

AGENDA ITEM 5

APPENDIX 2

2022/0046/DET

HABITATS REGULATIONS APPRAISAL

HABITATS REGULATIONS APPRAISAL

Planning reference and proposal information	2022/0046/DET, Formation of mountain bike track and related infrastructure, Cairngorm Mountain. Crossing and next to the Allt a choire chais, which flows into the River Spey SAC approximately 1km downstream, and within approximately 400m (at the closest point) of the Cairngorms SAC and SPA.
Appraised by	Nina Caudrey, Planning Officer (Development Planning and Environmental Advice)
Date	11 March 2022, updated 5 May 2022 following submission of monitoring strategy document by CMSL
Checked by	Debbie Greene and Kirsty North, NatureScot
Date	11 March 2022

INFORMATION
European site details
Name of European site(s) potentially affected
<p>1. River Spey SAC</p> <p>2. Cairngorms SAC</p> <p>3. Cairngorms SPA¹</p>
Qualifying interest(s)
<p>1. River Spey SAC</p> <p>otter</p> <p>freshwater pearl mussel</p> <p>sea lamprey</p> <p>Atlantic salmon</p> <p>2. Cairngorms SAC</p> <p>Habitats:</p> <p>acid peat stained lakes and ponds</p> <p>acidic scree</p> <p>alpine and subalpine heaths</p> <p>blanket bog</p> <p>bog woodland</p> <p>Caledonian forest</p> <p>clear water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels</p> <p>dry grassland and scrublands on chalk or limestone</p> <p>dry heaths</p> <p>hard water springs depositing lime</p> <p>high altitude plant communities associated with areas of water seepage</p> <p>juniper on heaths or calcareous grasslands</p> <p>montane acid grasslands</p> <p>montane willow scrub</p>

¹ The potential for connectivity with / indirect metapopulation effects on other capercaillie SPAs in Badenoch and Strathspey was considered but scoped out due to the location, type and scale of the proposed development. If the HRA for the Cairngorms SPA had however concluded an adverse effect on site integrity, or required mitigation, then all of the capercaillie SPAs in Badenoch and Strathspey would have been reassessed in relation to potential effects on the metapopulation.

plants in crevices on acid rocks

plants in crevices on base rocks

species rich grassland with mat grass in upland areas

tall herb communities

very wet mires often identified by an unstable quaking surface

wet heathland with cross leaved heath

Species:

green shield moss (*Buxbaumia viridis*)

otter

3. Cairngorms SPA

Breeding: capercaillie

dotterel

golden eagle

merlin

osprey

peregrine

Scottish crossbill

Conservation objectives for qualifying interests

I. River Spey SAC

Conservation Objective 2. To ensure that the integrity of the River Spey SAC is restored by meeting objectives 2a, 2b, 2c for each qualifying feature (and 2d for freshwater pearl mussel):

2b. Restore the distribution of **freshwater pearl mussel** throughout the site

2c. Restore the habitats supporting freshwater pearl mussel within the site and availability of food

2d. Restore the distribution and viability of freshwater pearl mussel host species and their supporting habitats

2a. Restore the population of freshwater pearl mussel as a viable component of the site

2b. Maintain the distribution of **sea lamprey** throughout the site

2c. Maintain the habitats supporting sea lamprey within the site and availability of food

2a. Maintain the population of sea lamprey as a viable component of the site

2b. Restore the distribution of **Atlantic salmon** throughout the site

2c. Restore the habitats supporting Atlantic salmon within the site and availability of food

2a. Restore the population of Atlantic salmon, including range of genetic types, as a viable

component of the site

2b. Maintain the distribution of **otter** throughout the site

2c. Maintain the habitats supporting otter within the site and availability of food

2a. Maintain the population of otter as a viable component of the site

Conservation Objective 1. To ensure that the qualifying features of the River Spey SAC are in favourable condition and make an appropriate contribution to achieving favourable conservation status.

2. Cairngorms SAC

To avoid deterioration of the qualifying **habitats** thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

To ensure for the qualifying habitats that the following are maintained in the long term:

- Extent of the habitat on site
- Distribution of the habitat within site
- Structure and function of the habitat
- Processes supporting the habitat
- Distribution of typical species of the habitat
- Viability of typical species as components of the habitat
- No significant disturbance of typical species of the habitat

To avoid deterioration of the habitats of the **qualifying species (otter, green shield moss)** or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and

To ensure for the qualifying species that the following are maintained in the long term:

- Distribution of the species within site
- Distribution and extent of habitats supporting the species
- Structure, function and supporting processes of habitats supporting the species
- No significant disturbance of the species
- Population of the species as a viable component of the site

3. Cairngorms SPA

To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and

To ensure for the qualifying species that the following are maintained in the long term:

Population of the species as a viable component of the site

Distribution of the species within site

Distribution and extent of habitats supporting the species

Structure, function and supporting processes of habitats supporting the species

No significant disturbance of the species

APPRAISAL

STAGE 1:

What is the plan or project?

Relevant summary details of proposal (including location, timing, methods, etc)

Formation of three interlinked mountain bike trails and a cable uplift system in the lowest section, Cairngorm Mountain. Next to the Allt a choire chais, which flows into the River Spey SAC approximately 1km downstream, and within approximately 400m (at the closest point) of the Cairngorms SAC and SPA.

The “Assessment of Risks to Adjacent European sites to inform a Habitats Regulations Appraisal” document submitted with the application has been used to inform the HRA for the Cairngorms SAC and SPA. The document is based on understanding of existing and likelihood of potential use of the area by mountain bikers, combined with expert advice from CMSL and DMBinS. This has been combined with professional judgement and local knowledge by NatureScot and CNPA to reach conclusions about likelihood of effects on the Cairngorms SAC and SPA.

