mbec

mackenzie bradshaw environmental consulting

Proposed Housing at Boat of Garten
(Davall Developments Ltd)

Further Information Report

Report for the CNPA Planning Committee in Relation to the Previously Deferred Application

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Thistle Court, 1-2 Thistle Street, Edinburgh, EH2 1DD
tel 0131 220 1027 fax 0131 220 1482

e-mail: info@mbenviron.co.uk

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Commissioned by Davall Developments Ltd.

Authorisation & Preparation	
Prepared by	Mark Berry, Rick Craven, Stephen Ray, Catherine Ray
Reviewed by	Dr Andy Mackenzie
Approved by	Dr Andy Mackenzie
Job No	069.001

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V3	Sept 2011	Final Report, taking account of all comments received	AJM, MB	AJM
V4	23.9.11 2011	Final Report		

Table of Contents

APPENDIX 1 CNPA/SNH Mitigation Criteria

APPENDIX 2 CNPA Core Paths in and Around Boat of Garten

APPENDIX 3 Master Copy of the Questionnaire

APPENDIX 4 CNPA/SNH Comments on the August 2011 Draft Report and MBEC comments on how these have been addressed.

APPENDIX 5 Minutes of the Boat of Garten and Vicinity Community Council Chaired Meeting on 29th June 2011.

CONFIDENTIAL ANNEX – completely separate document

All Collated Capercaillie Data for Northern Boat of Garten Woods

Brood Habitat Quality for Northern Boat of Garten Woods

Discussion of Relevant Confidential Information which Has Subsequently Been Fully Incorporated into the Main Report

FIGURE 1 All Collated Capercaillie Evidence for Northern Boat of Garten Woods

FIGURE 2 2009/10 Capercaillie Evidence for Northern Boat of Garten Woods

1. INTRODUCTION

1.1 Background

1.1.1 Bracewell Stirling Architects act for Davall Developments Ltd. (the Developer), a local house-building client who propose to construct a housing development on the western edge of the village of Boat of Garten, Inverness-shire. The plantation forestry within which this proposed development is located, and the surrounding land within the wood, is in the ownership of Seafield & Strathspey Estate. MBEC were commissioned by Bracewell Stirling Architects to complete an ecological study of the site in 2009. Since this original involvement, MBEC have continued to provide ecological advice to the Developer in relation to them seeking to obtain planning permission for the proposed development. Further work has included providing ecological information to the CNPA and presenting this at a CNPA Planning Committee Meeting held on 7th January 2011. The outcome of this was a deferral of the planning application to allow mitigation-related work on capercaillie to be developed further. This report documents all of that further work.

1.1.2 A number of ecological studies have been conducted within Boat Woods over the last few years, with capercaillie (*Tetrao urogallus*) having been specifically monitored since the mid-1990s by various organisations (principally RSPB) and individuals, as well as the Estate. The presence of capercaillie in the wider woodland and the Boat Wood's suspected role as a "stepping stone" between the Kinveachy Forest SPA and the three protected areas to the east of the River Spey (the Craigmore Wood, Abernethy Forest and Cairngorms SPAs), has been identified by SNH. This has been re-iterated by the CNPA officers as a key issue in the planning papers submitted to the planning committee and in the related appropriate assessment the CNPA completed. The primary concern relates to the potential for the capercaillie populations of the SPAs and wider surrounding area to be adversely affected by an increase in human disturbance in the northern area of Boat of Garten Woods, due to an increased number of houses being present and hence an increased human population living in the local area.

1.1.3 Seafield & Strathspey Estate is fully supportive of this proposed development and has been instrumental in putting forward and agreeing to much of the on-site and off-site mitigation previously proposed for this development, specifically with regard to capercaillie. However, the CNPA planning committee require further development and justification of the mitigation measures proposed for capercaillie, to ensure that the capercaillie in the area are not adversely affected by the introduction of 77 new houses (72 houses plus five plots) and the associated population increase. As an introductory statement, this human population increase is likely to be in the region of 200 people, however, this calculation assumes that they would all be permanently resident.

1.2 Process

1.2.1 A meeting was held with the CNPA and SNH on 7th February 2011 (there have been subsequent meetings since then). The developer was given a set of criteria which had been drawn up by the CNPA, with input from SNH, and agreed by them as the basis for assessing any mitigation proposals subsequently put forward. This set of mitigation criteria is included as Appendix 1 to this report.

1.2.2 Subsequent meetings have been held between the developer and officers of CNPA and SNH. These meetings have all focused on the work required by the developer to provide the information necessary to inform the capercaillie mitigation; the final meeting focused on discussions of suitable mitigation measures to be progressed by the developer.

1.3 Previous Reporting

1.3.1 Various draft reports, proposed questionnaires, proposed camera locations and various results have all been produced by MBEC and sent to the CNPA and SNH for comment. Subsequent comments have been received by the developer and MBEC staff have tried to incorporate and take full cognisance of all of these. All previous releases of information were as drafts for comment and subsequently MBEC has pulled all of these together into one report for a final completed submission. It is this report that contains a full copy of all the work undertaken since the deferral of the application; all other drafts should now be ignored and only this report referred to.

1.4 Report Contents and Next Steps

1.4.1 This document includes reporting of all the work undertaken by the developer since the deferral of the proposed housing application in relation to capercaillie mitigation in the northern Boat of Garten Woods. The report includes the following stages of work:

- Available data on the use of the northern woods by capercaillie in the past and further interpretation of this;
- A GPS-based survey and resulting map of all the tracks and paths present within the northern wood, which was used for all subsequent work;
- Analysis of information provided by CNPA regarding local residents' use of the Woods via the 2006 Core Paths Survey;
- A gap analysis to look at further work the CNPA/SNH wished to see completed;
- Development and completion of a leisure use questionnaire for local residents;
- Development and completion of a monitoring survey for the northern woods to assess actual use;
- Calculation of the likely numbers of additional residents from existing figures, house sizes, etc.; and
- The use of all the previous information and research work completed to inform further the mitigation proposals and the bringing together of this into a set of finalised mitigation proposals.

1.4.2 The ultimate aim of all this work is to give the CNPA Planning Committee enough detail to allow them to feel content that the proposed development on the edge of Boat of Garten can be allowed to proceed, as there are not likely to be any significant adverse effects on capercaillie with the finalised mitigation proposals in place. This decision is also inexorably linked to a revised appropriate assessment by the CNPA Officers that concludes no effect on the integrity of the surrounding SPAs.

2. THE PROPOSED HOUSING SITE

2.1 Definitions

2.1.1 In this report the "northern Boat of Garten woods" or the "northern Boat woods" are referred to regularly because this is the study area for this work. The boundaries of this area can be seen as the boundary for Figure 2. This is a subset of the whole of Boat of Garten Woods, which is much larger and the "southern" part of the wood has not been included within this work, although the whole wood or the southern part of the wood is mentioned where relevant.

2.1.2 The "site" refers to the proposed development footprint area adjacent to Deshar Road, which can be seen in Figure 7 and 8.

2.2 Site Description

2.2.1 The site and the wider northern part of Boat of Garten Woods are currently a Scots pine (*Pinus sylvestris*) plantation; there are a few older Scots pine within the northern section of the plantation, with a number of tracks and footpaths crossing it. Some of these tracks have been designated as "Core Paths" by the Park Authority (the Core Paths Plan was approved in March 2010).

2.2.2 The plantation in this northern edge area of the wood and to the immediate south has evidence of past ploughing and is a commercial plantation. It is understood from the Estate records that the natural woodland was gradually cleared around 1900 and used for grazing. A number of standard trees were left for animal shelter and amenity and some natural regeneration occurred through to the 1920s. Part of the area was also accidentally burned in 1920. Natural regeneration occurred, from the remaining trees, which was supplemented with planting in some areas, including the woodland close to Boat of Garten village. This was all clear-felled in 1940/41. It is noted that the rest of the area was destroyed by fire in 1942 (a steam engine fire). The woodland area was re-planted in the 1960s and has been thinned once, in 1994. There also appears to have been at least one more recent incidence of burning subsequent to 1994, as evidenced by a large area of trees with blackened trunks *c.* 500m south of Deshar Road. The CNPA have noted that there have been a number of fires in the woodland. A few of the older Scots pines still remain further south in the wood, but are well outside of the proposed development footprint.

2.2.3 The site is bounded to the north by National Cycle Network Route 7 (Loch and Glens Cycle Route North and part of the Aviemore to Slochd loop) and Deshar Road, and by the housing of Craigie Avenue and the community centre in the top north-eastern corner. The rest of the proposed development site, to south, west and east, is bounded by the Scots pine plantation.

2.3 Development Proposed

2.3.1 The current housing proposals have gone through several design iterations, influenced by the ecological work completed, with the aim of satisfying SNH's concerns and objections to the original designs. The most significant was as a result of the 2003/04 survey programme which was conducted by Dr Philip Ratcliffe of Bidwells, with input from SNH. This survey resulted in the reduction of the red-line boundary to 57% of the original area and the housing number of 120 reduced to 103. The current proposals have further reduced the housing to 77 units within an even smaller area. The red line boundary for this planning application now includes a

substantial area of the site which will not be built on, but is likely to be given over to the community for their use in the future.

3. CAPERCAILLIE

3.1 Background

Legal and Policy Status

3.1.1 Capercaillie are listed under Annex 1 of the Birds Directive, Appendix II of the Bern Convention and under schedules 2, 3 and 9 of the Wildlife and Countryside Act 1981 (WCA) as amended (and the Nature Conservation (Scotland) Act 2004). The legislative framework presumes against the disturbance of this species. The WCA also protects lekking sites through inclusion on Schedule 1, Part I (SNH, 2011). Special Protection Areas (Habitat Directive, 1992) have been designated in Scotland for capercaillie and they are a qualifying feature in others.

3.1.2 The IUCN Red List notes capercaillie as of "Least Concern" (BirdLife International, 2009). As with many species covered by the IUCN Red List and identified as "Least Concern", in national and regional contexts there may be marked differences to this. Capercaillie are counted as being rare in a UK context. It is Red-Listed under the UK BAP and managed under a Species Action Plan (BARS, 2011). Biodiversity Scotland (2005) identifies this species on the Scottish Biodiversity List and SNH has a Species Action Plan for capercaillie under its Species Action Framework (SNH, 2011).

Range and Habitat Preferences

3.1.3 Capercaillie are found in the forests of mountainous and boreal regions of Scandinavia, from Norway and the Baltic States, to central Europe, including Spain, Italy and Greece, and eastward to northern Asia and Siberia (BirdLife International, 2009; SNH, 2011).

3.1.4 The UK range is localised and centred on the native pinewoods (and the Caledonian Forest habitat in particular) of Strathspey. The range extends south and west to the woodlands of Perthshire and northwards into Ross-shire, it is thought that the previous population in the Loch Lomond area including the islands is very low and likely to be no longer breeding. Capercaillie can also be found in commercial conifer plantations and small numbers are reported to still be resident in the oakwoods of Tayside (SNH, 2011).

3.1.5 Good ground cover is essential during the summer months for feeding, nesting and raising chicks, while pine trees are needed for winter survival (Pottie, 1999). Ideal habitat includes wide-spaced/open woodland with trees of mixed age, which includes a dense ground cover of blaeberry (*Vaccinium myrtillus*) and heather, plus areas of bog which provide a good source of insects for chick feeding. Open areas within the wood are required for the male birds to 'lek' (SNH, 2011). Similar habitat is used in winter, however dense areas of young trees can provide additional shelter in bad weather (Life, 2011).

3.1.6 The recent decline of capercaillie has focused attention on their habitat requirements: it has been noted that this species acts as "*a good indicator of the health and extent of varied mature forest cover*" (Pottie, 1999).

Scottish Distribution and Ecology

3.1.7 Capercaillie is a large woodland grouse, confined mainly to the native and commercial plantation pinewoods of Scotland, although also still present in broadleaved trees to a small extent (RSPB, 2011; SNH, 2011i; BARS, 2011). The name comes from the Gaelic *capull coille* meaning "horse of the woods", which possibly refers to the drum-roll sound mid-way through the males' display call (Pottie, 1999). Extinct in the UK by the mid-18th Century, this species was reintroduced in the mid-19th Century using Swedish stock. UK numbers are, however again declining: in the early 1970s the population was estimated at around 20,000 while now only approximately 2,000 birds are thought to be found in the wild (RSPB, 2011; BARS, 2011, some estimates are higher than this and some are lower, there is a lack of exact robust figures at present) and hence the Red List status for the UK and Scottish BAPs. The decline is likely to be due to the combination of a number of factors (SNH, 2011):

- Loss of suitable woodland habitat, partly due to over-grazing of blaeberry by sheep and deer (also due to modern forestry planting and management regimes);
- Increased predation from crows and foxes, especially on breeding females and chicks;
- Increased adult mortality through collisions with deer fences;
- An increase in adverse weather conditions during June, when chicks are newly hatched, resulting in reduced breeding success; and
- Human disturbance (e.g. forestry operations and the recreational use of forests).

3.1.8 Human disturbance is though to be an important issue for capercaillie. The BAP notes that "Forestry operations and known recreational activities etc. should be avoided within 1km of known lek sites between 1 March and 31 May." Further, females and broods should be avoided by at least 50 to 100m according to the BAP advice. Work by Moss *et al.* has indicated that areas around roads, housing, tracks and paths which are subject to regular disturbance are likely to be generally avoided by capercaillie. At the least these disturbed areas are likely to result in less frequent use by capercaillie although the habitat is suitable for them. General advice to the public includes keeping dog on leads and on main established paths during the sensitive periods of the summer time, again due to disturbance.

Biology

3.1.9 Capercaillie is the largest of the grouse family, with the slate-grey to almost black adult cock birds reaching over 100cm in length, with a wingspan of 1.2m (hence the requirement for a more open woodland habitat) and more than 4kg in weight. Brown-barred plumage helps camouflage the hen birds, which reach 54-63cm in length, with a wingspan of approximately 70cm and a weight of about 2kg (Life, 2011; Pottie, 1999).

3.1.10 Feathered legs provide protection against the low winter temperatures experienced in the mountainous regions of their habitat and rows of small, elongated horn tacks on the toes provide a snowshoe effect to aid winter foraging (Life, 2011; Pottie, 1999). Adult birds feed on blaeberry from early spring through to summer, as well as plant

buds, pollen cones, flowers, and seeds, while conifer needles form the primary diet in winter. Chicks are initially fed on invertebrates, particularly caterpillars.

3.1.11 In late winter/early spring cocks begin to aggregate within 1km of a lek centre. In Scotland, cocks' regular lek displays begin at the start of April but this depends on the three factors of weather conditions, vegetation development and altitude. The majority of the season is taken up with territorial competition between rival cock birds. If there is more than one cock present at the lek, then direct conflict results, the intensity of which is sometimes such that they do not stop until one of the rival cocks is dead. The majority of confrontations will be won by the alpha males which tend to be older, with a greater body size (and broader tail fan), and therefore stronger. These birds are therefore able to attract more females than their smaller, younger rivals (Life, 2011).

3.1.12 Hens attend leks from mid-April to the beginning of May, peaking usually between 20th to 25th April. Hens may visit one or several leks within a season. At this point the male(s) join the hens on the ground, where they continue to display. Mating is followed a few days later by the females laying 5-12 eggs in a nest which is little more than a scrape in the ground. The eggs hatch after 26-29 days of incubation and the chicks leave the nest soon after hatching, remaining with the hen through the summer, before fledging in late August (Pottie, 1999; SNH, 2011).

3.1.13 Broods normally split up in autumn and dispersal of young occurs in autumn and spring and is driven by movement of young hens, which disperse much further than cocks. This is apparently density-dependent as young hens seek less crowded areas with greater food resources. Males are sedentary and much less likely to disperse. Each bird will require a territory in winter providing an abundance and variety of resources (SNH comments on draft report, 2011). In Strathspey small groupings of females and young birds can sometimes be seen through the winter and similarly juvenile males are occasional seen in small same-sex groups, after splitting with females before the young males take up the solitary adult male lifestyle.

3.1.14 Capercaillie can have a discernable impact on their habitat. They act as a dispersal agent for the berries that form part of their diet, which is particularly beneficial for the spread of the blaeberry. In sparsely wooded areas the winter habit of feeding on the lead shoots of conifers can check the growth of the trees, with up to five years needed for the trees to recover. However, this damage is negligible in a large forest and actually adds to the variety of tree forms within the woodland (Pottie, 1999). The practice of taking a dust bath in a wood ant nest to get rid of ectoparasites can cause problems for the ants: while formic acid from enraged wood ants is very effective in removing parasites from the bird, extensive damage can be caused to the ant nest in the process.

