



# ECOLOGY

## RESOURCES

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Land at Finsthwaite and Rusland Heights  
Windermere Lake

Habitat Assessment Report

British Orienteering

May 2024



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## 1.0 INTRODUCTION

- 1.1 This report has been prepared on behalf of British Orienteering, in relation to a 'Check Point Orienteering' event completed by approximately 2400 participants on the 8th of April 2023, at land to the west of Windermere Lake, incorporating Finsthwaite and Rusland Heights. [Figure 1](#) includes the general orienteering plan provided by British Orienteering, which was based on participants finding check points without a pre-defined route.
- 1.2 As the event incorporated land associated with Yewbarrow Woods Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI), Natural England expressed concern regarding impacts on the designation, particularly in respect of trampling, changes and recovery to plant assemblages and potential wider effects such as increasing the profile of the site to potentially harmful recreational activities, i.e., mountain biking and / or camping.
- 1.3 Wider land within the extents of the planned activity was equally assessed as the area incorporates buffer habitats, including hydrological connections to the SAC designation. Habitats present, including woodland, grassland and low-lying *Sphagnum* bogs as integral features to South Cumbria Low Fells Natural Character Area Profile<sup>1</sup>.
- 1.4 The assessment of effects upon habitats from the orienteering event was completed by principal ecologist Miranda Cowan Ltd (BSc (Hons), PGCert FdSc, FISC grade 4, MCIEEM). Miranda Cowan has 22 years consultancy experience, having worked across a range of upland and lowland habitats (lower and higher plants) throughout the UK and Channel Islands.

### Aim of Report

- 1.5 This report aims to present findings from four field survey visits, with a focus towards identifying evidence of vegetation trampling and ground compaction impacts from the orienteering event undertaken on the 8th of April 2023.
- 1.6 The survey dates and their scope are shown as Table 1, with Figure 1 ([Appendix A](#)) annotated to illustrate the general route walked during the survey visits. At the time of the first survey visit (3rd and 4th April 2023) the location of check points had not been provided due the event being identified as confidential.

Table 1: Field survey dates and general approach to survey.		
Date	Weather Conditions	Purpose of Survey
3rd & 4th April, 2023	Sunny and consistently dry, 12 degrees.	A pre-orienteering event walkover to develop an overview of the site in terms of topography, broad habitats, boundaries to the site extents and noting features of sensitivity. Photographs were taken at strategic points to reflect the sites baseline conditions and as a basis for revisiting to establish any further change post the orienteering event.
14th April, 2023	Overcast, continuous light drizzle, 10 degrees.	Post event survey visit to re-walk the extents covered during the first pre-event survey visit (3 <sup>rd</sup> & 4 <sup>th</sup> April) for the purpose of identifying any notable vegetation trampling / ground compaction from the orienteering event.

<sup>1</sup> <https://publications.naturalengland.org.uk/publication/4754470>, accessed 24.04.2024

<b>Table 1:</b> Field survey dates and general approach to survey.		
<b>Date</b>	<b>Weather Conditions</b>	<b>Purpose of Survey</b>
5th June, 2023	Sunny and consistently dry, 16 degrees.	Where trampling had been identified during the second survey visit, the third visit included re-visiting these areas to assess any evidence of recovery. Yewbarrow Woods SAC and SSSI was also walked along existing PROW and permissive routes for the purpose of identifying any desire lines.
17 <sup>th</sup> April 2024	Sunny and consistently dry, 12 degrees.	A survey to establish evidence of vegetative recovery from trampled areas and any notable changes to general habitat character.

## 2.0 METHODOLOGY

### Field Survey

- 2.1 No specific methodology had been devised for the assessment of potential impacts that could arise from the orienteering event. However, Natural England were consulted (pers.com Pin Dhillon-Downey, date 17/04/2023) to establish potential concerns with impacts to Yewbarrow Woods SAC and SSSI. Potential impacts identified included:
- The formation of new desire lines within the designation, which could then become utilised by other recreational users, resulting in loss of ground vegetation and general heightened disturbance and / or damage to designation features such as damage to vegetation from camping / cooking stoves (fire incidents).
  - Compaction of tree roots to notable trees such as mature to over mature yew *Taxus baccata* specimens, resulting in root systems being restricted in the uptake of water and nutrients and potentially causing long-term deterioration of tree growth.
  - Trampling of vegetation and compaction of soil may also result in loss of species and potential colonisation of less desirable competitive plant species.
- 2.2 The field survey therefore specifically looked for evidence of newly formed desire lines and evidence of trampling within the designation and the wider extents of the orienteering event.
- 2.3 The survey extents included three forms of access routes, including Public Rights of Way (PROW), Lake District National Park Greenwood Trails and permitted routes and tracks formed from farming practices from the maintenance of sheep grazing.