Update May 2022: CNPA and NatureScot worked with CMSL to devise a monitoring strategy to address potential effects on the Cairngorms SAC. The monitoring strategy methodology was originally proposed as a condition in the original HRA. However on further consideration, this was used to create a monitoring strategy document, which was submitted by CMSL in May 2022 and is attached to this HRA as Annex II.

STAGE 2:

Is the plan or project directly connected with or necessary for the management of the European site for nature conservation?

No.

STAGE 3:

Is the plan or project (either alone or in-combination with other plans or projects) likely to have a significant effect on the site(s)?

I. River Spey SAC

YES – there is potential for a likely significant effect on the habitats relied upon by the qualifying species of the River Spey SAC and/or their food caused by pollution from sediment release affecting water quality and smothering habitats during construction of the tracks alongside the Allt a choire chais, which flows directly into the River Spey SAC approximately 1km downstream.

There is **NO potential for a likely significant effect on otter from disturbance** during construction due to the proposed development site being approximately 1km upstream and so outwith the disturbance distance for River Spey SAC otter. This aspect is therefore not

considered further.

2. Cairngorms SAC

No likely significant effects on otter or green shield moss: There will not be any likely significant effects due to disturbance to otter, as there would be no change to the existing levels or patterns of human activity caused by the implementation of the proposed development at times when otter are active. (Although the Allt a choire chais could in theory be used by otter associated with the SAC, the area in which the proposed development is situated is well used by people and vehicles on the existing tracks, footpaths and buildings, which is likely to deter otter/any otter using the watercourse will be habituated to the existing level of disturbance.)

Green shield moss is a woodland species not found where the proposed development occurs and there will be no detectable change to existing levels or patterns of human activity in woodland areas. Therefore no likely significant effects will occur for this species.

Likely significant effects on habitats: There will be no direct effects on the SAC habitats or those habitats supporting SAC species, due to the type and location of the proposed development, the distance between the development and the SAC and the topography meaning that the trails should not alter the hydrology of the SAC. The proposed tracks are next to existing well used tracks and footpaths (and buildings).

In relation to indirect effects, the “Assessment of Risks to Adjacent European sites to inform a Habitats Regulations Appraisal” document submitted with the application considers the potential for users of the new trails, including for example more experienced group members, to leave the proposed trails and take routes within the European sites. All potential routes into the European sites from the trails are considered, and for reasons stated in that document it is concluded that the likelihood of this happening varies depending on the route. All except one of the routes which the report determines have some degree of risk (ie it is greater than ‘none’) are existing paths. Any potential small increase in use of these routes by mountain bikes as a consequence of this development will not damage habitats within the SAC.

There is however one route with a ‘low’ likelihood of use as a consequence of this development, which is partially off path. More experienced mountain bikers who have used social media or been on a mountain bike guide assessment course in the vicinity may be aware of this route (identified as route 3 in the “Assessment of Risks to Adjacent European sites to inform a Habitats Regulations Appraisal” document submitted with the application). If they choose to do this route, for example while other members of their family group are using the proposed mountain bike trails, this could increase damage to the qualifying habitats along the off path section of the route.

Further consideration of the effects on habitats in relation to the conservation objectives is therefore required, due to the potential for likely significant effects on:

Acid peat stained lakes and ponds

Acidic scree

Alpine and subalpine heaths

Blanket bog

High altitude plant communities associated with areas of water seepage

Montane acid grasslands

Plants in crevices on acid rocks

Tall herb communities

3. Cairngorms SPA

No significant effects are likely either on the supporting habitats or through disturbance:

In relation to supporting habitats: NO likely significant effects for any of the qualifying interests

There will be **no direct effects on the habitats supporting SPA species** due to the type and location of the proposed development, the distance between the development and the SPA, and the topography, meaning that the proposed trails will not alter the hydrology of the SPA. The proposed trails are next to existing well used tracks and footpaths (and buildings), used by Cairngorm Mountain staff and contractors, walkers and (in winter) by skiers. The new trails would not encourage people to go off into areas that are not already well used, as the trails are associated with the main car park and buildings. While there may be some **indirect effects on habitats supporting the SPA species** (as described for the SAC), **these are not considered to be at a scale that would have a likely significant effect** on the qualifying interests of the SPA.

In relation to human activity and potential disturbance: NO likely significant effects for any of the qualifying interests

The proposed development is not likely to change levels of human activity or patterns of recreation around the proposed development: while a mountain bike trail area would introduce a new form of activity to the immediate area, it would occur in a contained area already well used by people year round walking and/or skiing, as well as staff and vehicle activity associated with works at the skiing and other infrastructure for Cairngorm Mountain. The temporal pattern of use would not change, as no lighting for night time riding is proposed.

As the trails are comparatively short and non-technical, aimed at the family market as introductory trails, they are unlikely to be attractive to experienced mountain bikers, who are more likely to seek out trail centres such as Glenlivet and Laggan Wolftrax. (More experienced mountain bikers already using or attracted to the existing paths and tracks in the vicinity will continue to be so regardless of the proposed development.)

The “Assessment of Risks to Adjacent European sites to inform a Habitats Regulations Appraisal” document submitted with the application identifies a low or low/medium likelihood of some existing routes being used as a result of visitors to the proposed development. However these existing routes are already present and established. So there would be no detectable change to existing patterns of use of paths and tracks in the wider area, including the SPA, as a result of the proposed development.

Additional assessment for capercaillie: The assessment in relation to capercaillie can be

found in **Annex I**, which also concludes no likely significant effects.

Therefore, as there are no likely significant effects identified, the **SPA** is not considered further.