3.1.15 The birds, or more frequently their chicks, form part of the woodland food chain, being prey for pine marten (*Martes martes*), fox (*Vulpes vulpes*), wildcat (*Felis sylvestris*) and raptors such as sparrowhawk (*Accipiter nisus*). Adult birds also have to be wary of the larger predators.

3.2 Northern Boat of Garten Woods

Introduction

3.2.1 The wider area of Badenoch and Strathspey is noted for capercaillie presence and this species has been noted within the wider Boat of Garten to Kinveachy coniferous plantation (i.e. including the northern Boat of Garten Woods). This wider area of woodland has been noted by SNH to be an undesignated area of woodland used by capercaillie as a linking habitat ("stepping stone") between a number of well used sites in the wider area. One general area within Boat Woods has been used as a lek; the precise location of the lek appears to vary locally from year to year. The approximate lek location is just over 1km from the nearest edge of the proposed development site.

3.2.2 Various capercaillie surveys have been completed in Boat of Garten Woods. MBEC are aware of surveys in 1994 and almost every year from 2001 up to and including 2010. There are apparently no records available for the woodland beyond the lek site for 2006 (an estimated 6-8 cock birds were noted by Seafield & Strathspey Estate gamekeepers to be at the lek site; Poole, 2011) and only one sighting record, of four lekking cock birds, from 2007. Of all these available surveys, only the 1994 and 2005 surveys showed any presence of capercaillie in the immediate vicinity of the currently proposed development site (comprising two records outside, but adjacent to, the proposed red line boundary in 1994 and a further three field signs in 2005, though these were at c. 100m from the current redline). These records are from a small number of birds, and they are likely to have only been present in this disturbed area for a very short period of time. The majority of sighting records over this total spread of 17 years are for individual birds, though hen birds with young and multiple lekking cock birds have been recorded at specific times of year. The gender of each bird was often recorded, though several "unsexed sightings" have been noted over the years as well.

3.2.3 It is important to note that these surveys are a "snap shot" and represent observations over a very short period of time (albeit many covering birds when they are most obvious and likely to be present), within the total spread of time encompassed as a whole between these sightings. Because of this limitation, the data should be interpreted with caution. This data, while better than that for many woods with capercaillie presence, does not provide a comprehensive picture of the full use of the northern section of Boat of Garten Wood throughout the year. It also does not provide direct evidence of the clear use of this area as a stepping stone, either. The analysed data ranges from single *ad hoc* records through to partial lek and brood counts which were completed with single or few visits. The data also does not provide any context with the southern part of Boat of Garten Wood (which has been surveyed much less), which is a much larger area and contains more suitable year-round capercaillie habitat, with less disturbance.

3.2.4 Moss (various, including 2009), a recognised authority on capercaillie, has extensively surveyed the northern area of Boat of Garten Woods. He specifically identifies the area of the proposed development (BG/H1 on the Local Plan at that time) as a heavily disturbed area where no capercaillie droppings were found.

3.2.5 In addition to this data, a resident of Kinchurdy Road, at a recent Community Council meeting MBEC attended (2011), stated that she had seen a capercaillie on two separate occasions just outside of her garden over the last few years (sexes not mentioned).

3.2.6 MBEC ecologists have been on the proposed housing site and within the surrounding northern area of Boat Woods on repeated occasions, for whole days at a time while completing other wildlife surveys over the last couple of years. While again not totally objective, because we were not carrying out specific surveys, this has been during winter and summer (but not at lekking) and at various times of the day (however, not before/at sunrise or very early in the morning). However, we are all trained ecologists and observant to such species and have never seen a capercaillie on this site. This suggests to us that while direct and indirect evidence of the birds being present is available for the northern Boat Woods, it does not appear to be occupied by birds on a "residential" all year round basis and is perhaps more likely to be used for small periods of the year by single or a few birds and this perhaps fits more with the "stepping stone" theory. However, this is also not forgetting that there is a lekking site that is used at a specific time of the year, early in the morning, and is a convergence zone for more than one cock territory boundary; there are also records of several females raising broods in some years, again at a specific time of year.

Detail of Previously Collated Information

3.2.7 The detailed information related to previously collated capercaillie data has all been provided in a Confidential Annex. However, it is suggested that most readers do not need to access this detailed information to understand the rest of the report. Please contact the CNPA if you have a clear legitimate need to see this Annex. Paragraphs have been extracted from this section which do not contain location-sensitive details and are provided in the following text for the reader.

3.2.8 The previous capercaillie surveys cover the period from 1994 to 2010, including a number of data collations, most recently by Tim Poole (RSPB Capercaillie Project Officer) in January 2011, which included data from 1994 to 2010.

Surveys and Collated Report Data

3.2.9 With regards to habitat loss, GCT (1994) suggested that the planning application was for an area of poorer quality habitat, the development of which would probably have little impact on capercaillie numbers within the wood. However, the potential for fragmentation and human impact (due to the zone of disturbance extending further into the forestry) may be increased.

3.2.10 The GCT report (1994) also identified that Boat of Garten Woods could only support one main lekking population, due to the extensive area of unfragmented habitat required for breeding. The loss of a small area to development was not considered to be enough to reduce the forest size to the critical threshold required for capercaillie lekking. Additionally, the woodland was identified as being less than optimal, due to its being relatively young and even-aged and with blaeberry, *Vaccinium myrtillus*, an important food plant, being uncommon on the forest floor. The frequency of blaeberry is still extremely low within the overall northern Boat woods (2011), but small patches are present, particularly in more open areas, where heather tends to be replaced by a more open acid grassland sward.

3.2.11 It is important to note that the records of observed capercaillie birds within this data set (rather than the indirect evidence of their presence) provide a definitive single bird record and an indication of minimum numbers of birds present at that time, since these are surveys and not a complete record.

3.2.12 The timing of survey effort clearly plays a role in the observed number and distribution of birds across the woodland and takes no account of the time of presence within the woodland or movements across the area by members of the population. It is clear from the data that confirmation of capercaillie presence in February, May, June, September, October and more recently throughout the winter is sparse and largely reliant on *ad hoc* records. Whereas the data indicates that birds have been recorded as being present more frequently and with more confirmed records of presence in March and April, which corresponds to lekking, and in July and August which at least partly corresponds to brood rearing (as well as some juvenile and male presence). Again, however, this should be viewed with caution because it is totally dependent on observer effort and this tends to be concentrated in these periods. The CNPA have reported (CNPA comments on the first draft of this report) that Tim Poole, the Capercaillie Project Officer, found recent evidence of capercaillie presence within the Boat of Garten Woods in January 2011, which clearly indicates some level of presence last winter, however, MBEC have not seen this data and are unaware of the locations of the evidence and therefore cannot add to this further.

3.2.13 Common across all the surveys is a general avoidance of the human populated area to the north-east and close proximity to the paths subjected to relatively greater human disturbance (though there are a few exceptions). This is in accordance with the available literature regarding disturbance studies conducted for capercaillie. Recreational walking is popular within the Wood and encouraged (including a new [2010] Boat of Garten Trails leaflet published by the CNPA). Off-leash dog exercising is frequent around the tracks and paths.

3.3 Summary and Discussion

3.3.1 The northern area of Boat of Garten Wood is used by capercaillie and presence/capercaillie evidence has been consistently recorded over the time period of the data, for at least part of most years. The most northern section of the wood (the edge of the village and just south of Deshar Road for approximately 300m) is used only rarely by capercaillie and this includes the proposed housing development site and the immediately surrounding area. Numbers of birds within the wider northern section of the woodland at any given time (and from the reliable records) would appear to be quite variable and relatively low outside of the lekking and brood rearing period, however, the data limitations are acknowledged in making such tentative conclusions. Such variation in presence is, however, consistent with the characteristics of the northern Boat Woods area, accounting for the availability of suitable habitat and the disturbance present. It is important to note that these statements only relate to the northern area of the wood, not the whole wood; MBEC have not studied any other data which may be available for the much larger southern area of Boat of Garten Woods.

3.3.2 The information presented by the various surveys supports the suggestion that enough continuous habitat is available in the much wider surrounding area (which includes Boat Wood) to sustain a single lekking population. Lekking male numbers have been shown to fluctuate from year to year, with an apparent peak in 2006. Population estimates based on lekking cocks, and using the x4 multiplier (RSPB estimator), result in a range of from four to 24 adult birds. From the robustness of both the data and then the estimations, these figures must be treated with caution. These estimates also have to be understood in the context of a likely metapopulation situation, including all the surrounding suitable woodland habitat (including the SPAs), because the actual numbers of birds recorded were much smaller both for lekking

and brood rearing. In other words, these estimates are not for Boat of Garten Woods in isolation, they are for the wider area of which Boat of Garten Woods is one part.

3.3.3 By itself, the proposed housing development area and a surrounding buffer zone of *c.* 300m in the northern area of Boat Woods are not likely to be critical for the current local capercaillie population, but the maintenance of the less disturbed areas further south within Boat Woods, including the lek site and the much wider habitat area as a whole (including the surrounding SPAs and other suitable surrounding woodland areas), is critical. The estate is carrying out capercaillie habitat improvement work elsewhere in the Boat Woods; for example, the southern part of the wood was thinned in 2008 (Will Anderson, Seafield & Strathspey Estate, pers. Comm. 25th February 2011). Such landowner management is also a key factor to this wider habitat suitability and its maintenance/future improvement.

3.3.4 Field signs and sightings of capercaillie appear to have generally moved further from the settlement (with a few exceptions) over the years, possibly as a result of increased background noise levels (e.g. from roads and dwellings) and/or leisure use of the network of paths within the northern section of the woods, particularly close to the existing settlement. The area of the woodland adjacent to the settlement and roads is generally avoided, as are the main paths and the area close to the village centre with the highest number of paths and therefore human disturbance (importantly this area also corresponds with generally lower quality habitat for several aspects of capercaillie life stages, which even without any disturbance is sub-optimal at best). With a few exceptions, the data suggests that the network of paths is also generally not approached too closely by birds, a behaviour which is supported by the available published disturbance literature.

3.3.5 Brood count records are scarce, i.e. survey effort is not consistent or that detailed, which makes the brooding importance of the northern woodland area more difficult to assess. A basic brood habitat quality assessment has shown the relatively low quantity of the habitat available, indicating the requirement for a larger brood range to be used by brooding hens (this assessment, Appendix 2, is also confirmed by the GCT description of the proposed development area as being of low quality for capercaillie). Low quality brood habitat also generally parallels the area of highest human disturbance, close to the village centre, and this pattern is also reflected in the observation and field signs recorded in the surveys, particularly for observations of brooding hens, e.g. the closest brooding hen records are for 2009, at a distance of *c.* 500-600m from the nearest residential property, while for the same year cock bird observations were recorded within *c.* 300m (and 2005 field signs within 200m of the Community Centre).

3.3.6 The path survey (see Section 4 of this document) showed that the majority of the informal network of desire lines is close to the village and in an area noted as being of low brood quality for capercaillie; the combination of both disturbance and low quality habitat explain much of the general avoidance of the furthest north area of the wood, though an occasional cock bird does appear to venture closer.

3.3.7 Despite what is said in the two paragraphs above, the distances of some of the recorded capercaillie signs within the northern area of Boat Woods, from sources of disturbance are, if anything, closer than the relevant literature would suggest they would be expected to be. It is difficult to draw any clear conclusions from this, with the level of data available, but this perhaps indicates that disturbance sources at are not of a great enough magnitude and/or not occurring continuously enough (in terms of

time frequency and time of year) to totally dissuade capercaillie from using areas within the existing disturbance "buffers".

3.3.8 No capercaillie have been seen by MBEC ecologists within the northern Boat Woods area during all the various ecologically related survey work undertaken. This has surprised us and while it may just be chance, it is simply mentioned here as a relevant comment when considering the frequency of use of the northern Boat Woods area by capercaillie.

4. PATHS AND TRACKS

4.1 CNPA Consultation 2006

4.1.1 In 2006 the CNPA undertook a park-wide consultation exercise for the Core Paths Planning programme (CNPA, 2006). The purpose was to establish the local residents' preferences for their footpath resource, establish the usage and reasons for use (e.g. dog walking, running, cycling) and identify any requirements for up-grading minor paths or desire lines.

4.1.2 All the responses were provided to MBEC by the CNPA for the Boat of Garten area. Forty three questionnaires were completed and returned in 2006. Respondents were asked to identify the existing paths of most importance to them and indicate further routes they would like included in the designation/re-designation process. The response was mixed, with some people identifying paths to the north and east of the village (11), a number giving no preference (10) and a much larger group (22), identifying routes in and around the Boat of Garten Woods. A summary of responses with activities relevant to Boat Woods is provided in Table 4.1, below.

Table 4.1: CNPA Core Paths Consultation 2006: Results for Boat of Garten

Activities Undertaken	No Paths Identified (10 respondents)	Paths to north and east of village (11 respondents)	Paths in Boat Woods (22 respondents)
Low-level walking	9	11	20
Dog walking	3	5	6
Walking with push-chair	-	2	1
Cycling off road	1	7	12
Running	-	-	6
No activity indicated	1	1	1

4.1.3 The population demographic for the respondents is noteworthy (see Table 4.2, below). This indicates a general pattern which is likely to become more pronounced with the expected demographic shift currently being experienced by the village, i.e. a loss of the younger generations. This aspect would also benefit from further

investigation, in order to gain a fuller understanding of the use of the path network by the various demographic groups of the village population.

Table 4.2: Core Paths Consultation 2006: Respondent Demographic

Details: Gender/Age	No Paths Identified (10 respondents)	Paths to north and east of village (11* respondents)	Paths in Boat Woods (22 respondents)
Female	4	5	11
Male	4	7	10
No answer	2		1
Age			
Under 16			
16 – 24			1
25 - 44		2	5
45 – 64	2	4	8
64 - 75	5	4	6
Over 75	1	2	1
No answer	2		1

*While 11 responses were received for this group, one represented a couple (age range 45-64 and 65-74)

4.1.4 The Core Paths for Boat of Garten were subsequently designated (see Appendix 2) in 2010 and a leaflet, *Boat of Garten Paths*, published by the CNPA now promotes a number of routes around the village. A previous trails leaflet was also produced in 1994 by the village and promoted in local guest houses in particular, prior to the core paths designation work for the same area and including some of the same paths. In the new leaflet, three trails are identified for the Loch Garten area to the east of the village, one around Milton Loch on the northern edge of the village and four trails within the northern Boat Woods (in addition to the Speyside Way).

4.1.5 While the methodology and subsequent analysis possible of the preferred routes derived from the 2006 questionnaires is extremely rudimentary, it gives an indication of how the paths may be used by village residents. The majority of respondents who indicated a preference for the woodland paths, used the central track from the Community Centre to, and including, the Kinveachy-The Yard track and all indicated (or inferred) use of Kinchurdy Road (see Figure 1). While the out-lying paths were of slightly less importance, all of the existing formal tracks and paths were highlighted; a further two desire lines (one down the side of the Craigie Avenue housing to the residents' car park and one to the west of the woodland, paralleling the estate boundary) were also highlighted.

4.1.6 The use patterns of the network of paths within Boat Woods has not been studied in any detail. As far as MBEC are aware, no detailed assessment of path use has been

carried out, beyond this fairly high level strategic study, which resulted in the existing paths essentially being confirmed as being used.

Limitations

4.1.7 This is quite a simplistic analysis of a very limited data set. Frequency of path use was not included in the consultation. The method of issuing/targeting the consultation survey was also limited and it is understood they were left in the Community Hall and the survey was publicised at a public meeting. There are indications from the return and from comments made, that the distribution was very limited.

4.1.8 The 2001 Scottish census area for the village is divided into six sub-sections (SCROL, 2001), extending from Kinchurdy in the south to Torispardon and Tomachrochar in the north and from Drumulille and the western edge of the village to Loch Garten in the east. The population in 2001 was 615: a 7% response to the survey is therefore not likely to be fully representative of local use.

