amber list	1+	A kestrel was spotted hunting at several locations along the scheme and it is likely that it is breeding in one of the areas of woodland on site.
<i>Fringilla coelebs</i>	Chaffinch		10+	Chaffinches were found extensively across the length of the scheme, with both adults and juveniles observed. Large numbers were found in both Braemoss wood and Kelhead plantation.
<i>Haematopus ostralegus</i>	Eurasian oystercatcher	Amber list	Possible	Anecdotal evidence has shown that oystercatchers used to breed within the scheme footprint, and during the surveys they were spotted flying along the scheme, however no evidence of their current breeding status was found.
<i>Hirundo rustica</i>	Barn swallow	Amber list D&G BAP Priority species	Numerous	Barn swallows were found breeding on all farms along the length of the scheme, including in excess of 25 nests at Fostermeadows farm. Nests were also found in the derelict stables, garage and house at Stenriesgate.
<i>Larus argentatus</i>	Herring gull	Amber list UKBAP Priority species	-	Herring gulls, although found in large flocks on site, are not expected to breed on site when there are an abundance of breeding sites on the Solway Firth.

Latin Name	Common Name	Conservation Status	Breeding Pairs	Notes
<i>Larus ridibundus</i>	Black-headed gull	Amber list	Possible	Black-headed gulls have been observed on site. Whilst there are suitable nesting opportunities within the scheme footprint, it is expected that better opportunities are provided along the Solway Firth and breeding pairs are centred there.
<i>Motacilla alba</i>	Pied wagtail		4	Pied wagtails were observed in Carrutherstown, at Hardgrove Farm and at Upper Mains cottages. A dead fledgeling was found in the derelict property at Stenriesview. It is therefore expected that a breeding pair is occupying this area as well.
<i>Motacilla cinera</i>	Grey wagtail	Amber list	1	A pair of grey wagtails has been spotted on two occasions on -----.
<i>Parus major</i>	Great tit		5	Great tits have been observed exhibiting breeding behaviour in Braemoss wood, Braehill Oak wood, Kelhead plantation and Poppin Well and Poppin Moss woods.
<i>Passer domesticus</i>	House sparrow	Red list UKBAP Priority species**	Numerous	House sparrows are abundant in Carrutherstown, nesting in the Carrutherstown Hotel, and have also been observed nesting at Nether Stenries and Stenries farms in large numbers.
<i>Periparus ater</i>	Coal tit		3	There are at least two breeding pairs in Kelhead plantation and a number of individuals have been observed in Poppin Well wood.
<i>Phylloscopus collybita</i>	Common chiffchaff		1	A single chiffchaff territory has been established in Kelhead plantation.
<i>Phylloscopus trochilus</i>	Willow warbler	Amber list	1	Willow warblers were found in Braemoss wood.
<i>Prunella modularis</i>	Dunnock	Amber list UKBAP Priority	1	A single dunnock was observed in two surveys in an area of scrub between Braemoss and Braehill Oak woods.

Latin Name	Common Name	Conservation Status	Breeding Pairs	Notes
		species**		
<i>Pyrrhula pyrrhula</i>	Common bullfinch	Red list UKBAP Priority species	2	A pair of bullfinches was observed in Braemoss wood and a second sighting was in Poppin Moss wood.
<i>Regulus regulus</i>	Goldcrest	Amber list	1	Goldcrests were found exhibiting breeding behaviour in Kelhead plantation.
<i>Streptopelia decaocto</i>	Eurasian collared dove		2+	Collared doves have been observed in Carrutherstown and in the land associated with the property at Stenriesview.
<i>Strix aluco</i>	Tawny owl		1	A tawny owl was heard at Stenriesgate and anecdotal evidence places the species regularly in the area of Braehill Oak wood.
<i>Sturnus vulgaris</i>	Common starling	Red list UKBAP Priority species**	Numerous	Starlings were found to have been breeding at Stenries farm, whilst a dusk survey found a flock of over 500 birds roosting in an area of woodland to the south of the scheme.
<i>Tadorna tadorna</i>	Common shelduck	Amber list	-	A shelduck was observed passing over the scheme. It is not thought that there are suitable nesting opportunities for the species in the scheme footprint.
<i>Troglodytes troglodytes</i>	Winter wren		7+	Wrens were observed in substantial numbers in Braemoss wood, Braehill Oak wood, Poppin Well wood and Kelhead plantation.
<i>Turdus merula</i>	Common blackbird		9	Blackbirds were observed extensively along the length of the scheme in all areas of woodland and plantation.
<i>Turdus philomelos</i>	Song thrush	Red list UKBAP Priority	1	Song thrushes were found to be breeding in Braemoss wood.

Latin Name	Common Name	Conservation Status	Breeding Pairs	Notes
		species		
<i>Turdus viscivorus</i>	Mistle thrush	Amber list	1	Mistle thrushes were found exhibiting breeding behaviour in Kelhead plantation.
<i>Tyto alba</i>	Barn owl	Amber list Schedule 1* D&G BAP Priority species	-	A full barn owl survey has been carried out across the farms within the scheme and no roosts were found.

* Listed on Schedule 1, Wildlife & Countryside Act 1981

** UK Biodiversity Action Plan (BAP) Priority Species

*** Amber list of Birds of Conservation Concern (Gregory et al 2002)

**** Red list of Birds of Conservation Concern (Gregory et al 2002)

***** Priority Species in Dumfries and Galloway BAP

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