STAGE 4:

Undertake an Appropriate Assessment of the implications for the site(s) in view of the(ir) conservation objectives

1. River Spey SAC

The proposed development has the **potential to prevent the conservation objectives being met for the River Spey SAC. This would occur due to:**

- **The very high risk of sediment release** entering the Allt a choire chais watercourse that flows into the River Spey SAC **during construction work**, due to proximity of works alongside the Allt a choire chais. This would affect the water quality relied upon by the qualifying species, and potentially smother habitats supporting the qualifying species and their food, therefore affecting distribution and population levels.

However, **the Construction Method Statement (CMS) submitted with the application should address the risk of sediment release** through appropriate pollution prevention and control measures, such that the pollution risk could be minimised. **The implementation of the Construction Method Statement would need to be secured by condition, should planning permission be granted.**

2. Cairngorms SAC

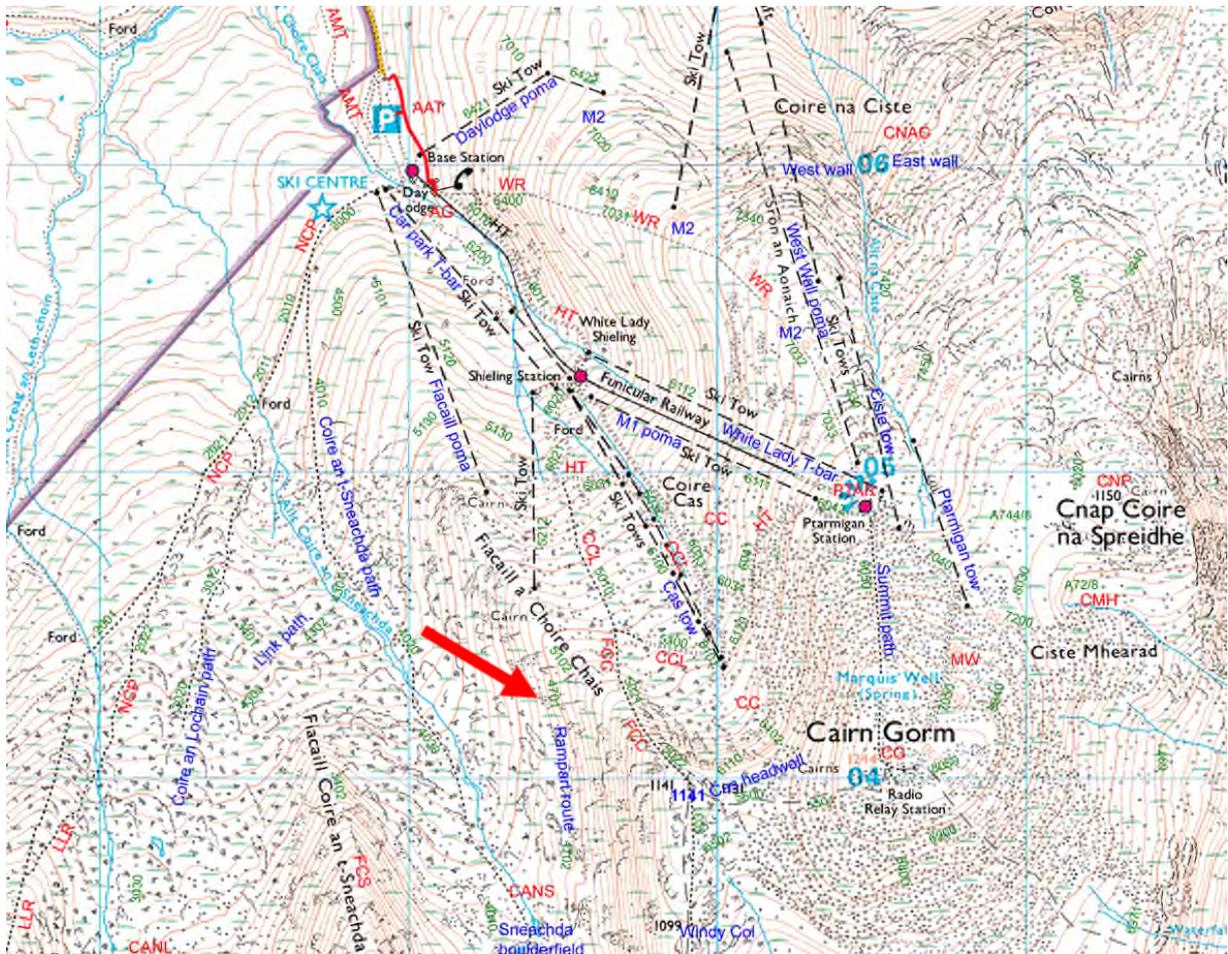
The proposed development has the **potential to prevent the conservation objectives for the Acid peat stained lakes and ponds, Acidic scree, Alpine and subalpine heaths, Blanket bog, High altitude plant communities associated with areas of water seepage, Montane acid grasslands, Plants in crevices on acid rocks and Tall herb communities habitat qualifying interests** (see footnote below) **being met for the Cairngorms SAC** through use of the off path route identified in the "Assessment of Risks to Adjacent European sites to inform a Habitats Regulations Appraisal" document submitted with the application as number 3, **which, if left unchecked, over time could cause localised damage and erosion to the qualifying habitats identified above, causing disturbance to and adversely affecting the extent, distribution, function and supporting processes of the habitats as well as the viability of typical species as components of the habitats, and so causing the condition and contribution of the qualifying habitats to deteriorate.**

However **a condition requiring the implementation of the Monitoring Strategy submitted by CMSL on 5 May 2022 (Annex II of this HRA) would reduce the risk of damage and erosion to a minimal level that would allow the conservation objectives to be met.**