4.2 Core Path Relationship to Capercaillie

4.2.1 The Core Paths for Boat of Garten Woods, designated by the CNPA in 2010 (see Appendix 2), cross a section of the Boat Woods, with LBS67 (the central track from the Community Centre) coming very close to the capercaillie lekking area and passing through a significant area of the higher rated brood habitat (Poole, 2011), before it joins the Speyside Way (LBS116). The core path "Roe Deer Trail" continues further down the central track, passing the lek, while the "Red Squirrel Trail" follows LBS67 and LBS69/116 and therefore also passes fairly close to the lekking area (LBS69 runs behind the housing of Kinchurdy Road and passes along the shoulder of Fairy Hill to the main path entrance on Deshar Road.

4.2.2 It is clear, whether intentionally or not, that the northern part of Boat Woods is where the core paths are concentrated, other than LBS116 which mainly skirts the edge of the Wood further south. This does make sense in relation to the expected use of the paths by residents and indeed visitors to Boat of Garten.

4.2.3 With regard to the potential for a direct disturbance impact to capercaillie through the recent designation of core paths, CNPA have stated that the core paths plan as a whole was assessed for potential impacts on Natura sites, with advice from SNH. CNPA, as the Competent Authority, concluded that there was no likely significant effect arising from the core path designations because the footpaths were already publicised and used by the public and therefore no appropriate assessment was completed to consider the capercaillie population from the perspective of the surrounding SPAs.

4.3 Path Location Survey 2011

4.3.1 Subsequent to the above, and as suggested by SNH, a walked survey of all paths and tracks within the northern Boat Woods was conducted by MBEC on 16-17 February 2011.

4.3.2 Using a field map showing the primary tracks for guidance, all major routes were walked between the village and the Seafield & Strathspey Estate entrance to the south-west, near Kinveachy, and as far as the railway bridge over the access to Kinchurdy Farm in the south east. The main route to Loch Vaa was also walked, though it should be noted that the second route, further to the west, had advisory

signage indicating felling operations (which indirectly indicates the commercial plantation land use of the woodland).

4.3.3 A sensitive GPS receiver was used, with all intersections between routes (formal, semi-formal and informal) marked with a "waypoint". With the main paths identified, all lesser trails and desire lines (that could be found) were followed. The GPS recorded the routes walked, in addition to the noting of waypoints. The accuracy was generally found to be ±3m, though this reduced to ±4m in some of the more dense sections of the woodland.

4.3.4 As would be expected, the network of pathways, from formal down to desire lines, was most dense near the village, particularly in the corner of the woodland formed by the Deshar and Kinchurdy roads (see Figure 1 and Appendix 3). The number of smaller paths and desire lines reduced considerably as distance from the village centre increased.

4.3.5 The relative use of these tracks is varied (evidenced primarily from foot traffic damage/path forming), from residents using an alternative to walking down the street (i.e. using the paths at the back of the housing), to cycling along the outer routes. Cycle tyre tracks, boot and dog paw prints were noted in the mud of the majority of the desire lines further from the settlement, indicating occasional use at the very least. Animal trails (roe deer, fox and rabbit) were also noted to be present throughout the woodland, though not followed or mapped, and evidence of additional rabbit activity was also seen.

4.3.6 This path location survey was conducted during the local school half-term break, which possibly marks a small seasonal peak in path use, though the majority of people were encountered close to the village and near Fairy Hill, in particular. Small groups of walkers were met further from the village, as were a number of cyclists, dog walkers and a runner. It should be noted that one dog walker was using the tracks that circumnavigated the woodland block of the lek site, with both of her animals off the leash. It is important to note that this path survey was just that and was not designed to be an appraisal of path use and modes of use.

4.4 Summary and Discussion

4.4.1 It has been noted in recent discussions by SNH that it is local residents' use of the area that is of key importance, presumably because they are present and likely to be using the woods all year round. The current use of the path network by the village residents is not yet well understood, as the available data is limited and not necessarily representative. However, it does seem to indicate some preference for the use of paths that have recently been designated as Core Paths (see Appendix 2). These Core Paths, and the subsequent Boat of Garten Trails leaflet (2011), along with the previous trails leaflet (1994) do promote leisure use within an area of recorded capercaillie presence and two of these promoted paths are very close to the known lek site. These routes also correspond to an area of higher quality capercaillie brood habitat (RSPB, 2010).

4.4.2 It is relevant to consider trends in people's leisure pursuits and time spent in woodland areas and this leads to the thought that people's use of the northern Boat Woods may increase further in the future. There are many factors involved in the potential for increased use in the future, but elements, such as the general promotion of paths into the woodland and demographic shift, may act to increase path use and

hence increase capercaillie disturbance further in the future. It should be noted that SNH and the CNPA have made it clear that they disagree with this possibility because they say there is no evidence for it. While this is an opinion, evidence for such a possibility would include a continuing increased awareness regarding peoples' health, the habits of the kind of people who choose to live within the Park and, in this case, in Boat of Garten and also the habits of those who choose to holiday in the area.

4.4.3 Such an increase in leisure use of the Boat Woods could happen irrespective of any proposed housing development and may occur through an increase in the use of the area by both the existing local population and visitors using the paths. Such a general increase in leisure use and greater distances from settlements being used by people has been noted elsewhere by such organisations as the Forestry Commission and does not just relate to numbers of people, but also relates to the modes they are using; for example, mountain biking is one of the fastest growing sports in Europe at the moment. Specifically in relation to visitors, it should also be borne in mind that the Strathspey area is an established and actively encouraged area for tourism and given the recent shifts in people's holidaying habitats, it is possible that this may lead to a further increase in leisure use of the Boat Woods by increasing numbers of visitors, as well as by local residents. Such possible increases in visitors in Strathspey would not be likely to just be in the spring to autumn period in this area. However, in relation to the use of the wood and the sensitivities of capercaillie, that would be the most important period of the year.

5. GAP ANALYSIS FOLLOWING REVIEW OF EXISTING INFORMATION

5.1 Introduction

5.1.1 Following from the sections above (Section 3 and 4) on the existing relevant information, it is logical to conduct a gap analysis of the existing information versus that necessary to adequately inform any revision of the previously proposed capercaillie mitigation measures, in relation to the proposed housing development at Boat of Garten. This gap analysis consists of the two key subject areas involved: capercaillie use and path/track use within the northern area of Boat Woods.

5.2 Capercaillie

5.2.1 The existing data analysed and reviewed in Section 3 and the Confidential Annex indicate gaps in knowledge due to a lack of year-round methodical surveying, a reliance on *ad hoc* records and only occasional brood surveys. However, comparing it to other places, relatively speaking, there is quite good data coverage for capercaillie in the northern Boat of Garten Woods area. This is not to say that it is comprehensive for the whole calendar year. This data concentrates on the lekking and brood rearing period predominantly; however, other periods of the year do have limited *ad hoc* data records, even if these are unsubstantiated. As analysed and discussed in Section 3, the key issue is then how this base data is later manipulated into estimated population levels. Accurate, if limited, baseline data is then potentially made much less accurate when transformed to population level estimates. In other words, it is wrong to separate out the northern Boat Woods from the much wider surrounding area of habitat which is being used collectively by these birds. This gives great difficulties in estimating the actual population level importance/numbers within a small

area such as the northern Boat Woods, because it is part of a much wider linked area which the birds are using and the lek suggests it is on the edge of a number of adult male territories and probably includes the surrounding SPAs. This population estimation difficulty is a widely recognised issue in the study of many bird populations.

5.2.2 However, on the basis of the original data presented here, it is concluded that the knowledge base is reasonable when compared to the wider original data available for Strathspey and indeed Scotland as a whole. On this basis, without intensive survey effort to a greater level of detail than ever previously studied and funded, it is not possible to definitively answer the current uncertainties in relation to metapopulation dynamics (how the capercaillie are actually using the northern Boat Woods within the yearly cycle, but outside of lekking and brood rearing) and the more accurate estimation of population level statistics. It is therefore concluded that the capercaillie data currently available is sufficient to inform the future elements of this work, specifically in relation to the proposed housing development, but conclusions relating to the specific use of the northern Boat Woods throughout the year must be treated with caution.

5.3 Path/Track Use

5.3.1 The Core Path consultation of 2006 and the mapping of the current paths within the northern section of Boat Woods (Section 4 of this report) gives very limited information on the use of the northern Boat Woods by people. This existing information on path use is also limited to a limited sample of local residents. This information does not detail such relevant issues as the frequency of use of different paths/tracks and the dominant modes of use. Overall, the available information does not provide a sufficient baseline to then extrapolate through to any increased future residential population in relation to any further new housing. It is also not clear what the relative importance of resident users versus visitors is. In conclusion, a significant data gap exists within this information and it is recommended that measures are taken to substantially add to this baseline information. Given the overall lack of information available on this topic, a focused data gathering exercise concentrated on the northern section of Boat Woods is feasible to increase this baseline knowledge and provide a more accurate basis for decision making, specifically with regard to the proposed housing development. This is explored further in Section 6 and reported on within the following sections of the reporting below.

6. RECOMMENDATIONS TO BE TAKEN FORWARD FROM THE REVIEW

6.1 Introduction

6.1.1 This section is written mainly in the present tense because most of this text was part of a previous draft report that was given to SNH and the CNPA in advance of agreement on the additional work to be undertaken. It has however, been subsequently altered slightly to take account of what was actually undertaken, with the agreement of SNH and the CNPA.

6.1.2 On the basis of the existing data and gap analysis outlined in the preceding sections of this report, this Section recommends further work to try to address the current gaps in data, in relation to path/track use in the northern area of the Boat Woods. The aim

of these recommendations is to adequately provide further data in a cost-effective and time-effective manner to allow the following:

- Provision of baseline data to then more accurately inform future predictions regarding potential human population increase and resultant use of the woods;
- To steer the previously provided and future proposed mitigation proposals to ensure that they address the correct requirements and to the correct level, as definitively as possible; and
- Ultimately, to allow the decision makers (the CNPA Planning Committee) and their advisors (Park Officers and SNH) to make as informed and accurate judgements as possible on the current application for new housing in Boat of Garten.

6.2 Requirements

6.2.1 The practical requirements of further work in relation to the northern Boat of Garten Woods are as follows:

- Identification of the choice of the woodland paths and how they are used by the local community (i.e. choice of path for each activity);
- Identification of the use level of the various elements of the path network;
- Identification of any particular demographic patterns in use; and
- Identification of calendar/time of day use, if possible.

6.2.2 The aim of this further investigation is to develop an understanding of the user flows and dispersal across the path network and, in particular, adjacent to the capercaillie lekking area and past brood rearing area in the northern Boat Woods. This is of the greatest importance during the spring and summer period, because existing knowledge suggests this is when capercaillie are most sensitive to disturbance. This information will then be used to assess the potential for disturbance to the woodland and its wildlife interests, with particular reference to the capercaillie population using the woodland. It can also then be used to try to define any possible level of increased disturbance likely from the proposed new housing residents using the existing level of use as an approximate indicator to judge this.

6.2.3 The results of data analysis will then feed into the further development of appropriate mitigation, with the aim of ensuring reduced impacts of any increased human activity from new housing on the capercaillie that may be present. This revised mitigation needs to continue to consider both the birds which may choose to breed within the woodland and those birds which are using the habitat merely as a temporary "stepping stone" between areas of better habitat (i.e. the SPAs designated for their capercaillie interest in the surrounding area and other adjoining areas).

6.3 Additional Data Needs and Objectives

Data Use

6.3.1 Any work/monitoring should focus on determining the following:

- Activity type (i.e. transport mode) within the northern Boat Woods, including dog walking on and off lead, and potential level of disturbance to the surrounding woodland, with particular reference to the capercaillie population;
- Frequency of activity and use of the path network;
- How much of this activity is conducted along paths (and off path) particularly adjacent to the capercaillie lekking and past brooding areas;
- Level of use through the week vs. weekend by users; and
- General/basic diurnal pattern of activity (i.e. morning, afternoon and/or evening).

Confirmation of Information Needs

6.3.2 The only previous "people use" study within Boat Woods MBEC are aware of was conducted by the CNPA in 2006, as part of a wider Core Paths consultation process (see Section 4). It had a very small return and showed a likely bias towards older respondents (a total of 43 questionnaire forms were completed, 22 of which related to the Boat Woods path network).

6.3.3 The 22 Core Path consultation respondents who indicated a preference for the woodland paths in that study gave an indication of the likely pattern of use of the main routes. However, with a 2001 census figure of 280 households and 615 residents (SCROL, 2001) in the PH24 3 census area (divided into six sub-sections, extending from Kinchurdy in the south to Torispardon and Tomachrochar in the north and from Drumuillie and the western edge of the village to Loch Garten in the east), a response representing 7% of the total population is not wholly representative of the local community.

6.3.4 In order to be successful and achieve a statistically sound return, this study needs to reach as many of the local population as possible. Public meetings, while potentially of use, are not suitable for reaching everyone as they rely on active interest in the issue to encourage participation and such participation may not be representative. Monitoring will therefore require to be more than via a single method to capture the best quality data.

6.3.5 Current understanding of the use of the woodland pathways is founded on a basic analysis of the results of the 22 Core Path consultation questionnaires directly relating to the woodland of interest (CNPA, 2006) and from observations of woodland users/evidence during ecologically related work by MBEC in the last few years.

6.3.6 Both the Core Paths questionnaire and observational data indicate a variety of recreational activities conducted within the woodland:

- Walking (both "family outing" and more focused distance walking);
- Dog exercising;
- Cycling;
- Cycle "assault courses" (created by children/young adults, mainly close to the village);
- Very occasional horse riding; and
- Orienteering.

6.3.7 While the basic activities are a known quantity, the frequency related to particular paths and similar more detailed data is unknown from previously existing information.

6.3.8 It should also be noted that, while the local resident population is important as the "core users", the woodland is also utilised by visitors to the area, both for one-off holidays and more regular visits. A number of routes are promoted in addition to the Park-wide Core Path network, as publicised in the *Boat of Garten Paths* leaflet (CNPA, 2010), distributed to the hotel, caravan park and B&Bs of the village. A number of these paths have been promoted since the mid-1990s, with an earlier leaflet published by the Boat of Garten Community c. 1994.

6.4 Development of a Monitoring Approach

6.4.1 The key background documentation to be followed for this further work includes that presented by SNH in their *Visitor Monitoring Manual* (SNH, 2011i) and *Monitoring Access and Recreation at Sensitive Natural Heritage Sites* (SNH, 2007). MBEC have also used our existing experience of monitoring such situations to suggest as time-efficient and cost-effective an approach as possible for the further required work.

Monitoring Logistics

6.4.2 Essentially, the requirement is for a methodology to ascertain the number of people visiting the woodland, the profile of the people and the profile of their visits (i.e. the frequency and reason/s for visiting).

6.4.3 A variety of tools are available to collect this data. In theory, the most appropriate are:

- Quantitative survey;
- People counter technology; and/or
- Motion-sensitive camera technology.

6.4.4 A quantitative survey, designed to reveal the demographic profile and basic use behaviour of the local population using the woodland, is identified as the primary data collection method. This will be designed as a self-completion questionnaire, with arrangements made for the distribution and then collection of the completed forms, to try to maximise the return.

6.4.5 It was suggested by SNH that such a survey should be supported by counting technology. MBEC subsequently recommended that motion sensitive cameras should be considered as a more cost-effective alternative, which will, importantly, also enable the collection of a wider range of data. Counting/camera use would require to be in appropriate locations within the wood, to determine actual use in the particular areas of interest (i.e. around the capercaillie lek and the potential brood rearing area) and it was agreed that the locations will be agreed in advance with the CNPA and SNH.

6.4.6 Radio beam technology was identified as the most appropriate people counter method for this study, with the directional dual-beam system noted as the most desirable of the available units. Four or five dual beam units would ensure coverage of the intended locations. This dual beam technology is, however, expensive at twice the cost of a single-beam unit. There are a number of different specifications available for the single beam counters, including extended range detection; the more complex (and expensive) single beam systems have the capacity to distinguish between user categories (i.e. pedestrians, cyclists and horse riders).

6.4.7 Motion-sensitive cameras (as routinely used by MBEC for the monitoring of wildlife), with the cameras hidden in suitable trees, was explored further. The shutter can be programmed to capture multiple images (or video footage) for a short period of time after activation, giving the potential to determine the number in the group, their characteristics (including the presence of dogs), the direction of travel and their mode of transport. This would be more cost-effective than automated counters and would provide a greater level of information for a similar effort. After further discussion it was agreed for motion-sensitive camera use be taken forward.

Legal Issues

6.4.8 With a questionnaire individuals are agreeing to fill it in, with the understanding that sensitive individual and personal data will not be collected/used/kept electronically. Therefore, it is voluntary and there is no infringement of people's privacy.