### Limitations

- 2.4 The survey area was extensive, equating to approximately 350 hectares. The size of the site in combination with an undulating topography and a complex network of PROW / permissive tracks meant that it was not possible to thoroughly cover all aspects of the site within the given timeframe of the survey scope.
- 2.5 The survey route traversed during the first survey visit (3rd & 4th of April 2023) encompassed a larger area than the second and third survey visit. This was due to two separate event plans being provided, with the first plan showing a large extent of land than a second plan provided prior to the start of the second survey visit (14th of April 2023). Based on the scaled down version of a second plan provided, some photographic images may now not be relevant to the study.
- 2.6 For reasons of confidentiality the control points were provided after the orienteering event and immediately prior to the second survey visit completed on the 14th of April 2023. Should this information (with coordinates) have been made available for the first survey visit, a pre-defined survey route could have been planned to collect survey information at specific check point locations.
- 2.7 The field survey did not include scope for setting up fixed point photography to enable monitoring of future events. However, the information gathered from the survey is considered sufficient to allow for suitable fixed point photography locations to be established prior to any events planned in 2024.

## 3.0 SURVEY FINDINGS

### General Site Description

- 3.1 Land associated with the orienteering event is located to the west of Windermere Lake, with the nearest named land features being Finsthwaite and Rusland Heights. The site has a complex undulating topography encompassing rock outcrops, steep slopes, plateaus and low-lying boggy areas. There are two waterbodies within the site, with High Dam to the north and Boretree Tarn to the south, between which are wet flushes that traverse towards Yewbarrow Woods SAC and SSSI located to south of the site extents. The designation sweeps around the south of Boretree Tarn and is characterised by broadleaved woodland on steep undulating slopes.
- 3.2 Other broad habitat types to the north of Yewbarrow Woods SAC and SSSI include sheep grazed grassland, bracken *Pteridium aquilium* and heather *Calluna vulgaris* covered areas on the high plateaus with surface rock outcrops, blocks of coniferous plantation and low-lying purple moorgrass *Molinia caerulea* dominated areas, which also include cotton *Eriophorum* spp. grasses and bog moss (*Sphagnum*). Around the area of High Dam are small fragments alder *Alnus glutinosa* carr, which is mixed with coniferous plantation and a ground layer of *Sphagnum* amongst purple moor-grass *Mollina caerulea* tussocks.
- 3.3 An overview of the field survey findings are described below with the key findings presented as **Table 3.1**, which correspond to reference points shown on Figure 2, **Appendix A**. Photographic plates to illustrate key findings are included under Section 3.3.

### Findings Relative to Field Visits

#### *Field Visit 1 (03 & 04/04/2023)*

- 3.4 There were well-established existing paths throughout the survey extents, with existing footprints from general walkers noted within localised muddy areas of plantation woodland and within purple moor-grass and *Sphagnum* ground communities south of High Barn. The plateau tops were closely grazed, and whilst the Lake District National Park Greenwood Trails in this area were well defined walking routes, there was no evidence of trampling (i.e., no exposed muddy patches). The remote location of the Yewbarrow Wood had a small number of pathways, which were narrow and not exposed to the negative effects of trampling from general recreational activities such as hiking, i.e. no localised loss of notable ground flora or colonisation of less desirable species such as bramble.

#### *Field Visit 2 (14/04/2023)*

- 3.5 Across the plateau tops there was no evidence of trampling of grass and the general character of the site remained consistent with findings from survey visit 1. Within Yewbarrow Woods there was no visible evidence of impacts upon vegetation and no visible evidence of desire lines. The location of the control points was linked close to existing agricultural tracks, therefore, the risk of desire lines in these areas was minimised. However, establishing the specific location of control points was not possible as no coordinates were provided. Nonetheless, there was no evidence of concentrated areas of trodden compacted vegetation.
- 3.6 The only area found for where trampling had occurred was located outside of Yewbarrow Woods SAC and SSSI, close to area P12 and P14 (see Figure 2 and Photographic Plates). This area



comprised of a low-lying purple moor-grass, cotton grasses and Sphagnum beds. A high concentration of footprints within area of P12 was assumed to be associated with the orienteering activity as this was not linked to any established public / permissive footpaths. There was also evidence of passage over a fence linked to what appeared to be new desire line, indicated by trampled purple moor-grass tussocks.