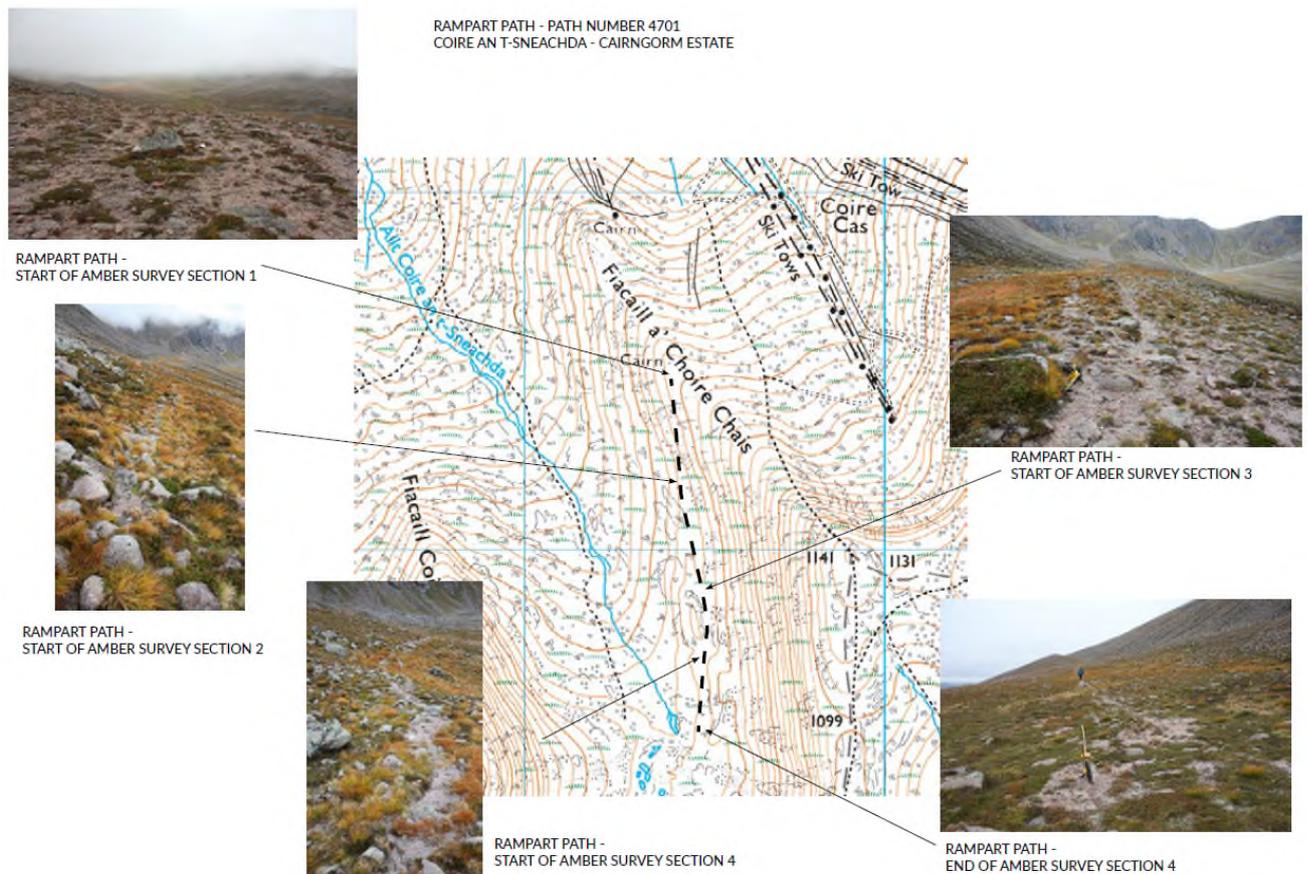
It is possible to conclude that the conservation objectives could be met because evidence to date in and around the ski area and elsewhere is that habitat damage from recreational use can be successfully contained by applying well established upland path management techniques. **The**

requirement for monitoring, reporting and remedial action would need to be secured by a condition, should permission be granted.

Map showing location of path number 470I (indicated by the red arrow) in the wider landscape



Map showing the route of path number 4701, including start and end points and images from the path



STAGE 5:

Can it be ascertained that there will not be an adverse effect on site integrity?

1. River Spey SAC

Provided the below condition is applied to planning permission (should permission be granted) requiring the Construction Method Statement to be implemented, then the conservation objectives will be met and there will not be an adverse effect on site integrity:

Condition: The Construction Method Statement submitted with the application implemented in full, in particular the pollution prevention and control measures to prevent sediment entering the Allt a choire chais during construction.

Reason: To ensure pollution does not enter the River Spey SAC and so avoid an adverse effect on site integrity.

2. Cairngorms SAC

Provided the below condition is applied to planning permission (should permission be granted), then the conservation objectives will be met and there will not be an adverse effect on site integrity:

Condition: Unless otherwise agreed in writing with CNPA in consultation with NatureScot, annual monitoring to be carried out by Cairngorm Mountain Scotland Limited (or successor organisation) following the methodology set out in the Monitoring Strategy for Path 4701 document submitted by Cairngorm Mountain Scotland Limited to CNPA on 5 May 2022, and within 4 months of monitoring taking place, reporting of monitoring results to CNPA and NatureScot in writing; and with any remedial action required carried out by Cairngorm Mountain Scotland Limited (or successor organisation) as directed by CNPA (in consultation with NatureScot).

Reason: To ensure damage to qualifying habitats is minimised and so avoid an adverse effect on site integrity.