6.4.9 With motion-sensitive cameras, MBEC have been advised that the situation is different. A camera taking a still image or video is deemed to potentially infringe people's privacy, if it is done in a covert way, i.e. the people are not aware that they are being captured by image or video. MBEC have received advice from the police on this and it is Chief Inspector Matthew Reiss's view (Highland Constabulary) that covert filming is not acceptable, however, he thought that, given what we wish to use the information for, if we publicise camera use by carefully worded signage and destroy all images once we have gleaned the information from them, then it is not covert. He also subsequently commented on and agreed the wording on the signs which were later erected within the Wood to tell people about the camera use.

Location of Monitoring Activity

6.4.10 The ideal scenario would be to locate the technology on all major paths within the woodland (with a potential to investigate some of the more important minor paths). However, with constrained financial resources available and therefore a limit to the number of counters that can be deployed, the choice of location for monitoring technology deployment is of particular importance.

6.4.11 With the primary objective of determining human activity on the most important paths in relation to capercaillie, four camera locations were agreed with the CNPA and SNH in advance.

Timing/Scheduling

6.4.12 Timing of the surveys corresponded to late spring 2011 for the Questionnaire and summer 2011 for the camera survey.

6.4.13 While the resultant data from both survey methods is required in an analysed format prior to the relevant CNPA Planning Committee meeting, any deployed technology could be left *in situ* for longer, in order to monitor path use further and the results analysed later, if necessary, and the summarised results passed back to SNH/CNPA as an enhanced baseline for use in future monitoring, should the proposed housing development be consented.

Resources Required

6.4.14 Face-to-face interviewing, while the most flexible approach to a questionnaire survey of this kind, is not practicable given the time and reasonable costs to benefits, hence the choice of a self-completion questionnaire format to gather the primary data is considered to be the best approach. This will of necessity require the gathering of simple demographic data as a part of the format, in order to facilitate the final analysis stage.

6.4.15 Distribution and collection of the completed forms are the primary issues associated with use of a self-completion questionnaire. With a deadline for participants' completion, a practicable solution for the response mechanism would be to arrange collection points around the village, such as at the Post Office and the general store by the caravan park on Deshar Road and at the Community Centre.

6.4.16 Limiting the number of open-ended questions is important, thereby increasing objectivity and reducing the overall time required to analyse the data and also helping to minimise staffing costs for the data entry aspect of the work.

6.4.17 For the woodland survey aspect of this data collection, the ideal situation would be to deploy four cameras. These units would need to be monitored on a weekly to fortnightly basis by MBEC staff, to ensure they are maintained and to collect the relevant data.

Personnel

6.4.18 While outside of the usual ecological remit, the MBEC project team members have sufficient experience from previous roles (including within the leisure and tourism industry) to conduct this study.

6.4.19 Use of remote recording/detection equipment is a standard part of MBEC's ecological field work for wildlife; use for observation of human activity is therefore a simple extension of this expertise. A member of the MBEC team would be required to check and down-load data from the remote equipment across the monitoring period.

Recording and Storage of Data

6.4.20 All data will be digitally recorded and stored. With a suitably simple design, the results of the questionnaire will be equally simple to analyse using spreadsheet software (at least initially).

6.4.21 Analysis of path use would be principally via spreadsheet analysis. With MBEC's GIS capability, graphic presentation of use intensity would also be explored, if appropriate. Combining camera data with the information obtained from the questionnaire will enable a fuller picture of path use and the resultant existing/potential for disturbance to the woodland wildlife to be established.

6.6 Information Collection, Analysis and Evaluation

Questionnaire Survey

6.5.1 A relatively short questionnaire has been developed which is to be accompanied by a map of the northern Boat Woods (see Appendix 3). While striving for simplicity, the complexity of the path network and the number of hubs within the north-east corner, in particular, has resulted in a total of 27 path sections being identified for analysis. In order not to skew the results, the survey has been designed to assess the use of the whole of the path network, with the unfortunate result of increasing the degree of complexity to an extent.

6.5.2 A major concern will be obtaining a representative sample of the population. How interested respondents are in the subject matter and the length of the survey will play a key role in obtaining a good response rate. MBEC feel very strongly that this questionnaire must be as objective as possible.

Motion-Sensitive Cameras

6.5.3 Accurate siting of such equipment will be vital to ensure both path coverage and the safety of the equipment (cameras would require siting such that they have a clear view of the path, but are not readily visible or accessible to path users).

6.5.4 The wide-angle movement sensor triggers the shutter, with a programmable delay and up to six images taken (3-6 depending on which actual model of camera is used), for stills. Detection range can be adjusted from 2 – 20m and the infra red flash, triggered in low or night conditions is invisible to the human eye, so the camera operation should not be noticeable to path users (other than via the signage explaining the survey being conducted within the Woods).

6.5.5 In practice, MBEC have found battery life to exceed three weeks of deployment, though the frequency of triggering and recording (stills or video) will significantly effect this (N.B. a set of batteries will enable up to 12,000 stills images to be recorded to a memory card of up to 32GB capacity, or 30 images a day for one year [claimed, camera user manual]), as will ambient temperatures and the number of times the flash is triggered.

6.5.6 With the requirement to check the batteries on a regular basis, the memory cards would also be downloaded at the same time, initially on a weekly basis.

Analysis and Interpretation

6.5.7 If a representative sample of returns is received, then the confidence level associated with the results will be higher. If the return is low, then the value of the people counter/camera results will be key to the study success, as a degree of demographic information can be gleaned from the data generated in this way (camera images would enable identification of mode of travel and direction, in addition to the date and time of "contact").

6.5.8 Cross-referencing quantitative data with count data, time for analysis willing, will enable more detailed analysis of the results, e.g. the percentage of children under 16 using a route for cycling.

6.5.9 Interpretation will include any appropriate graphical representation (e.g. path use across the week and weekend) and mapping of the relative use intensity of the path network by identified section. This information will be presented as a report of study findings and used to determine the further development of the appropriate mitigation measures.

Evaluation

6.5.10 The development of the methodology has been a continuous feed-back process, with the questionnaire refined in the process, using internal MBEC staff to comment/trial it, as well as several members of the Boat of Garten Community Council. Additional comments have been received from SNH and the CNPA on subsequent versions, which have been incorporated where appropriate.

6.5.11 Final analysis and reporting of the full study will enable a final evaluation of the work to be made, to check that the aims of the study have been achieved. It is intended that this analysis will provide the CNPA planning committee and SNH with additional data on which to base their interpretation in relation to the proposed development, as well as providing MBEC with the data required to extrapolate to the required analysis and further development of mitigation for the proposed new development.

7. ANALYSIS OF THE QUESTIONNAIRE

7.1 Introduction

7.1.1 A copy of the master questionnaire used is included as Appendix 3. The questionnaire was undertaken in mid-May 2011. It is recognised that further analysis could be undertaken on these results; however, in view of the need to highlight the key points and the tight timescales, a fairly minimal but adequate analysis has been undertaken by MBEC to inform the revised mitigation proposals.

7.2 Results

7.2.1 The summarised results are given below. Each question is also reproduced first, to aid the reader.

Total number of households the questionnaire was sent out to within the wider PH24 postcode + Street of Kincardine = Approx. 430 (two questionnaires per envelope). There were also additional copies left in the Post Office and the store.

Total Number of Questionnaires returned = 263

Total number of questionnaires spoiled = 2 (not analysed further)

This is a good return and should allow subsequent analysis to be reasonable and fair to accurately represent the views of the Boat of Garten community. This return equates to one questionnaire being filled in by approximately 61% of the households in the wider PH24 postcode or over 42% of the total population of Boat of Garten (PH24 3 postcode), as it was in 2001. It should be noted that these percentages do not account for non-resident home owners which would result in a substantially higher percentage return from the permanently resident population.

Total number of questionnaires filled in and analysed = 261

Question 1. Please give your age range:

Total percentage of respondents who filled in this question = 96.2%.

Age range	Percentage of each age range
Under 16	4.8%
16 to 45	19.5%
46 to 64	37.5%
65 and over	38.2%

Question 2. Do you enter the Northern Boat of Garten Woodlands for any leisure activities or use the paths to link to other places? For example walking, running, dog exercise, etc. Please tick or circle the box below which applies:

Total number of respondents who filled in this question = 100%

YES: 83%	NO: 17%

Question 3. What are the key reasons why you use the Northern Boat of Garten Woods?

Total percentage of relevant respondents who filled in at least one answer to this question = 100%

94% of respondents gave multiple reasons for using the wood.

Possible reasons	Percentage applying to each reason
It is close to my house	83.4%
It is a nice place to visit/I get enjoyment from passing through it	75.6%
It has a good path network	82.9%
It is a good place to take children	44.2%
It is a good place to take my dog	43.3%
I feel safe in it	52.1%
I enjoy the woodland and wildlife it contains	74.2%
Other important relevant reasons: Total of 16.1% of respondents Similar answers to additional details in Question 4, both summarised together below	

4. What do you use the Northern Boat Woods for?

Total percentage of relevant respondents who filled in at least one answer to this question = 100%

Total percentage of respondents who filled in more than one reason = 81.1%

Activity	Percentage applying to each activity
Walking without a dog	69.6%
Walking with pushchair/pram/children	27.2%
Dog walking on lead	31.8%
Dog walking off lead but close at heel	22.1%
Dog walking off lead and dog(s) roaming off the path	15.2%
Cycling	55.8%
Running/power walking	25.8%
Horse riding	2.8%
Other Activities: Total of 20.7% of respondents. Other Activities answers for Question 3 and 4 combined below: Skiing and sledging in winter (8) To keep fit/exercise (8)	

Activity	Percentage applying to each activity
Wildlife watching and collecting specimens (8)	
Nice short-cut routes to the village (6)	
Use to access good views (6)	
It is a quiet place close to house (5)	
Off road route to Aviemore (4)	
Picnics and playing with children (4)	
Good place for cycling and trail riding (3)	
Good place for a walk (2)	
Training - use lower branches of trees for pull-ups (1)	
Away from dangers of road (1)	
Good circular routes (1)	
Tracks well maintained(1)	
Sketching (1)	
Good to leave dogs to roam freely (1)	
All terrain wheelchair use (1)	

5. How often do you use the Northern Boat Woods?

Total percentage of relevant respondents who filled in at least one answer to this question = 99.5%

Total percentage of relevant respondents who left this whole question blank = 0.5%

Total percentage of relevant respondents who only filled in the further details box = 1.4%

Total number of relevant respondents who only/also filled in the further details box = 13.4%

Frequency	Percentage applying to each answer
Every day	31.5%
More than once a week but not daily	32.9%
Once a week	7.0%
2-3 times a month	18.8%

Frequency	Percentage applying to each answer
Once a month	4.2%
Less than once a month	5.6%

Please give further details to explain if the above answer oversimplifies your use: Total of 13.2% of respondents.

Some answers reflect main table and are not repeated. Relevant other reasons were:

Holiday house, so use the woods when at the house (11)

Use when health permits (2)

Just moved here (1)

Use depending on the weather (1)

6. What time of day do you tend to use the Wood?

Total percentage of relevant respondents who filled in at least one answer to this question = 99.1%

Total percentage of relevant respondents who left this whole question blank = 0.9%

The vast majority of respondents ticked more than one time of day with the average being approximately 2 different times during the day.

Time of Day	Percentage applying to each time of day
Early Morning (6am-9am)	30.2%
Morning (9am-12pm)	56.7%
Afternoon (12pm-6pm)	78.6%
Evening (after 6pm)	51.2%

7. Does the time of year affect how regularly you use the Northern Boat Woods?

Total percentage of relevant respondents who filled in at least one answer to this question = 100%

Total percentage of relevant respondents who only filled in the further details box = 2.3%

Total percentage of relevant respondents who only/also filled in the further details box = 11.5%

Time of Year	Percentage applying to each time of year
No – approximately equally throughout the year	75.0%
Yes – I use the woods only in the winter	0.0%
Yes – I use the woods only in the spring to autumn	5.7%
Yes – I use the woods more in the spring to autumn	19.3%
Please give further details to explain if the above answer oversimplifies your use: Total of 11.5% of respondents. Some answers reflect main table and are not repeated. Relevant other reasons were: Access depends on depth of snow and if icy (6) Use in winter because it can be sheltered from strong winds (2) Avoid sensitive areas during breeding season (2) Use only when on holiday (2) Not used when muddy (1) Use when enough snow in the woods to ski (1)	

8. When in the woodland, do you stay on the pathways/tracks?

Total percentage of relevant respondents who filled in at least one answer to this question = 100%

Use	Percentage applying to each answer
Always	58.1%
More than or approximately half the time	38.7%
Less than half the time	2.3%
Never	0.9%

9. What activities, if any, take you off the paths in the Northern Boat Woods?

Total percentage of relevant respondents who filled in at least one answer to this question = 90.8%

Total percentage of relevant respondents who left this whole question blank = 9.2%

Adding the number of respondents who left this question blank + those who said they did not go off the paths i.e. None, the percentage is 45.6% which is less than those who said they never wander off paths in the previous question.

Well over 50% of respondents filled in more than one answer.

Total percentage of relevant respondents who only filled in the further details box = 1.4%

Total number of relevant respondents who only/also filled in the further details box = 6.5%

Activity	Percentage applying to each activity
None	40.7%
Taking a short cut	28.6%
Playing with children	20.3%
Playing with / retrieving a dog	15.6%
Watching / searching for / photographing wildlife	31.8%
Picking berries / mushrooms	23.4%
Other (please give further details) Total of 6.5% of respondents. Some answers reflect main table and are not repeated. Relevant other reasons were: Intentionally running on soft ground (3) Lifting litter (1) Exploring (1) Got lost (1)	

10. When in the woodland, do you see dogs ranging away from the pathways/tracks?

Total percentage of relevant respondents who filled in at least one answer to this question = 99.5%

Total percentage of relevant respondents who left this whole question blank = 0.5%

Activity	Percentage applying to each activity
Always	6.5%
On more than or approximately half of your visits	17.6%
On less than half of your visits	50.9%
Never	25.0%

11. Which paths do you use?

Total percentage of relevant respondents who filled in at least one answer to this question = 97.7%

Total percentage of relevant respondents who left this whole question blank = 2.3%

The vast majority of people ticked more than one path.

30.2% of respondents said they used all the marked paths in the Northern Wood.

Path	Percentage applying to each path
1	68.6%
2	82.9%
3 / Area	81.4%
4 / Area	86.7%
5 / Area	74.8%
6	81.0%
7	49.5%
8	44.3%
9	81.0%
10	61.9%
11	77.1%

Path	Percentage applying to each path
12	63.8%
13	75.2%
14	61.4%
15	76.7%
16	78.6%
17	66.7%
18	75.7%
19	45.7%
20	46.7%
21	51.0%
22	58.6%
23 / Area	71.9%
24	64.8%
25	58.6%
26	65.2%
27	64.8%
ADDITIONAL, RESPONDENT ADDED	1.9% (4 NEW PATHS)

Additional Comments

The following additional relevant comments were made on the questionnaire and the number of people making those are also listed in brackets after each comment. These comments were not related to any specific questions:

- Use other paths not shown on the map and off the map (2)
- Walks spoiled by dog excrement (1)
- Against any development except outside of the woodland (1)
- Person helped to improve some of the paths within the woodland and produced maps displayed on boards (1)
- Questionnaire was badly designed (1)

- Worried about destruction to wildlife habitat due to the existing level of use of the woodland (1)
- Consider tourist use of the northern woodland as well (2)
- Against development (2)

7.3 Data Subsets Analysed

7.3.1 Out of the 15.2% of people who used the woods and said their dogs are off lead and roam free (Question 4, 33 respondents total), the following can be ascertained:

- 18 of this subset (out of 33 total) also answered that activities which take them off the path included playing with/retrieving a dog (Question 9). Therefore, this suggests the answer to Question 4 may be an underestimate and there is another subset of people who have not said their dog(s) are allowed to roam (Question 4) and yet they are playing with/retrieving a dog off path (i.e. another 15 people). Taking these additional people (Question 9) along with Question 4 suggests that actually up to 48 respondents or 24.4% of the total response, have at least occasionally had dogs off lead.
- A comparison of those who answered Question 4 saying that their dog(s) are off lead and roam free and Question 10 asking when in the woodland do you see dogs ranging away from the pathways/tracks. 7 of the Question 4 subset answered that they do not.
- The number of this whole subset that use all the paths is 12, i.e. 36.4% of this subset, however, in addition 23, i.e. 69.7% in total, use over half of the marked paths within this area of woodland.
- Of the same subset, Question 5 (How often do you use the Wood?, 32 people total answered this out of 33) resulted in 29 out of 32 noting daily use, i.e. 90.6%.
- This subset also shows pretty even use throughout the day (Question 6) and they do not favour particular time brackets in the same way that the total of all respondents do.

7.4 Bias

7.4.1 It is important to note firstly that every attempt possible was made to make this questionnaire as objective as possible. This included designing it to try not to bias results in relation to people being for or against the proposed development, or having pre-conceived ideas which would affect their answers. Both SNH and the CNPA commented in detail on the drafts of the questions and the format, and these were altered considerably to try to achieve an objective questionnaire survey. Being realistic, some answers may well have been biased to an extent; it is hoped that the return level achieved has minimised any such bias, but it is impossible to rule this out completely.

7.5 Return Level

7.5.1 The return on the questionnaire in comparison to the local population statistics was very good. In practice, it is very difficult to get a good return on questionnaires, but this questionnaire has achieved this and leads us to believe that we have done everything possible to get a fair representation of the local community's views. This return is due to the effort of all involved, particularly Allan Munro and his staff and the Community Council. This good response is particularly related to the close liaison we have undertaken with the Community Council and their advance notification to local people in the BoG Standard Newsletter intimating the forthcoming survey and asking people to complete it. We should also recognise and thank the local store, Post Office and community hall for providing local collection points, which has also assisted in encouraging a high return of questionnaires.

7.5.2 The total number of questionnaires filled in and analysed was 261. This includes a substantial number of the surrounding rural community, as well as just the Boat of Garten village residents. It is important to recognise that within this postcode there are a considerable number of properties which are not primary residences, i.e. they are second homes, holiday homes and similar, and this would have limited the possible return further (given that it was a time-dependent return). It is apparent from the completed questionnaires that a few people who are not full-time residents have filled-in the questionnaire. In answer to Question 5, 11 people noted specifically that they use the Woods when they are in the area/on holiday. This equates to 4.2% of the total questionnaires analysed.

7.5.3 The two questionnaires which were spoiled were filled in by teenagers and contained potentially offensive answers which were therefore ignored.

7.6 Age Range

7.6.1 A good mix of age ranges were represented (see Question 1 results). There was a lower percentage of under 16 year olds represented, but this is not surprising and actually 4.5% of respondents being in this age range is a reasonable return, although likely to be below the actual percentage present in the local population.

7.7 Discussion of the Questionnaire Results

Leisure Use of the Northern Boat of Garten Woods

7.7.1 According to the questionnaire results, a very high percentage of the local population take part in activities within the northern part of the woodland, whether staying just within this area or passing through it; 83% of the respondents use the Woodland in some way. This is extremely high and indicates that the majority of people residing in the area who can, do use it to some extent. There were several comments from people saying that health was a limiting factor and also that they used it when they were in the area (i.e. not full-time residents). It is important to note that there could be a bias in the people who filled in the questionnaire towards those who do use the wood, however, the questionnaire instructions were worded to also encourage people who don't use the wood to fill in the first two questions. Even if the percentage of people using the wood is artificially high, the results still strongly suggest that the northern Boat Woods are very well used by local people on a regular basis.

7.7.2 This questionnaire cannot expect to account for visitor use of the woodland, which is also likely to be quite high given the accessibility, availability and wide knowledge of the trail leaflets which include the northern part of the woodland.

Key Reasons People Use the Northern Boat of Garten Woods

7.7.3 All relevant respondents noted at least one reason they use the woods and what they do in questions 3 and 4, and a very high percentage of people gave multiple reasons in both questions. In practice, people have considered their answers to both Question 3 and Question 4 in a similar way and both these questions overlapped to an extent and hence have been considered together. Reasons for use majored on location, i.e. easily accessible, good paths, enjoyment/pleasurable place (see Question 3 results for other reasons). In terms of activities undertaken, as would be expected, the majority of people walk within the wood, but a very high proportion of people also cycle (55.8%, Question 4) and some of this walking/cycling includes with a dog and/or children. A quarter of the respondents also run or power walk, so fitness is also an important component of people's use of the woods. In answer to questions 3 and 4, a substantial number of people gave other reasons/activities they undertake in the woods and fitness and exercise also featured highly in these answers (see Question 4), including skiing in the winter time. It is also obvious from these responses that some people regard the woods as an extension of the village and a pleasant link around parts of the village. The woods are also passed through by people accessing other places, for example, the off-road route to Aviemore and accessing good views over the valley. The wildlife and habitats of the woodland are obviously important to people both generally in terms of appreciation while using the woods and more specifically by a smaller group of people who expressly use the woodland to search for wildlife and collect specimens.

Frequency of Use of the Northern Boat of Garten Woods

7.7.4 99.5% of relevant respondents gave details of their frequency of use of the Woods. The results from Question 5 clearly show that the woods have people present in them on a daily basis (31.5% of responses said they used the woodlands daily) and that 71.4% of people who said they use the woodlands are in them at least once a week (see Question 5 results). This is a very high level of use and as well as reflecting the accessible nature of the Northern Boat of Garten Woods, indicates that people must be present and using the Woods frequently. Further to this, people were asked what time of day they use the woods (Question 6). The fact that the vast majority of people indicated that they use the woods at different times of day emphasises the high frequency of use (average of approximately two time of day categories ticked by each respondent).

7.7.5 As would be expected, the time of day when people are in the woodland the most is the afternoon (see Question 6 results), however, there is a high level of use in the morning and the evening as well. The early morning has the least use, but is still 30.2% of relevant people. These responses indicate that the woodland has people present in it regularly from early morning to late evening and the answers to Question 5 indicate that this presence is likely to be substantial.

7.7.6 The frequency of use during the year is also an important consideration and again, the responses indicate regular use, with 75% of people who use the Woods saying they do so approximately equally throughout the year and only 5.7% indicating they only use the Woods between the spring and autumn (see Question 7, Results).

There are a few additional comments indicating that some use is weather-dependent, as would be expected.

7.7.7 It is fair to say that all these related results indicate that the northern Boat of Garten Woods are very well used by the local population throughout the day and the year; indeed it could be said they are heavily used and relied upon by the local population for a variety of mainly leisure reasons.

Geographical Spread of Use Within the Northern Boat of Garten Woods

7.7.8 Just over half of respondents always stay on the pathways and tracks within the Woods (58.1%, Question 8 Results) and extrapolating from the answers for Question 9 a lower percentage figure of 45.6% is arrived at for the same question being asked indirectly. The mix of tracks previously surveyed that have evolved in this woodland do allow users a fairly good geographical coverage of the majority of the Wood. However, despite this, a surprisingly large percentage of the users say that they do go off the tracks and pathways, at least occasionally (41.9%). The reasons for people going off the tracks and paths are varied, but the most important answers relate to watching wildlife, taking short cuts, picking berries/mushrooms and playing with children. Fitness is also a reason for a small percentage of people, to push themselves running on soft ground (3 people gave this as an additional answer to Question 9).

7.7.9 In terms of the geographical spread of path use, the vast majority of respondents have noted that they use more than one path/area of the northern Woods and 30.2% of people said they used all the paths within the northern Woods (Question 11, Results). A map has been produced of the percentage of respondents who use each path (Figure 2). This indicates the overall use and the relative use of different tracks and paths within the northern Boat of Garten Woods. The use of all paths is at a significantly high level within the northern Woods, but the map also indicates that, relatively speaking and as would be expected, many of the paths and tracks closest to the village that connect different parts of the village are used slightly more. In addition, parts of the designated core paths show a high level of use. As would be expected, use generally decreases as one moves further from the village, but this does not occur on every path/track. There is less use of the paths to the immediate west of the village edge, although the path linking to the car park and the Speyside cycle track has a higher level of use, perhaps because it can be used as part of a clearer circular route. If the northern Boat of Garten Woods are split into four sectors using the north-south and east-west tracks, their relative use by people, according to the questionnaire return, can be approximately summarised as follows (see Figure 2):

- North-east Sector – Ranked 1 – Very high use
- South-east Sector – Ranked 2 – Moderate use
- South-west Sector – Ranked 3 – Moderate use.
- North-west Sector – Ranked 4 - Lowest use

7.7.10 This spread of use within the geographical area of the northern Boat of Garten Woods also adds to the other indications that the Wood is very well used by people and while there are localised differences in the level of path use overall, the vast majority of the paths appear to get a significant level of local use.

Disturbance to Wildlife

7.7.11 The level of use of the northern Boat Woods by people, both in terms of the geographical and temporal spread described above, in relation to overall, use does have a bearing on the likelihood of wildlife in the area being significantly disturbed. The questionnaire results suggest that the northern area has people present in it throughout the year, throughout the day and using all the paths to a varying degree, but at a relatively high level of use overall.

7.7.12 Question 10, asking respondents about free-ranging dogs (and other parts of questions which relate to dogs) was also designed to try to better understand the existing level of disturbance due to dogs, because these can be more disturbing to wildlife than people on their own. 25% of respondents said they never saw dogs ranging away from the paths/tracks, however 75% of people have seen dogs at least occasionally ranging away from the paths, with 24.1% of people saying that they saw free-ranging dogs in the wood on at least half of their visits. This is a significant set of answers and is also backed-up by the fact that 15.2% of respondents said in Question 4 that they walk dog(s) off lead and that the dogs roam off the path in the Woods.

7.7.13 Further to this, a subset of data in relation to dogs was analysed further and the key points of this are contained in Section 7.3. This data suggests that dogs roaming off paths may be greater than respondents have actually indicated. Some dog owners may have answered a question in relation to others, rather than their actions, but this would be surprising, because dogs tend to be attracted to each other, particularly when off lead.

7.7.14 The number of this whole dog walking subset that use all paths is 12, i.e. 36.4% of this subset, however, in addition 23, i.e. 69.7%, use over half of the marked paths within this area of woodland. Hence, off-lead dogs are present in a substantial part of the woodland. This subset is also interesting, because of the same people that filled in Question 5 (How often do you use the Wood?, 32 people), 29 out of 32 noted daily use, i.e. 90.6%. This is much higher that the overall 31.5% of all the woodland use response (see Section 7.2 above for the overall results) and indicates that disturbance from off-lead dogs is likely to be regular and at a high level. Furthermore, this subset also shows pretty even use throughout the day (Question 6), much more even use than the overall respondents rates which favour day and evening rather than early morning (see Section 7.2 above for overall rates). This time of day use is also indicated by 75% of all respondents, who note that they see dog(s) ranging away from the paths/tracks at least occasionally (Question 10).

7.8 Key Conclusions from the Questionnaire

7.8.1 The return rate for the questionnaire survey was high. This allows a reasonable confidence level that the results are representative of the local community's existing use of the northern Boat of Garten Woods. It is clear that the returns are dominated by local people who live in the village permanently, with a limited number of responses from people who are second/holiday home owners.

7.8.2 These results do not account for visitor/tourist use of the northern Boat of Garten Woods and, as several people in the questionnaire returns commented, tourism is very important in this area and is likely to result in use being higher than the already substantial use shown by the questionnaire survey results. The questionnaire survey

is also not likely to account for any relatively local people outside of the PH24 postcode using the woodlands. For example, people have stated that they use off-road routes to Aviemore and it is quite possible that people from Aviemore do the same to pass through Boat of Garten Woods.

7.8.3 It is clear, according to the questionnaire responses, that the existing level of human presence and use in the northern Boat of Garten Woods is high, higher than would have reasonably been expected before this survey was undertaken. A high percentage of the local people appear to use the northern Boat of Garten Woods.

7.8.4 There are a range of reasons for use and a range of activities undertaken by people within the Woods. A good number of people appear to view the edge of the Woods as almost part of the village and use it accordingly to link the village.

7.8.5 Local people use the Woods regularly, with almost a third using them daily and almost three quarters using them at least once a week, according to the questionnaire returns.

7.8.6 Local people use the Woods at all times of the day. There is a higher level of use in the afternoon and the least use in the early morning. However, the responses indicate that the northern Boat Woods has people in it pretty regularly from early morning to late evening.

7.8.7 The Woods are used all year round, indeed three quarters of the respondents use the Woods all year round and approximately equally between winter and summer.

7.8.8 As would be expected, a many people tend to stick to the paths and tracks. However, a surprisingly large percentage of users do go off path, at least occasionally (41.9%). The reasons for people going off the tracks and paths are varied, but the most important answers relate to watching wildlife and taking short cuts.

7.8.9 While there is variation in the use of particular paths, overall all paths within the northern Boat Woods have a relatively high baseline use by local people, according to the questionnaire returns. The vast majority of respondents have stated that they use more than one path/area of the northern Woods and almost a third of people said they used all the paths within this area. If the northern Boat of Garten Woods are split into four sectors, using the north-south and east-west tracks, their relative use by people can be summarised as follows (see Figure 2): the North-east sector closest to the village has the highest use, the North-west sector has the lowest use and the two sectors to the South have a moderate use level. It is important to state that the paths used the least, according to the questionnaire returns, are still well- and regularly used.

7.8.10 With this level of use by people within all sections of the Wood, MBEC believe that, inevitably, there is a significant level of disturbance to the more sensitive wildlife present. The questionnaire results indicate that such disturbance is spread throughout the day and the seasons, i.e. it is regular and uniform. Without wishing to single out dog owners, it is clear from the questionnaire returns that dogs are regularly off-lead and this adds significantly to wildlife disturbance.

7.8.11 It is fair to say that all these related results indicate that the northern Boat of Garten Woods are very well used by the local population throughout the day and the year,

indeed it could be said are heavily used and relied upon by the local population for a variety of reasons.

7.8.12 This analysis could be undertaken in more detail. However, it is recommended, with the timescales involved, that this is only undertaken by MBEC if it would be useful in relation to later specific mitigation measures recommended to safeguard capercaillie. It is considered that the current path mapping and results give the detail required to inform the proposed housing development and any related capercaillie mitigation.

7.9 Community Meeting on 29.6.11

7.9.1 MBEC presented the results of the questionnaire survey to the local community at an evening meeting. This was a very useful and interesting meeting and resulted in some very useful feedback, discussion and suggestions of what local people think will work in terms of possible mitigation. Given that there was another local meeting occurring at the same time, there was a good turnout of interested local people.

8. ANALYSIS OF THE CAMERA DATA

8.1 Introduction

8.1.1 Four cameras, along with signs were set out to cover a previously agreed set of tracks within the northern Boat Woods, at approximately midday on 22nd June 11. A week's worth of data was then collected off them at approximately midday on the 29th June 11. All this data was analysed and the cameras were left running for the following week. That second week's data was subsequently collected on the 6th July 11. Due to the amount of data recorded (1,000s of photographs) and the timescales for analysis, it was agreed with SNH and the CNPA to concentrate on analysing only the data for path sections 1 and 7 for a second week, to ensure the data for those paths was representative. This is still the case and no further data has been analysed due to the time/resources involved in this.

8.2 Results

8.2.1 Tables 8.1 and 8.2 give a summary of some key statistics for a week's-worth of monitoring of both people and dogs. This one week of data is analysed further and represented spatially in Figures 3 to 6.

8.2.2 Figure 3 indicates the total number of people recorded in one week for each point monitored. It is important to note that this total equates to a much greater number than the summary figures below, because Figure 3 indicates the numbers passing each point on the paths, whereas the total figure for number of people counts a person once. These results indicate that the numbers of people drop as distance from the village increases, as would be expected, however, the camera results indicated that substantial numbers of people are doing longer walks, including various circuits of the wider northern Boat Woods path network, and some beyond this. Path number 7 clearly has the least use by people, but this is not surprising, because it was the smallest and least signed path out of all those covered by a camera.

Table 8.1: People Data Summary from Cameras for One Week from 22.6.11 to 29.6.11

Percentage of total people walking	79.3
Percentage of total people running/power walking	4.0
Percentage of total people cycling	16.7
Total number of individual groups of people	312
Average number of people in each group	1.4

Table 8.2: Dog Data Summary from Cameras for One Week from 22.6.11 to 29.6.11

Total No. of dogs	318
Percentage of groups with no dog	26.9
Percentage of groups with at least one dog	73.1
Percentage of groups with more than one dog	26.0
Percentage of dogs on lead	17.3
Percentage of dogs off lead	82.7

8.2.3 The mode of travel (Figure 4) indicates that the vast majority of people are walking; however, there are a reasonable number of off-road cyclists also using the Wood. There did not appear to be any substantial differences between different paths/tracks, however, from observation, the relative proportion of cyclists increased away from the village. This is to be expected, because for most people it is easier and more time-efficient to cycle than it is to walk longer distances.