Annex I – capercaillie assessment questions

<p>Cairngorms SPA</p> <p>2022/0046/DET Cairngorm mountain bike trails</p> <p>The “Assessment of Risks to Adjacent European sites to inform a Habitats Regulations Appraisal” document submitted with the application has been used to inform the below assessment for the capercaillie qualifying interest of Cairngorms SPA. The document is based on understanding of existing and likelihood of potential use of the area by mountain bikers, combined with expert advice from CMSL and DMBinS. This has been combined with professional judgement and local knowledge by NatureScot and CNPA to reach conclusions about likelihood of effects on the capercaillie qualifying interest of the SPA. The questions below were developed to assess the potential effects of developments within or near existing settlements, but are equally applicable to other situations, as the logic and considerations are the same wherever a development is located.</p>	
<p>Q1. Is the proposed development likely to change levels of human activity or patterns of recreation around the proposed development/associated settlement?</p> <p><i>Q1: This and Q2 are included as screening questions to filter out any developments that aren't likely to have changed levels or patterns of recreation.</i></p>	<p>No. The proposed development is not likely to change levels of human activity or patterns of recreation around the proposed development: while a mountain bike trail area would introduce a new form of activity to the immediate area, it would occur in a contained area already well used by people year round walking and/or skiing, as well as staff and vehicle activity associated with works at the skiing and other infrastructure for Cairngorm Mountain. The temporal pattern of use would not change, as no lighting for night time riding is proposed.</p> <p>As the trails are comparatively short and non-technical, aimed at the family market as introductory trails, they are unlikely to be attractive to experienced mountain bikers, who are more likely to seek out trail centres such as Glenlivet and Laggan Wolftrax. (More experienced mountain bikers already using or attracted to the existing paths and tracks in the vicinity will continue to be so regardless of the proposed development.)</p> <p>So there would be no detectable change to existing patterns of use of paths and tracks in the wider area, including the SPA, as a result of the proposed development.</p>
<p>Q2. Are capercaillie woods significantly more accessible from this development site than from other parts of the associated settlement?</p> <p><i>Q2: This is included to ensure the effect of otherwise small-scale development sites particularly close to capercaillie woods are adequately considered. Evidence from settlements in Strathspey where houses are adjacent to woodlands indicates that networks of informal paths and trails have developed within the woods linking back gardens with formal path networks</i></p>	<p>No. While in theory the capercaillie woods around Glenmore could be accessed by cyclists either going from the proposed development down the ski road or attempting to follow existing paths or routes marked on OS maps, one of these paths does not exist on the ground and the terrain would deter people from attempting to go very far (due to the unrideable rough and wet terrain). The other route has been closed since 2016 due to a significant landslide. Riders who make it over the landslide will find themselves on existing routes close to the road around the Glenmore area, where significant human activity already occurs. People using the proposed family mountain biking development would not be equipped or inclined to create new off path routes accessed from the proposed development. There is no known off path mountain bike use between the ski area and Glenmore at present, due to the unsuitable nature of the terrain, and high levels of natural surveillance dissuading any unauthorised informal route construction. The target market of people who would be using the proposed trails would not have the skills or equipment to ride or create</p>

Annex I – capercaillie assessment questions

<p><i>and other popular local destinations (eg primary schools). Such paths are likely to be used by visitors.</i></p>	<p>routes though the surrounding terrain.</p>
<p>If Q1 & Q2 = No, conclusion is no significant disturbance to capercaillie and assessment ends here</p> <p>If Q1 or Q2 = Yes, continue to Q3</p>	
<p>Q3. Which capercaillie woods are likely to be used regularly for recreation by users of the development site at detectable levels? (list all)</p> <p><i>Q3: This is included to identify which capercaillie woods are likely to be used for recreation by users of non-housing development sites at levels that would be detectable. The answer will be assessed using professional judgement based on knowledge of existing patterns of recreation around settlements and in the local area, the relative appeal of the capercaillie woods concerned compared to other recreational opportunities in the area, the volume of recreational visits likely to be generated by the development site, and informed by national survey data (eg on the distances people travel for recreational visits).</i></p>	<p>N/a as conclusion for questions 1 and 2 is that there is no significant disturbance and so no need for further assessment.</p>
<p>Continue to Q4</p>	
<p>Q4. Are residents / users of this development site predicted to undertake any off path recreational activities in any of the woods identified at Q3 at detectable levels?</p> <p><i>Q4: This is included because any off path recreational use in capercaillie woods will result in significant disturbance and require mitigation.</i></p>	<p>N/a as conclusion for questions 1 and 2 is that there is no significant disturbance and so no need for further assessment.</p>
<p>If Q4 = No for any woods, continue to Q5</p>	

Annex I – capercaillie assessment questions

<p>If Q4 = Yes for any woods, mitigation is needed. Note and continue to Q5.</p>	
<p>Q5: Are each of the woods identified at Q3 already established locations for recreation?</p> <p><i>Q5: This is included because if users of the development site are likely to access previously infrequently-visited capercaillie woods, or parts of these woods, for recreation, significant disturbance is likely and mitigation is needed. This will be answered on the basis of professional knowledge.</i></p>	<p>N/a as conclusion for questions 1 and 2 is that there is no significant disturbance and so no need for further assessment.</p>
<p>If Q5 = No for any woods, mitigation is needed. Note and continue to Q6.</p> <p>If Q5 = Yes for any woods, continue to Q6</p>	
<p>Q6: For each of the woods identified at Q3, are users of the development site predicted to have different temporal patterns of recreational use to any existing visitors, or to undertake a different profile of activities (eg. more dog walking, or early morning use)</p> <p><i>Q6: This is included because some types of recreation are particularly disturbing to capercaillie; and increased levels of these types of recreation will cause significant disturbance and require mitigation. This will be answered on the basis of professional knowledge on existing patterns of recreational use and whether each location is sufficiently close and/or convenient in relation to the development site and patterns of travel from there, to be used by users of the development for different recreational activities or at different times of day. For example, capercaillie woods with safe routes for dogs that are located close to development sites are likely to be used for early morning &/or after work dog walking.</i></p>	<p>N/a as conclusion for questions 1 and 2 is that there is no significant disturbance and so no need for further assessment.</p>

Annex I – capercaillie assessment questions

<p>If Q6 = yes for any woods, mitigation is needed. Note and continue to Q7</p> <p>If Q6 = No for any woods, continue to Q7</p>	
<p>Q7: For each of the woods identified at Q3, could the predicted level of use by residents / users of the development site significantly increase overall levels of recreational use?</p> <p><i>Q7: This is included because a significant increase in recreational use could result in significant disturbance to capercaillie, even in situations where the capercaillie wood is already popular for recreation, and no changes to current recreational patterns / activities or off path activities are predicted. The answer was assessed on the basis of professional judgement of current levels of use and whether the increase is likely to be more than approximately 10%.</i></p>	<p>N/a as conclusion for questions 1 and 2 is that there is no significant disturbance and so no need for further assessment.</p>
<p>If Q4-7 = No for all woods, conclusion is no significant disturbance to capercaillie and assessment ends here</p> <p>If Q4, 5, 6 and/or 7 = Yes for any woods, mitigation is needed</p>	
<p>Conclusion: Is mitigation needed as a consequence of this development site in relation to each wood listed at Q3?</p>	<p>N/a as conclusion for questions 1 and 2 is that there is no significant disturbance and so no need for further assessment.</p>
<p>Reasons mitigation needed:</p>	<p>N/a as conclusion for questions 1 and 2 is that there is no significant disturbance and so no need for further assessment.</p>



Monitoring Strategy for Path Number 4701

in relation to planning application 2022/0046/DET, formation of mountain bike track and related infrastructure, Cairngorm Mountain

May 2022

Annex II – monitoring strategy document

I. Background

As part of original planning permission for the funicular railway, the operators of Cairngorm Mountain estate are required to carry out monitoring at various locations to record habitat condition. However this only applies when the funicular is in operation. Therefore a monitoring strategy is proposed for the path identified as having the potential (albeit low) for increased use as a result of the formation of mountain bike track and related infrastructure at Cairngorm Mountain, planning application reference 2022/0046/DET. The proposed monitoring would apply to one path, number 4701 identified in Figures 1 and 2 below. The purpose of the monitoring strategy is to avoid an adverse effect on the integrity of the Cairngorms Special Area of Conservation (SAC), which the path runs through.

For consistency and comparability, the monitoring strategy would use the same methodology as funicular railway monitoring, known as the AMBER methodology, which was set out in Appendix 3 of the “Cairn Gorm Detailed Monitoring Scheme for footpaths” document.

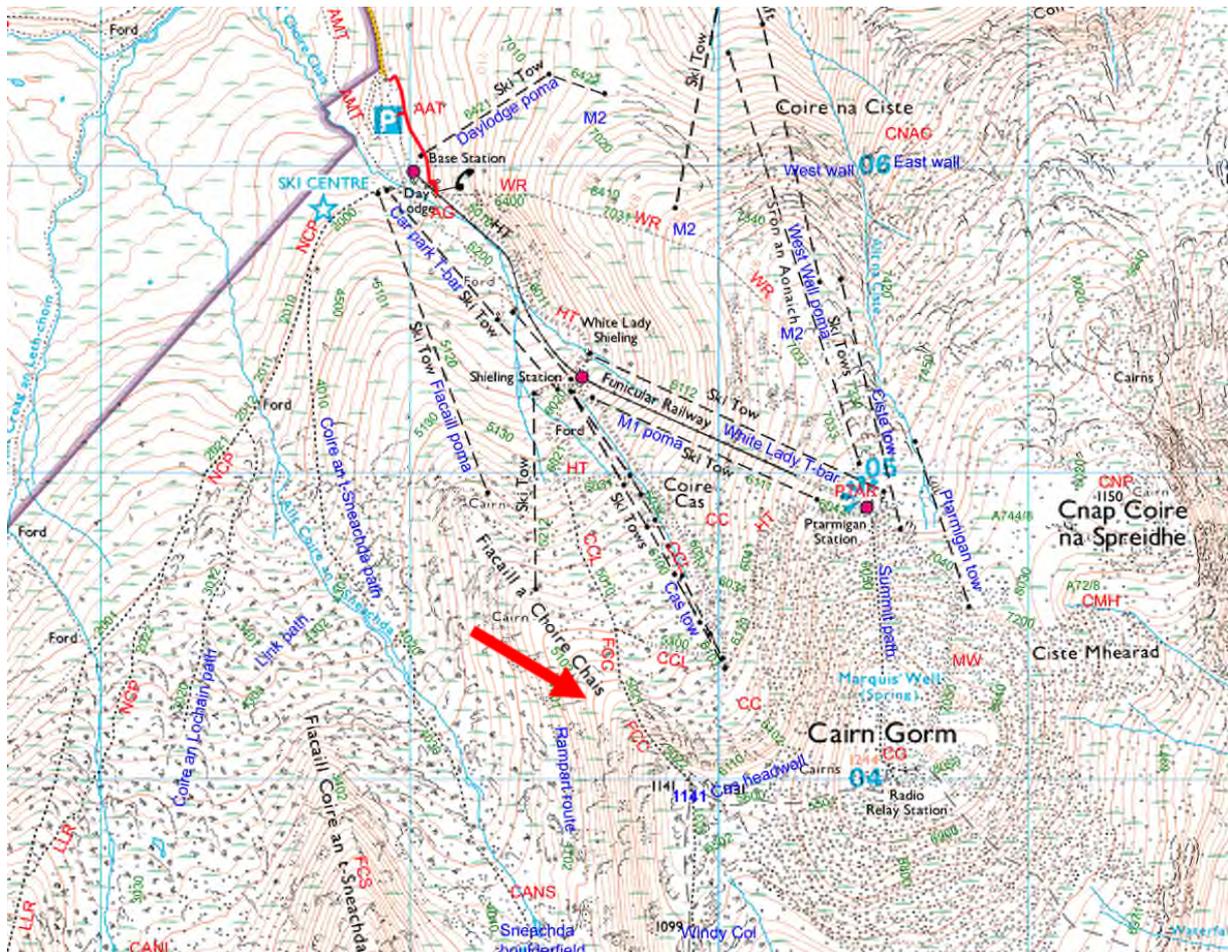


Figure 1 - map showing location of path number 4701 (indicated by the red arrow) in the wider landscape