8.2.4 Figures 5 and 6 relate to people bringing dogs into the northern Boat Woods. It is clear that the number of dogs present is high, overall, and the number off-lead is very high.

8.2.5 Given that it is the north-west quadrant of the northern woods that appear to be slightly less used by people (see Figure 3), SNH were keen for MBEC to analyse a second week's data for paths 1 and 7. The results of this, along with the first week's data are included in Table 8.3 and 8.4, below.

Table 8.3: Data Summary from Cameras for Path 1 for two Weeks

Summary Statistics	Week 1	Week 2
Total number of people	123	342
Percentage of total people walking	76.4	71.3
Percentage of total people running/power walking	1.6	7.9
Percentage of total people cycling	22.0	20.8
Total No. of dogs	117	302
Percentage of dogs on lead	17.9	31.4
Percentage of dogs off lead	82.1	68.6

Table 8.4: Data Summary from Cameras for Path 7 for two Weeks

Summary Statistics	Week 1	Week 2
Total number of people	8	25
Percentage of total people walking	87.5	56.0
Percentage of total people running/power walking	0.0	16.0
Percentage of total people cycling	12.5	28.0
Total No. of dogs	7	21
Percentage of dogs on lead	0.0	0.0
Percentage of dogs off lead	100.0	100.0

8.2.6 Tables 8.3 and 8.4 indicate a substantial rise in the number of people present on Path 1 and 7 in the second week of data collection (i.e. 29.6.11 to 6.7.11). This would appear to indicate a rise in use of the wood and it would make sense that this is likely to be due to the influx of additional people to the area due to the main summer holiday period and, importantly, a period of better weather during this second weekend. This would equate to the second week of the majority of the school summer holiday periods in Scotland. This makes sense when one analyses the percentages of people cycling and power walking/running which have increased on both paths, with the exception of cycling on path 1, which has decreased slightly. There were local people cycling when taking their dog out on a regular basis the previous week and this could account for the difference, if their pattern of use also changed in the second week.

8.3 Discussion

8.3.1 This data set is large and could have been broken down further than the results analysed and presented here. However, in fairness to the developer, data analysis

was limited to that strictly necessary, due to the resources required to analyse the 1,000s of photographs produced.

8.3.2 The results clearly show a significant level of leisure use within the northern Boat of Garten Woods. This level of use can be described as at least high, if not very high and the data collected indicates regular and frequent daily use of the paths monitored.

8.3.3 Dog presence within the northern Boat of Garten Woods is very high and the number and percentage of dogs that are off the lead is extremely high. This is of even more relevance when one considers that this camera survey was conducted within the main brood rearing season for capercaillie.

8.4 Key Conclusions

8.4.1 The camera survey has clearly shown that the northern Boat of Garten Woods are used by large numbers of people and on a regular basis (daily), at least during the summer period, when the cameras were in place. The existing (baseline) level of human and dog presence within all areas of the northern Boat of Garten Woods is high, with local variation between paths. However, even the smaller paths and those further from the village indicate a high level of use by both people and dogs.

9. ADDITIONAL PROPOSED NEW HOUSING POPULATION

9.1 Introduction

9.1.1 The key concern that has been expressed repeatedly by CNPA Officers and SNH Officers relates to the potential for a significantly increased level of capercaillie disturbance, over the existing level, due to the increased numbers of people associated with any new housing. This has been regarded by CNPA/SNH as the key issue; it is not the actual area of plantation forestry loss that is their concern. MBEC agree that there is not likely to be any significant ecological impact from the loss of habitat *per se*. Therefore, it is important to estimate the potential number of additional residents the housing proposals would be likely to generate and their likely characteristics and this analysis is detailed below.

9.2 Calculations

9.2.1 The following figures relate to the proposed new house mix and a reasonable estimation of the likely numbers of people involved, trying to take into account relevant local factors:

AFFORDABLE HOUSES (extrapolated from expected figures)

BEDROOMS	NO OF PERSONS	NO OF UNITS	MIN	MAX
2	4	4	2	4
2	3	12	1	3

3	4	1	2	4
3	5	14	3	5
4	6	1	4	6
	TOTAL	**32**	**68**	**132**

AVERAGE NO OF PERSONS EXPECTED = **100 PERSONS**

HOUSING FOR SALE

2 BEDROOM HOUSES	7 No
3 BEDROOM HOUSES	20 No
4 BEDROOM HOUSES	13 No
SELF-BUILD PLOTS	5 No (assume avg. 3 Bedroom houses)
TOTAL	**45 DWELLINGS**

9.2.2 The figures above for people occupancy of affordable housing have been taken from relevant Housing Association figures and are thought to be a reasonable estimate (Allan Rennie, *Pers Com*, 2011).

9.2.3 The average per dwelling for the Boat of Garten village area (PH24 3) from the 2001 Census (280 households, 615 people) is. 2.196 people per dwelling. Therefore, using this average, the figure for the housing for sale would be expected to be around **99 people** in total. It is not possible to extrapolate the number of people per size of bedroomed house from the Census data, hence this average seems to be the most accurate available.

9.2.4 **This gives a total number of 199 additional people, if the proposed new housing was built as it is currently designed.** This does not account for the fact that the 2001 Census indicates that of the 280 dwellings in PH24 3, 109 are holiday homes/second residences. That is **38.9%** from the 2001 Census (i.e. 171 or 61.1% are permanent homes). This may have changed in the intervening period of 10 years, but any changes are unknown at present. It may be, following trends elsewhere in the Highlands that the number of second homes will have increased in this area?

9.2.5 Relating this to the existing PH24 3 Census data, and not factoring in holiday/second homes (i.e. they are within the calculation), it is a projected population increase of 32.4% in the local Boat of Garten area.

9.2.6 From the questionnaire results we can extrapolate the existing numbers of people originating from this postcode area and the number of additional people that may well use the northern Boat of Garten Woods for their leisure activities. The questionnaire returns indicated that 83% use the northern Boat of Garten Woods. Therefore, for local people it can be extrapolated that **511** of the existing population use the woods and that an additional **166** people may well use it if the proposed development was built. These figures take no account of occasional residence, holiday home use by other people or of further visitor increases to the area and on this basis it is reasonable to treat them as precautionary figures (i.e. likely overestimate for holiday homes, but underestimate including less regular additional visitor use).

9.2.7 We can break this down further to the percentage of these people that would be expected to use all the paths, i.e. 30.2% from the questionnaire results, which would result in **154** of the existing people and an additional **50** people from the proposed new housing. It is important to note that this existing figure of 154 people using **all the paths** is already a very high level of local use, but does not account at all for the frequency of use of each path.

9.3 Likely Characteristics of the New Residents

Age Range

9.3.1 It can be surmised that the new residents may have a different age profile to the existing residents and hence may use the northern Boat Woods differently and undertake different proportions of particular activities within the Woods (see Appendix 4, No. 1).

9.3.2 Twelve of the 32 proposed affordable homes are two-bedroom flats. It would seem sensible to assume that these residences are likely to have a lower number of children present than that expected in larger houses. One of the 32 units will have four bedrooms and the balance will have three bedrooms (see Table in Section 9.2). With the private houses for sale seven are two-bedroom, 20 are three-bedroom, 13 are four-bedroom and the self-build plots may well be a mix of bedroom numbers (see Table in Section 9.2). Given this mix of housing proposed and relative affordability, it does seem sensible to conclude that the average age of people in the new affordable housing will be younger than the average for the surrounding Boat of Garten area; indeed, this is an intention of the affordable housing proposed here. However, this may not be the case within the private housing for sale, given the economics of buying/mortgaging such a private house in the current and likely future market, where older people (and older parents of children) are clearly advantaged.

9.3.3 In summary, it is possible and indeed hoped, that the affordable housing will attract a younger age range, but the private housing is likely to attract a similar profile of people to that within the existing surrounding area. Therefore, the overall age profile of the people within the proposed new housing may be younger, with a decreased average age than the existing residents in the area, although it is not thought likely that the average will be substantially younger.

Dog Ownership

9.3.4 Taking such age ranges into account, it is relevant that dog ownership is highest among families between 35 and 64 years old and that there is a dog in 23% of Scottish households (TNS, 2010). It seems reasonable to calculate the number of additional dogs likely based on this average figure for Scottish households. For the

new development, this would equate to 23% of 77 dwellings, which would be an additional 18 dogs. Such calculations, however, cannot determine how many additional dogs are likely to be walked in the northern Boat Woods and the frequency of such walking.

Recreational Activities

9.3.5 Taking into account that the average age of the residents in the proposed new housing may be younger, with a possible increase in the number of families with children, compared to the existing Boat of Garten residents, it can be concluded that their recreational pursuits and frequency of use of the northern Boat Woods may be different to that of the existing residents. It is difficult and not robust to take such estimations too far, but it is possible that an increased number of younger people present could lead to a greater number of people wishing to partake in mountain biking, particularly the "trail-riding" form of the sport. It is also possible that the number of people wishing to walk fairly close to the village may increase, due to young families taking pushchairs and children on relatively short walks.

10. COMBINED DISCUSSION AND KEY CONCLUSIONS

10.1 Introduction

10.1.1 This section of text attempts to combine all the previous work undertaken into a meaningful set of conclusions that can help to inform what is required for the revised capercaillie mitigation. It is intended to be concise and as clear as possible, given the complexity of all the previous work undertaken. This combined discussion and conclusion can also be regarded as including a "potential impacts" discussion in relation to the new proposed development, since there is no consideration of any development mitigation here.

10.2 Existing Woodland Use by People

10.2.1 To understand what effects any increase in human population may have on the Boat of Garten Woods, it is first necessary to look at the existing situation (or baseline situation). It has become clear from the path survey, the questionnaire and the camera survey, that local people in the area use the Boat of Garten Woods regularly for leisure pursuits. Indeed, a high percentage of the local resident population have indicated that they use the Woods (83%). Further, the frequency of use is high, as suggested in the questionnaire and confirmed by the camera survey. There are people regularly passing along a track and path network, which covers much of the northern woodland. Many of these people have at least one dog and it is very likely to be off the lead (while it is recognised that some dogs stay on the paths, others do not and run well off them).

10.3 Capercaillie and Disturbance

10.3.1 Review of the existing capercaillie data clearly shows that capercaillie use the Boat of Garten Woods. The most northerly section of the wood is only rarely used by capercaillie and this includes the proposed housing development site and the immediately surrounding area. These areas are close to the existing village and road and are widely agreed to be too disturbed for regular capercaillie presence (e.g. various papers by Moss, both generally on capercaillie and specifically on the Boat

Woods). Areas further south and west within the northern Boat Woods have regular evidence of lekking and evidence of brood rearing in some years. From all the data available, what is more subjective, and therefore controversial, is how the evidence recorded actually relates to the estimates of population sizes and the frequency of use of the northern Boat Woods by capercaillie.

10.3.2 It is clear that the proposed housing development area and a surrounding buffer zone of *c.* 300m in the northern area of Boat Woods are not likely to be critical for the local capercaillie population; i.e. the loss of this small area of sub-optimal habitat, which is already within a disturbance zone, is not important. However, the maintenance of disturbance-free (or at least only occasionally disturbed) areas further south within Boat Woods, including the lek site and the much wider habitat area as a whole (including the surrounding SPAs and other suitable surrounding woodland areas), is critical.

10.3.3 The existing leisure use situation is that people in the area regularly use the Boat of Garten Woods for leisure pursuits. Further, the frequency of use is high. As noted above, in addition to this frequent and regular use pattern, many of these people have at least one dog - which is likely to be off the lead. For any wildlife present in the area, the level of human-generated disturbance in the northern Boat of Garten Woods is high, perhaps even very high. This means that wildlife, including any capercaillie that may be present, are likely to be regularly disturbed during daylight hours by people and dogs passing close to them or even harassing them when they are on the ground.

10.3.4 The questionnaire results indicated that local people generally used the Woods all year round, regularly and over most of the paths. The camera survey has indicated that use is high to very high in the summer, with a suggestion of an increase in visitor use in the first week in July. If accurate from assessment of two paths, this increase in visitor use of the woodland, as well as the high background local level, appears to swell the people presence in the Woods by approximately three times, as the school holiday tourist season occurs. It is not known how long this would continue for, but presumably well into August each year.

10.3.5 Overall, it is clear from all this work that the existing level of disturbance to capercaillie is high to very high within the northern Boat of Garten Woods.

10.3.6 The obvious follow-on questions would be: Is the existing level of disturbance to capercaillie too high, and if so, would any further increase actually have much of a negative effect if the existing level is already so high? It is clear from this work and from other work in Boat Woods (Moss) that the existing level of human-led disturbance in the northern Boat Woods is already having a deleterious effect on capercaillie, at the very least in relation to the total amount of habitat available to them; it may well be more severe than this and causing direct stress and breeding losses. The second question in relation to a threshold level and how great existing disturbance is in relation to any future increase, is more difficult to answer and is beyond the scope of this current work. However, this work aims to ensure that there is no overall increase in disturbance relative to habitat improvement and providing quieter areas for capercaillie, from those which exist at present.

10.3.7 Given the existing high level of disturbance to capercaillie, there is a wider issue which is outside of the remit of this work, or the housing developer involved in this site, and that is what can be done about it? It is clear that this is a much bigger issue

for the Cairngorms National Park area than just this local housing proposal in Boat Woods. Even within the northern Boat Woods this is a much bigger existing and current leisure use issue than any mitigation focused on preventing a further increase in overall disturbance can hope to achieve. As a wider recommendation, it is strongly suggested that both SNH and the CNPA need to look at this further on a wider capercaillie habitat basis, since disturbance is only likely to increase further within the Park as a whole, not decrease.

10.3.8 To summarise, this level of people use, along with the level of off-lead dog presence within the northern Boat Woods, is at a current disturbance level that in MBEC's view must be having a large and significant adverse effect on capercaillie. Such disturbance is likely to be affecting the number of capercaillie that currently use the Woods and likely to shorten the residence time of any bird that is within this area. It is likely that the frequency of disturbance will be greatest in mid-summer (i.e. the gaps between disturbance events will be the shortest) and will be least in mid-winter, however, this has not been specifically tested in the current study and so is not proven. This level of disturbance will adversely affect all capercaillie, at least in the summer period, however, it is likely to be even more critical for any brood rearing females present, since if they are forced to move away from the ground or even leave the Woods, then the chances of successful egg hatching and fledging will be severally reduced.

10.4 Proposed New Housing

Location of Proposed New Housing

10.4.1 The proposed new housing would be located to the immediate west of the existing community centre and existing housing. Without any mitigation, and using the existing village as a template, it is possible that the following could happen:

- A proliferation of small paths surrounding the new development and these linking into the existing surrounding paths and tracks. Some of these new paths may well originate from the end of new resident's back gardens; and

- An increase in the use of many paths within the northern Boat Woods, but particularly the paths closest to the new development, i.e. the Strathspey cycle track to the north, the two core paths to the west and east of the development (Paths 1 and 2) and the smaller surrounding paths, including paths 3, 7, 8 and 20. Path 19 would effectively disappear under the development, as would most of paths 20 and 21.

10.4.2 It seems likely that the existing core path running south east and south west (Path 1 then Path 2 and then Path 9) would be the paths which the majority of new residents would head towards, if they wished to go further south into the woodland. However, one cannot rule out Path 7 (and 8) becoming more popular for circular routes, given its location slightly further to the west. With the possible exception of Path 7 and Path 12 for circular routes, it seems unlikely that the paths further to the southeast (Paths 14 and 17) would see disproportionately more use, since given the location of the new development directly adjacent to the existing village, this still represents virtually the same, fairly long distance away from most people's homes.

10.4.3 It also seems likely that the existing residents would not significantly change their current use of the paths in relation to the building of the new housing, although, for

example, more people may find Path 7 and 8 attractive if it became a better trodden and wider path; its use could also increase to a greater extent, indirectly due to the new residents.

Increase in Residents

10.4.4 The additional and likely maximum number of people estimated to be using the woodland, as a result of the proposed housing being built would be 166 people (or an increase of 32.5% of the local population). This figure does not account for second/holiday homes in the houses for sale and is therefore likely to be an overestimate. It is very difficult to equate this to the existing woodland use and what would be likely to occur in practice, because people's choices are influenced by a range of considerations. This is also dependent on access being easy and possible to all the paths in the way it is at present. One can get a very approximate idea of the relevant importance of the increased numbers by comparing it to the percentage path use from the questionnaire. Unfortunately, we cannot accurately compare the actual current numbers counted on the two paths with the potential increase in use from the new housing numbers, because we cannot currently understand how actual use compares to numbers of additional people. We know from the questionnaire that 83% of people say they use the woodland, but we do not really understand how this equates to actual frequency of use and the actual camera results. All we can do is extrapolate an idea of additional use for these two paths and compare this carefully to the actual use recorded over the two weeks. Closest to where this additional housing would be built we have actual use figures for the two paths (path 1 and 7) and a comparison of these to the questionnaire results can be done via Table 10.1 below.

Table 10.1: Extrapolated Figures Compared to Measured People Use of Two Paths.

Explanation	Path 1	Path 7
Number of Questionnaire respondents using the paths and the percentage in brackets (no inclusion of frequency of use).	149 people (68.6%)	107 people (49.5%)
Extrapolated increase in people from proposed new housing (no inclusion of frequency of use).	166 additional people (i.e. 83% of total) x 68% = **112.9** additional people	166 additional people x 49% = **81.3** additional people
Extrapolated percentage increase from the existing number of people using these paths (no inclusion of frequency of use).	76%	75.8%

Explanation	Path 1	Path 7
Actual number of people measured using the paths. Week 1 and Week 2 and average in brackets. For comparison purposes, since the figures above give no indication of frequency of use.	123, 342 (232.5)	8, 25 (16.5)

10.4.5 It can probably be assumed that the dog use figures would follow similar percentages to that actually measured using the cameras, which was considerably greater for off-lead use that the questionnaire returns suggested.

10.4.6 It is also important to note that we know that people frequently turn around half way along tracks (seen in camera data for main tracks) and path 7 is a very small and winding path that was measured only at the far end and therefore the results may well be an underestimate of existing use for the end closest to the village and proposed development.

10.4.7 It is difficult to know precisely what any actual increase in use of paths would be with this data alone, although it gives us a better idea of existing use than we had before the camera survey. It is clear that existing use is very regular for Path 1 but that Path 7 is less used (at least at the southern end).

Potential Changes in Leisure Activities

10.4.8 In SNH's and the CNPA's comments, in relation to this draft report (Appendix 4, No. 1), it has been surmised that the new development may mean that new residents may disproportionately increase the activities they are more likely to engage in, due to a younger age profile and, further, that these may include such activities as "off-path mountain biking". While it is acknowledged that the average age of new residents may be less than that of the existing village (see Paragraph 9.3.5), it seems a step too far to suggest that they may be likely to undertake an activity for which there was no evidence in all the work done to date that it is occurring at all, at present, within the northern Boat Woods. The vast majority of mountain bikers would rather ride on "trails", as evidenced from the camera surveys and the questionnaire returns. MBEC, having staff with a lot of experience of mountain biking would suggest that off-trail cycling is not pleasant through the heather dominated habitats that exist in Boat Woods; it is a lot of effort and can very easily cause expensive damage to a bike's gearing. Therefore, this does not seem likely to be a significant issue with new residents. It is, however, possible that a younger average age in the new development could be linked to a slightly greater level of biking within the northern Woods on existing paths and tracks and this may be greater than merely a proportionate increase in the overall number of people using the woodland. However, this also has to be considered within the overall picture that mountain bike riding is one of the fastest growing sports in the UK. It is therefore likely that the residents already living within Boat of Garten, and any new residents, will be quite likely to own a mountain bike and use it. Therefore, it is accepted that there may be a disproportionate rise in trail biking but this is a current general trend and it is accepted that new residents may well participate in this sport.

11. CAPERCAILLIE MITIGATION PROPOSALS, SPECIFICALLY IN RELATION TO THE PROPOSED NEW DEVELOPMENT

11.1 Introduction

11.1.1 Mitigation measures to address the potential for increased disturbance to capercaillie from increased numbers of people using the northern Boat Woods, related specifically to the proposed new housing development, were first put forward to the CNPA Planning Committee in January 2011 (see Paragraph 1.1.1). However, this section of the report aims to use the data and information collected since then, and laid out earlier in this report, to indicate how the updated mitigation measures proposed are addressing potential issues and have taken account of this further detail.

11.1.2 It is clear that it is not the vegetation loss and the potentially associated direct habitat loss that is an issue for capercaillie use of the woodland; rather it is any increase in disturbance by people (and their activities) that is the key issue. The reason for this is that the proposed housing area is already within an existing disturbance zone for capercaillie (next to the road and the village), the habitat is sub-optimal at best and it is a very small proportion of the total habitat available within the Boat of Garten Woods.

11.2 Key Issues Accounted for in the Design of the Updated Mitigation Proposals

11.2.1 There are five key issues that a revised set of mitigation proposals should tackle directly, in relation to this proposed housing development and the potential for increased disturbance to capercaillie directly due to it, as follows:

I. The most important issue of all relates to new resident awareness of capercaillie and their sensitivities. This must be linked to why the development has been built the way it has and how they can play their part in the conservation of this species;

II. Direct access out of the proposed development into the northern Boat Woods, particularly access directly to the west and the south-west, should be prevented. These areas appear to offer capercaillie slightly less disturbed and better quality habitat at present, as evidenced from the work presented earlier in this report. Paths 7 and 8 are both small paths in a more sensitive area of capercaillie habitat and are relatively less used by people, at present, and this level of use should not be increased by the new development or new desire lines created in this area;

III. Direct access into the northern Boat Woods out of gardens should be prevented in the proposed development. Existing evidence from the village indicates that this would be likely to cause a proliferation of smaller paths into the woodland. Such an increase in paths would encourage disturbance further south and south-west into the woodland, leading to a likely increased disturbance zone for capercaillie;

IV. Direct access to the village and into the northern Boat Woods to the east of the proposed development should be encouraged. This is seen as a positive measure, because this is where there are the highest existing levels of access into the woodland to the south and west from the village. Such access can link to the existing CNPA Core Paths, which have been designated with the CNPA's

knowledge that they are not causing disturbance to capercaillie. In addition, these core paths also have a very high level of existing use near the proposed development and lead path users onto other core paths and main paths with a relatively high level of existing use. Directing new users to the east would also help to discourage access west and south west, by providing a viable alternative; and

V. Limit all additional visual and noise disturbance into the woodland to the south particularly, but also the west, from the proposed development, to prevent any increase in the existing capercaillie avoidance zone.

11.3 How the Design of the Updated Mitigation Proposals has Accounted for the Key Issues

11.3.1 The five key issues listed above have been directly addressed by the updated mitigation measures proposed for the new development. The mechanism and practical implementation of this is explained further below, in the same numerical order. The developer wishes to emphasise that detailed design finalities can easily be accommodated with discussion prior to construction and these measures can all be secured via planning consent conditions, should the CNPA planning committee feel that is appropriate.

I. New resident awareness of capercaillie and their sensitivities will be practically addressed in several ways. The first of these relates to a welcome pack for all new residents. This welcome pack will be provided by the developer and its delivery ensured either directly for the houses for sale or indirectly via the housing vehicle used for the affordable homes. It will include brief explanations of why the development has been designed in the way it has, particularly with reference to entry to the woods; the sensitivities of capercaillie, particularly in relation to disturbance; and pointers for how every householder can constructively help to minimise their disturbance in the wood, with particular emphasis on dog control. The key thing for this aspect of the welcome pack will be to emphasise how they can play their part in the conservation of this species in a positive way. New residents will also be party to information emanating from the Community Council, who have already expressed a wish to be able to pass information on to residents via the BoG Standard Newsletter, local meetings and similar vehicles for the transfer of information. It is intended that by giving local people knowledge of the issue and what they can do, they will help to spread information wider and act to locally ensure there is no overall increase in disturbance from that at present. More specifically, discouraging off-lead dog walking by the new residents will be by a process of positive information exchange, through specific development of "introductory information packs" and through the Community Council and Newsletter articles. Since this will also be encouraged with the existing village residents via the Community Council and via the dog off-lead play area, it is hoped that it will become accepted that within the woodland dogs should be on-lead, or at least at heel, and that peer pressure will also have an influence on this behaviour.

II. The development has been designed so that no access into the wood will be provided directly to the south and south-west from the new development (see Figure 7). There will be no direct access onto Path 1, to prevent access to the west and south-west (see Figure 2 for path number locations). Rather, people will be actively encouraged to walk to the east by providing an easy link

pleasant footpath onto Path 2 to the south-east (see Figure 7) and a link to the east of the development via road pathways. Path 2 is an existing core path that is heavily used by the existing village residents. Due to the need for vehicular access from Deshar Road, it will still be possible for people to walk west along the main road, but to do this they will need to exit the development by the road and while this cannot be prevented, the internal development footpath to the south and south-east will be designed to ensure it is a pleasant and preferred non-road route rather than walkers, cyclists, etc., being encouraged to go to Deshar Road. By this design, paths 1, 7 and 8 are made as difficult as possible for people to easily access, with the clear option being to go south-east to link easily into Path 2 for those people who wish to go south into the wood. The internal path to the south, and linking into Path 2, intentionally contains open space incorporating a play area and is close to the tree edge; this has been designed to encourage some people to think that this area is adequate for their needs without going into the wood. This may well be the case for parents with young children and people with small or older dogs and who only require a shorter off-road walk. Additional attractions in this area can include dog bins and several benches, preferably in locations overlooked by houses.

III. Access directly out of the development to the south and west will be totally prevented using a double fence. It is MBEC's past experience that single fences around housing developments lead to gates being built from back gardens for direct access - this can be seen from the houses which have been built on Kinchurdy Road and Craigie Avenue into the northern Boat Wood. Using a double fence (see Figure 7 – inner is marked as 1800mm Vertical screen fence and the outer is marked as tree protection plan and line of fence denoting construction exclusion zone, which will also become a permanent outer fence) will mean that the residents landholding ends at their back fence and that they will have no right to connect the strip of land between the two fences or indeed to breach the second fence, which will not be within their landholding. Except in several narrow areas (minimum of 5m between the fences at their narrowest point), there will be a substantial space between the two fences and to the south this will be used space to encourage people to look after it. The monitoring and maintenance of these fences will be provided by the developer via a factoring arrangement in perpetuity and the situation with the fences will be explained within the welcome pack for each resident. Planting of shrubs including juniper and encouragement of Scots pine scrub (using scarification and planting if necessary) immediately on the wood side of the outer fence will also be implemented before development occupation, but will take time to establish; in the medium to longer-term this will also discourage access directly into the wood.

IV. See note under II.; the design of the development has encouraged direct access to the village and into the northern Boat Woods to the east of the development using the core path noted as Path 2 on Figure 2 (see Figure 7 for details of this link). However, no direct access to paths 1, 7 or 8 is provided (see Figure 2 for its location), because this may encourage use of the woodland further to the west.

V. The double fencing will be used to ensure that visual and noise disturbance into the woodland is fully mitigated. The inner and outer fence will be of solid wooden construction to ensure no movement is visible and that full noise attenuation occurs. Tall, solid wooden fencing is a proven technique as noise

and visual mitigation and would work immediately from it being built. Figure 7 does not specify the height of the outer fence; however, it will be at least 2m tall of a solid wooden construction and light coloured (the colour must make it obvious to ensure no bird collision risk). The outer fence will be constructed before any house construction commences and will be maintained throughout the development lifetime (tenant yearly fees will be required to cover this in the longer-term and this will be built into a maintenance contract – this is a common way to ensure communal landscaping, etc., is maintained in the medium to longer-term). This visual and noise mitigation will prevent an increase in the current northern disturbance zone for capercaillie due to the current village, core paths and the main road, since the land to the west will be fully mitigated in this regard. An additional point of note is that this fencing may assist in slightly decreasing the existing road noise which moves south into the woodland and may also have a minor benefit in this regard. In the medium to longer-term, the use of planted juniper, along with the retained trees and additional Scots pine scrub to be encouraged around the periphery of the development, will also assist to visually mask it and, while not actually providing any additional noise attenuation, it will give the perception of doing so to wildlife.

11.4 How the Updated Mitigation Proposals Relate to Theory and Practice Elsewhere

11.4.1 There are many places around Britain that have implemented similar mitigation in relation to people's use of the countryside; while not in relation to capercaillie this has been using similar principles. However, there is not much written and/or published detail of this, particularly information which would be directly relevant to the Cairngorms National Park. It is partly for this reason that the CNPA and Forestry Commission Scotland recently commissioned a review by Stephen Jenkinson, titled "People and Dogs in the Outdoors" (CNPA, 2011). Each of the above five key issues is taken in turn below and where evidence/best practice related to these has been found to be documented, it is discussed below.

I. There is evidence to indicate that people have to be approached and given alternatives in a positive way, if their behaviour in relation to their leisure activities is to be successfully influenced. From speaking to the village residents at a recent presentation on the results of the questionnaire survey, it was obvious from them that they need to understand why changes are being proposed and these need to be explained clearly rather than just implemented. The advantage the capercaillie mitigation has in this circumstance is that due to the recent community liaison undertaken with Boat of Garten residents, the existing residents are largely aware of it and the reasons for it. However, this must be continued and fully communicated to the proposed new residents. Specifically in relation to dog owners, Stephen Jenkinson raised a number of relevant points, including that management initiatives must be at a local level, dialogue with dog owners needs to be positive and engaging and that peer pressure can promote positive messages to be locally reinforced (CNPA, 2011). He also gives examples of pre-visit information being successful in influencing behaviour and this already exists for Boat of Garten through the trails leaflet which mainly encourages the use of the core paths towards the northern end of the Wood. This approach will be positively strengthened in Boat of Garten through the feeding of information through the local newsletter. This approach will also be used to make people aware of the most sensitive times of year for capercaillie, in relation to leisure activities within the northern Woods. While dog ownership and dog walking in the northern Boat Woods is an important part of

this mitigation, these principles also apply to all leisure activities undertaken within the Woods. Jenkinson also makes it clear that the key to people respecting advice/restrictions is to give them alternatives; in this case, encouraging people to stay on the core paths, since these have been designated for this purpose and for those with dogs, providing an off-lead area close to the village and asking for dogs to be on-lead, or at least at heel further south into the woodland. All this information can be provided via the mechanisms detailed above and, particularly in terms of the dog owners, from the evidence available this would appear to be the best approach to take.

II. MBEC's previous experience of housing scheme design (extensive experience of mainly sub-urban, small to large-scale developments in Scotland), has given us a good knowledge of people's behaviour in relation to their surrounding countryside. It has taught us, as ecologists that housing scheme design should be robust in relation to influencing people's behaviour and this robustness can be directly via designed restrictions, where necessary and appropriate. Specifically in relation to path networks, experience has shown that people will follow paths which easily get them to where they wish to go; in this case exiting the development to the east will get them straight into the woodland and allow them easy access, which should ensure it is both acceptable and successful. In terms of positive incentives to follow the design, new residents are given easy access straight into the woodland for leisure activities by a recognised route via Path 2, which is already highly used by existing villagers. Specifically in relation to dog walking and exercise, the proposed provision of associated services is a positive incentive with "dog friendly facilities" being shown to be successful (CNPA, 2011). The off-lead dog play area, while not proposed to be fenced (due to the thinking that the woodlands are for everyone and should not favour one set of people too much) can be used as a focal point for dog owners and incorporate a notice board to put up relevant information and temporary signage in relation to capercaillie sensitive times of year, specifically for dog owners (CNPA, 2011).

III. As noted in the paragraph above, MBEC have direct experience of housing design in relation to what actually happens after occupation. It is from practical experience in central Scotland and evidence directly from Boat of Garten that a double separated fence has been specified, in relation to this development, to prevent direct access into the woodland from the proposed new housing. Single fences can be breached when they back directly onto gardens, whereas a double fence, one of which is outwith the garden boundary, can be enforced, since the householder does not own both fences. Similarly, solid wooden fencing is specified because in our experience it works as a noise and visual barrier into woodland; it is robust and works instantly; and woodland grouse are not likely to fly into it. For the longer-term, the encouragement/planting of juniper and Scots pine is seen as an additional enhancement, but will only be effective once it grows to a reasonable size in the medium to longer-term; it will probably grow fairly slowly, because it will be within the woodland shade and should therefore be kept dense to function as a screen.