Annex II – monitoring strategy document

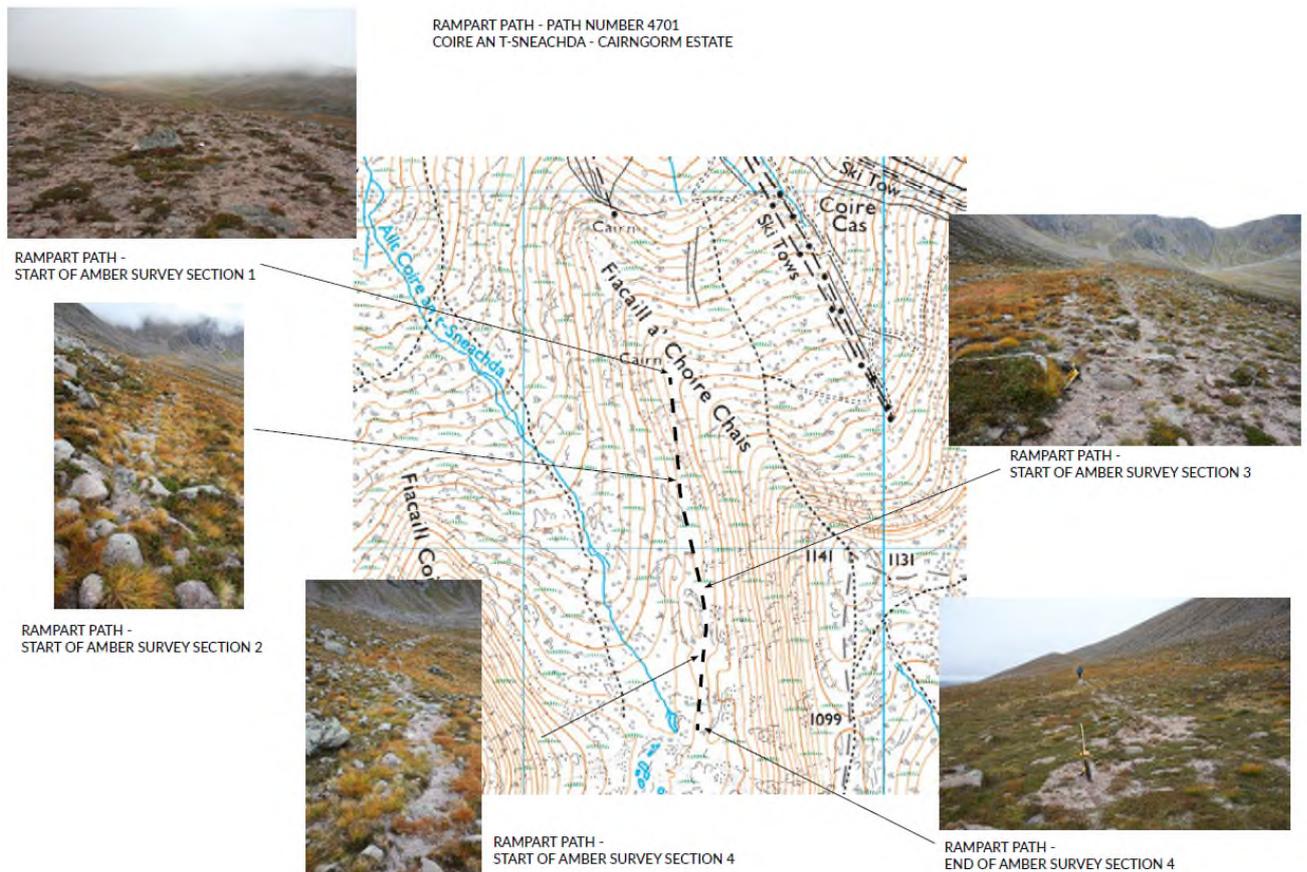


Figure 2 - map showing the route of path number 4701, including start and end points and images from the path

2. Proposed monitoring strategy

To ensure damage to qualifying habitats of the Cairngorms SAC is minimised and so avoid an adverse effect on site integrity, the following monitoring strategy is proposed:

- Unless otherwise agreed in writing with CNPA in consultation with NatureScot, annual monitoring will be carried out by Cairngorm Mountain Scotland Limited (or successor organisation) of path number 4701 shown in figures 1 and 2 above, following the modified AMBER methodology set out in section 3 below (taken from Appendix 3 of the “Cairn Gorm Detailed Monitoring Scheme for footpaths” document), and within 4 months of monitoring taking place, reporting of monitoring results to CNPA and NatureScot in writing; and with any remedial action required carried out by Cairngorm Mountain Scotland Limited (or successor organisation) as directed by CNPA (in consultation with NatureScot).