IV. The direct connection to the east of the development onto Path 2 (see Figure 7 for details of this link) provides an easy and obvious link into the woodland, but on an existing core path which has a high to very high level of existing use. This direct connection is likely to be used by the proposed new residents simply because it is an "off-road" choice, which will be designed as a pleasant path

linking directly into the woodland (and to the proposed "dog off-lead play area"). New residents from closer to Deshar Road will also be passively encouraged to use it, simply because it is towards the woodland and direct access onto Deshar Road is initially away from the wood. This is less formal than the zoning approach which has been used elsewhere, but with the trails leaflet and making it "easy for them to do the right thing instead", this approach corresponds to that recommended in CNPA, 2011. This also accords with Stephen Jenkinson's (CNPA, 2011) success factors from examples in England, including signage of the off-lead dog play area clearly marking the boundaries and the use of additional seasonal signage which varies to reflect the seasonal activities of capercaillie.

V. As noted above, the fencing recommended has been on the basis of practical experience MBEC have of such fencing being effective. For example, MBEC have recently used such wooden fencing to prevent construction staff, noise and visual disturbance to a close-by badger sett and otter holt and it has been proven to be very effective (under SNH licensed mitigation).

11.5 How these Mitigation Measures will be Practically Managed and Implemented for New Residents

11.5.1 There is additional advice from reviews elsewhere in Britain within the Jenkins report (CNPA, 2011) and it is proposed to develop this outline mitigation further, should planning permission be granted for the proposed development. The following paragraphs explain how this will be completed, although it is clearly recognised that further development and agreement with the Community Council, CNPA Officers and SNH Officers will be crucial to its finalisation and implementation.

11.5.2 Firstly, it is proposed to set up a steering committee, made up as follows: a Boat of Garten and Vicinity Community Council representative, a CNPA access officer, an SNH local area officer and a maximum of two representatives of the developer, most likely their ecologist and architect. It is envisaged that they will meet as necessary, but not more regularly than approximately once every couple of months, depending on the stage of implementation and the input necessary. In addition to this group, relevant advice will also be sought from others, such as the capercaillie project officer and local land managers, principally from Seafield & Strathspey Estate. These and possibly other additional representatives will also be approached to join meetings, as necessary. This steering committee's overall aim will be to provide knowledge and experience to allow the successful implementation of all the proposals. In more detail, they will agree final design inputs, wording of information and steer the implementation of the works directly through the architect and ecologist. This committee will exist for as long as necessary during the implementation phase and monitoring period of up to 10 years.

11.5.3 All the works will require a clear budgeting strategy, which will be led by the developer. The developer is happy to discuss and agree this further, should planning permission be granted, but the following gives a suggested way for the developer to commit to this:

- The elements of the mitigation that are directly related to construction of the houses, such as pre-construction ecological surveying and construction supervision, when necessary (i.e. Ecological Clerk of Works role), the fences

and the walkway provision to the east, will be undertaken directly by the developer and their contractors and be paid for directly by them.

- There will be a known amount of money provisioned for the additional elements such as signage, dog off-lead play area and materials/personnel for additional landscaping. This will be fully provided by the developer and, should planning permission be granted, will be agreed with CNPA, as the planning authority, subsequent to this. This will all be completed prior to the first new residents moving in, i.e. all mitigation proposed and agreed will be fully completed before any houses are occupied.

- There will be a known amount of money provisioned for all the inputs of an ecologist. This will include for such things as day-to-day management and all supervision and monitoring works. It is envisaged that this sum will include for monitoring up to 10 years after the proposed development is completed, i.e. is "operational". This sum has been initially estimated at up to £40,000.00, but this can be finally agreed with the CNPA, should planning permission be granted. It is expected that most ecological inputs will be fairly early-on, in terms of implementation, but provision for relevant longer-term monitoring and related powers to change elements and "tweak" them will also be necessary and included for. One of the first things required of the ecologist, in collaboration with the architect, will be to provide an outline of the proposed welcome pack for new residents to be circulated to all relevant local organisations shortly after planning permission is granted (should this occur) and contributions/agreement sought in relation to its final form and wording/layout. Precise longer-term monitoring will be agreed with the Steering Committee, however, given that there is a baseline in place, the use of camera monitoring once the new development has residents living in it, would provide a comparison with, for example, the current levels of use of Path 1 and 2. It may be decided by the Committee, should planning permission be granted, that further baseline monitoring of the existing situation should be undertaken prior to the development being undertaken, to provide a more complete baseline of people's current levels of activity, indeed further analysis of the existing data may provide this level of detail.

- A monetary provision will be included for all longer-term maintenance necessary, with clear guidelines as to the range of maintenance this must cover. For example, it will be necessary to check and repair the outer fence to ensure its integrity, as and when necessary (the inner fence is likely to be mainly householder's direct responsibility). This is also likely to include such things as the management of trees and landscaping within the proposed development boundaries and on the outer edge of it. This will be covered in perpetuity by a standard factoring arrangement. This is normal procedure, common to most developments and the factor will be appointed by the developer. This factoring arrangement will also cover off-site maintenance, such as that associated with areas of common space, remote play areas, maintenance of the dog off-lead play area and signage maintenance.

- This budget will also include for any need to practically alter mitigation and management, should it be found in need of improvement in the light of experience with the development in operation; this is provided for a 10-year period from the date of operation of the development.

11.5.4 While the above section on implementation is directed specifically at the new housing/residents, as this is what was required by the SNH/CNPA and the criteria they drew up (Appendix 4), it is also fully applicable to the additional capercaillie mitigation proposals in the following section, as well. This would all be fully tied-up and funded with the previous section in practice, when it comes to implementing and monitoring all these proposed works.

12. ADDITIONAL CAPERCAILLIE MITIGATION PROPOSALS, PRIMARILY IN RELATION TO EXISTING LEVELS OF DISTURBANCE

12.1 Introduction

12.1.1 Mitigation measures to address the potential for increased disturbance to capercaillie from increased numbers of people using the northern Boat Woods, related specifically to the proposed new housing development, were first put forward to the CNPA Planning Committee in January 2011 (see Paragraph 1.1.1). However, this section of the report aims to use the data and information collected since then, and laid out earlier in this report, to indicate how the updated mitigation measures proposed are addressing potential issues in relation to existing levels of disturbance.

12.1.2 It is clear that there is a high to very high existing level of disturbance to capercaillie (and other wildlife) within the northern Boat of Garten Woods, due to the current level of human use of the area. This is evidenced by the work presented here, as well as work completed directly on capercaillie by others within the northern Boat Woods, chiefly Moss (e.g. Moss, 2010).

12.1.3 The landowner, through the developer, has put forward additional "enhancement measures" to mitigate the wider local northern Boat Woods existing issues, in relation to capercaillie, and this revised set of mitigation proposals aims to partly tackle the wider issues this work has highlighted, although this is outwith the developers remit *per se*, including:

- Positive, limited and targeted signage related to ground nesting birds, along with positive education measures, including local community involvement. This could be a mix of permanent and temporary signage, as appropriate and agreed;
- Remove paths 7 and 8, using semi-permanent signs to be removed when the line of the old path is no longer evident, perhaps after 2 years;
- Targeted woodland management to improve capercaillie habitat ground flora and to thicken up path edges to help discourage off-path use;
- Formal, signed but not fenced, off-lead dog play area with signage marking its boundary and encouragement through positive local education; and
- Selective thinning to encourage better quality capercaillie habitat.

12.1.4 As noted previously, paths 7 and 8 are less used than the other paths in this area. There is, therefore, an opportunity to decrease use/disturbance in this area by removal. However, with the existing levels of use on Path 1, a core path, it would make sense to keep this as is, but not encourage any additional use from within the

proposed development. Path 7 is also accessed from the south end and it was apparent that people were using it as part of a wider circuit route. Therefore access would have to be discouraged at both ends for this strategy to work. This would provide capercaillie with a much larger, less disturbed area than at present and hence enhance capercaillie habitat use in this area.

12.1.5 The site plan is included as Figure 7 and indicates the fencing, woodland standoff distances and lack of connections to the surrounding woodland to the west and south. The location of the wider proposed measures can be seen in Figure 8 and includes more detailed notes on the additional measures proposed. The measures listed above have addressed the key issues in relation to limiting new residents' use of the relatively quiet path 7 and directing them east into the woodland (rather than west and south). The main track south from here into the woodland (Path 2) was found to be extremely well used at present and it is not thought that the additional residents' impact would be noticeable or have any additional impact on capercaillie above that already occurring. Addressing the edge of the development in terms of limiting visual and noise disturbance through fencing and additional tree and scrub cover in the medium to longer-term and positive education of the new residents, all contribute to limiting any additional disturbance above the existing high levels. In addition, the developer and the landowner have put forward "wider" mitigation measures which will at least work towards the wider key issue of the existing high to very high levels of capercaillie disturbance within the northern woodland area. These are not directly related to the proposed new development, but are put forward as enhancement measures to assist in tackling the existing significant issue in respect of capercaillie disturbance.

12.1.6 These measures are all practical and can be implemented easily and, therefore, with adequate supervision, monitoring and education, there is no reason why they should not be successful in limiting access to the more sensitive areas by new residents and hence limit any additional disturbance to capercaillie from these additional people. The enhancement measures for the wider woodland are more difficult to ensure their success, as they rely on all parties working closely together with the same combined aim of making a real difference to existing levels of capercaillie disturbance; it is acknowledged that this not an easy subject to address, given what the surveys have revealed. All monitoring and coordination will require a concerted effort to ensure full implementation. This is straightforward for the development-specific measures because they are already fully agreed and on the site plan documents, i.e. the mitigation specifically designed to address the increased presence of people due to the proposed development. All these mitigation measures will be fully implemented before any occupation of the new development occurs. The wider woodland measures shown on Figure 8 will require ecological supervision and liaison and it is recommended that an ECoW is employed by the developer to ensure that all measures can be implemented properly and to assist with necessary advice before and during construction and then subsequently during monitoring (for up to 10 years after the first resident has entered the properties). Educational measures will need to be repeated regularly and actual implementation checked on the ground using the established baseline figures (and further data if agreed by the steering committee). Habitat enhancement measures will need hands-on effort to ensure they work to their maximum potential. It is envisaged that ground flora enhancement may well require repeated seeding/planting with local provenance bilberry (blaeberry) plants, etc.

12.1.7 The developer has made it very clear that he is willing to commit to the safeguarding of capercaillie in relation to this development. Similarly, the landowner has also made

it clear that they are willing to be flexible and assist with to capercaillie mitigation in relation to this planning application. The wider success of reducing existing disturbance to capercaillie requires a much wider effort than just that proposed for this development; however, while some positive enhancement can be undertaken in relation specifically to this development, it will also require Steering Committee support from SNH and CNPA.

13. SUMMARY OF LIKELY RECREATIONAL USE/CAPERCAILLIE DISTURBANCE, INCORPORATING ALL PROPOSED MITIGATION PRINCIPLES

13.1.1 It is important to understand that the combination of all these proposals is not likely to significantly lower the overall current level of recreational use in the northern Boat of Garten Woods and that this is not their intended purpose. However, these targeted measures can manage leisure use more effectively and create an increase in less disturbed capercaillie habitat and improve it within part of the northern woodland, while maintaining facilities for people. This work aims to have no increase in the overall level of disturbance to capercaillie and hopefully a slight decrease. MBEC believe that the mitigation proposed has a real potential to achieve this, due to the following:

- A clear commitment to the mitigation by the developer and the landholding Estate, with monies put aside specifically for its implementation and monitoring for 10 years post operation;

- Intervention designed to totally prevent access directly to the south and south-west of the proposed new development. This, combined with the removal of the existing path 7 and 8 will not just prevent any increase in recreational use in the west and south-west of the northern woodland, but also has the potential to locally decrease current use of this area by mountain bikes, dog walkers and other recreational users, thereby providing an increased quiet area for capercaillie in what is currently a more important part of the woodland area for them;

- Directing recreational users, from the new development, east into the woodland will result in an increased recreational use of paths 2 and 9 and possibly the other advertised walks linked to these core paths (Path Leaflet, 2010). Being core paths, it is already accepted that they are well-used and this was fully assessed during their designation by the CNPA and not thought detrimental to capercaillie (N.B. the Habitat Directive would have prevented their designation as core paths should they have been determined to be detrimental to capercaillie). Therefore, while their levels of recreational use are likely to increase due to the new development and users are being directed towards them, this is thought to be less damaging overall to capercaillie habitat, in terms of disturbance, since these paths are currently within recognised and accepted disturbance zones for capercaillie;

- The additional mitigation measures proposed by the developer and the Estate, including woodland management and thickening of the path edges, along with capercaillie habitat enhancement, are considered to provide a capercaillie habitat benefit in the wider northern Boat of Garten Woods; and

- One of the main issues this work has highlighted is the high proportion of off-lead dog walking within the northern Boat Woods and the likely link between this and disturbance to capercaillie. As well as addressing this positively with new residents, in terms of a residential entrance pack, it is intended to benefit all users (existing and new) by the provision of an obvious, signed and encouraged off-lead dog play area close to the village (where there is very unlikely to be any disturbance to capercaillie) and the new proposed development. This, along with signage (temporary and permanent) and education/advertising through local outlets, is likely to create a larger positive outcome for capercaillie disturbance in the rest of the woods than any overall increase in dog walking and dog disturbance due to the new development and associated leisure use on the existing core paths.

13.1.2 The listing above illustrates that there are positives and negatives, but the key outcome of all the mitigation taken together is that there is an overall positive in terms of capercaillie disturbance. In other words, the balance of the increased recreational users versus the mitigation proposed indicates an overall positive outcome for capercaillie.

13.1.3 In terms of the surrounding SPAs for capercaillie, the commitment to this mitigation and its full implementation will allow any necessary appropriate assessment by the CNPA to conclude no adverse effect on integrity for the surrounding SPAs. This mitigation is given a high rate of likely success, due to the committed developer and landowner, and the 10-year period for funding, monitoring and any necessary amendment. Such likelihood of mitigation success is an important consideration in relation to the surrounding designated capercaillie sites.

14. MONITORING, REVIEW AND ADAPTIVE MANAGEMENT

Introduction

14.1.1 Mitigation monitoring, leisure use monitoring and timescales are detailed in the previous sections, however, to ensure clarity, this has been summarised in the following section. It is important to note that the precise details of this will be discussed and agreed through the proposed management forum of a steering committee (see Section 11). Given the need to be flexible in this approach, the key thing at present is that the developer and the Estate are committed to this approach and the developer has committed financially to this both directly and through a factoring arrangement (see Section 11). It is considered to be critical that the local community continue to be involved and they are also included under this steering committee, as well as SNH and CNPA (see Section 11). All mitigation will be implemented before the first house is occupied.

Monitoring

14.1.2 As noted above, monitoring of all mitigation measures will be undertaken to ensure they have been implemented properly and are being successful. This is budgeted for and will be undertaken by the ecologist reporting back to the steering committee (see Section 11). Monitoring is provided for, from pre-construction right through to 10 years after the first house is occupied (see Section 11). This is considered to be a long enough period to ensure the mitigation measures are successful.

Review

14.1.3 There is provision for review of the mitigation measures through the steering committee avenue. Regular monitoring by the ecologist and the developer's wider team will ensure that any issues or needs are identified quickly (see Section 11).

Adaptive Management

14.1.4 The monitoring and review processes will ensure that mitigation can be adapted, if necessary, to ensure success. This has been committed to by the developer and funding either directly or through the maintenance factoring arrangement will ensure that such adaptation can be implemented for a period of up to 10 years, once the first house is occupied (see Section 11).

16. END NOTE – RED SQUIRREL LICENSING

15.1.1 The CNPA Planning Committee specifically deferred this housing application to allow the developer to do additional work on capercaillie. Red squirrels, which are likely to still be present within the site boundary have previously been accounted for during successive housing layouts (see Figure 7). Red squirrels can now be licensed in relation to development work and the potential for disturbance (Wildlife and Natural Environment (Scotland) Act, 2011) provided they pass the two relevant tests. At our last meeting, SNH and CNPA mentioned that we should apply for a red squirrel license now. Having discussed this directly with SNH Licensing, it is clear that we cannot apply for such a licence until the planning permission for this proposed development has been granted. We have therefore not taken this any further at present. SNH Licensing suggested that any licensing requirement necessary can be conditioned on the planning consent for WANE Act species. The developer is confident that if any red squirrel dreys are within 30m of the proposed development, sufficient mitigation can be provided and both licensing tests can be satisfied, if necessary. MBEC have had experience of the new licensing regime through another project and are likely to be implementing the first licence granted under this Act, shortly.

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