3. Modified AMBER methodology

The below is an extract of the modified AMBER methodology from the Cairn Gorm Detailed Monitoring Scheme document, which would be used for the proposed monitoring:

Annex II – monitoring strategy document

“Footpaths are monitored using a modified form of the AMBER methodology [Hunt J, Ball R, Baird D, McLeod R, Meighan M (2003) Upland Path Management – standards for delivering path projects in Scotland’s mountains], a method designed to inform managers of the condition of footpaths specifically with path repair in mind. The modified form used in the Monitoring Scheme has a monitoring remit in mind and therefore differs in outlook and scope, but may also be used to inform and guide management.

All paths identified for monitoring are surveyed according to a programme, generally returning every 2 to 5 years. In the interim, any reports of problems are investigated and damage assessed; this could be the result of trampling episodes or extreme weather events, particularly rainfall.

Operation

Baseline surveys of many of the main paths have been carried out, incorporating most of the elements of the Amber survey, as listed below. Some measurements are made during the baseline and need not be repeated on each subsequent survey:

- Path name and number
- Start location, end location
- Section number and start location
- Reason for change from last section
- Vegetation cover around the path section
- Path surface material
- Number of paths or braids
- Long gradient
- Cross gradient

The variables which are likely to change as time goes on are measured at each visit:

- Path width, typical, maximum and minimum
- Eroded depth, typical, maximum and minimum
- Roughness
- Drainage
- Erosion
- Dynamism
- Condition
- How clear the edge of the path is.

This last measure is additional to the Amber survey and operates on the same 1 to 5 scale as the previous five measures, as shown below:

Annex II – monitoring strategy document

	PATH EDGE VALUE				
	1	2	3	4	5
Edge type	No visible path edge; either totally lacking in vegetation both on and off path, or vegetation highly discontinuous.	Path edge hard to distinguish; vegetation low and discontinuous.	Path edges discontinuous with bare ground apparent in adjacent area; vegetation low. May include wholly vegetated paths and margins.	Path edges continuous, or nearly so, and well-defined. Edge may be lined with stone or (low) vegetation.	Path edges continuous and well-defined. Either lined with boulders or with high/dense adjacent vegetation.
Ease of travel off path	No distinction in effort; line of path very hard to tell.	Easy to travel on ground adjacent to path line.	Marginally more effort (mental or physical) to travel off path than on path.	Moderate additional effort required off path.	Considerable additional effort required off path.
Line identification	Virtually impossible to delineate; bare and trampled measurements highly subjective.	Not always easy to determine exact line of path. Scope for wide trampled width and subjective measurement of bare width.	Path line may be harder to determine in places but general line still obvious. Some interpretation needed to see the limit of bare/trampled widths in places.	Path line still easily identified but trampled width likely to be greater than bare width in places.	No difficulty in identifying line and edges. Measurements of bare and trampled likely to be the same and very easily identified.
Accuracy of measurement	+ or – 10m	+ or – 5m	+ or – 1m	+ or – 0.5m	+ or – 0.1m
Sample record	30m	15m	8m	4.5m	2.1m
Additional notes required – in existing 'notes' column	Brief description of terrain and note of a photo that is typical of this section	Brief description of path damage and vegetation in area, note any variability	Brief description, note variability and reasons for interpretation	None, except if width variable along section (i.e. >100% of measurement)	None.

Annex II – monitoring strategy document

There is no assessment of work required as this is not part of the purpose of the monitoring scheme.

Photographs are an important part of this survey. Wherever possible they are taken from the same point on each subsequent return visit, using the same lens length and in the same direction, so that a comparison with previous surveys can be made immediately. A note is made of the point at which the photo is taken, in metres from the beginning of the section. To avoid slight discrepancies in measurement, a photo repeating one taken at 230 metres along a section will be labelled 230 metres, even if the measuring wheel shows 234 metres, as the wheel only measures what it has been wheeled over.

The survey takes place in dry conditions with little wind, starts from the lowest point of the path and works through the sections individually. To identify locations, a measuring wheel is used, and in addition, a print of all the photographs to be repeated and of the measurements made on the previous occasion are taken.

Data handling

Field data is recorded in field notebooks and on camera. It is important to retain this data and label it soon after collection.

Photographs are labelled as follows:

All photographs from the same path are kept in the same folder. Paths from section 1 are labelled with s1, or s01 if there are more than 10 sections. The label must also include the distance along the section the picture was taken, prefaced with 0 if less than 10 metres on a section of less than 100 metres, and prefaced with 00 if less than 10 metres or 0 if less than 100 metres on a path section of greater than 100 metres. This is to ensure that the files order themselves alphabetically when filed. A final symbol may be used: + for a photo showing a view along the path in the same direction of travel as the survey, and - if looking backwards. If looking Left, a L suffix and if Right a R suffix should make the photograph immediately identifiable.

A photograph in the folder Lochain Path might be labelled s3 230m+, indicating that on section 3 at 230 metres, this is the view looking along the path in the direction of travel of the survey.

A maximum of four photographs is presented for each section in the database, but the taking of additional photographs for retention by the surveyor is good practice. It might be that in future years these additional photographs will show a section of path which has changed.

Annex II – monitoring strategy document

The filing of the photographs for inclusion in the database has to follow a precise format otherwise the database will not be able to find and display them.

The folders of photographs must be in the same folder as the database. At present the database, updated in 2014, is in Rangers>Monitoring scheme>Monitoring Scheme>Paths, and is labelled Cairn Gorm Paths 2014, but this will be updated as subsequent surveys take place and as the folder structure is rationalised.

Each folder of photographs is labelled with the path number –(hyphen) name, such as 3010-Coire an Lochain. Each year's photographs are in a sub-folder labelled with the year in which they were taken.

The database is populated according to the instructions attached to it. Each year in which a new survey take place the database is saved to a new file called Cairn Gorm Paths [date], and the new photographs are filed under the path folder in a new sub-folder with the year number only.”