*Field Visit 3 (05/06/2023)*

- 3.7 The vegetative character of the defined Orienteering Event extents had a significantly different appearance due to the growth of summer vegetation, particularly in relation to bracken, which had an abundant cover across the plateau tops and undulating rock outcrop slopes. Areas P12 was entirely obscured by bracken and Area 14 retained a faint visible desire line with evidence of newly established purple moor-grass shoots, reflecting evidence of recovery. There was no evidence of plant colonisation to indicate vegetative change from the trampling impacts.
- 3.8 Throughout the wider survey area, including Yewbarrow Woods SAC and SSSI, there was no evidence of trampling / disturbance of vegetation that could be directly linked to the Orienteering Event.

*Field Visit 4 (17/05/2024)*

- 3.9 The key area re-assessed related to where trampling had been previously recorded in 2023, namely low-lying purple moor-grass and sphagnum area (P12). Findings from 2024 confirmed successful re-growth of vegetation, indicated by the presence of young green shoots of purple moor-grass. There was no evidence of colonization of non-desirable species or negative changes to the species composition of low-lying bog areas.
- 3.10 An individual adult common lizard was observed scurrying into vegetation at the periphery of area P12. The habitat was a mix of grass tussocks on a boulder strewn slope.



**Table 3.1:** Field survey findings 2023

Photo Ref	Photo Direction	Easting	Northing	what3words	Broad Habitat Character	Visit 1 Comments: 04/04/2023	Visit 2 Comments: 14/04/2023	Visit 3 Comments: 05/06/2023	Visit 4 Comments: 17/04/2024
P1a	South	336718	488244	presuming. outfitter. hurricane	Access gate into closely grazed grassland.	Main access point, grass covered area, minor narrow path from general walkers.	Minor widened and thinning of grassland beyond the gate, no significant trampling noted.	Re-growth of grass visible, no change to plant composition, impacts not significant.	No change to ground conditions.
P1b	West	336718	488244	presuming. outfitter. hurricane	Acid grassland and bracken stands	Poorly defined path from gate.	No evidence of desire lines or trampling of vegetation along existing path.	Not significant as no evidence of desire lines or trampling.	No change to ground conditions.
P2	West	336120	488558	notebook. whistle. restores	Alder carr woodland, coniferous plantation, well- defined path through woodland.	Ground layer characterised by diverse area of <i>Sphagnum</i> , high risk of trampling where there are diversions from defined path.	No evidence of desire lines, trampling within <i>Sphagnum</i> area.	No evidence of desire lines, trampling within <i>Sphagnum</i> area.	No change to ground conditions.
P3	North	335457	488071	shudders. handbag. deffering	Closely grazed grassland, scattered coniferous trees.	Trampling of ground, potential creation of muddy areas.	No change to ground / grassland.	No change to ground conditions.	No change to ground conditions.
P4	South	335417	487956	kipper. field. drizzly	Closely grazed grassland, heather, bracken.	Trampling of ground, potential creation of muddy areas.	No change to ground / grassland.	No change to ground conditions.	No change to ground conditions.
P5	South	335475	487576	loitering. eagles. thinker	Narrow path with heather	Narrow path with no extensive erosion.	No notable change to ground conditions.	No change to ground conditions.	No change to ground conditions.
P6	North	335093	487207	sundial. inquest. oldest	Low open water/bog pool. Within or edge of Yewwood SAC.	Minor existing trampling at the start and end point of boarding that traverses over the water.	Minor increase in footprints within mud.	Dry ground conditions, evidence of purple moor- grass shoots.	No change to ground conditions.



Photo Ref	Photo Direction	Easting	Northing	what3words	Broad Habitat Character	Visit 1 Comments: 04/04/2023	Visit 2 Comments: 14/04/2023	Visit 3 Comments: 05/06/2023	Visit 4 Comments: 17/04/2024
P7	South	335158	486906	patrolled. balanced. pokers	Woodland section (within SAC), steep south facing rocky track, with water filtration.	No evidence of human trampling, otherwise evidence of scouring from natural water flow. Location selected based on first site plan provided by British Orienteering.	No notable change to ground conditions.	No change to ground conditions.	No change to ground conditions.
P8	North	335033	486445	deposits. insolvent. nesting	Entrance point to SAC, location selected based on first plan provided by British Orienteering.	Natural path leads into woodland, indicative of low foot fall.	No notable change to ground conditions.	No change to ground conditions, natural path width and vegetation consistent with first survey.	No change to ground conditions.
P9	North	335559	486700	undulation. quilt. spoil	Public foot path along edge of SAC, with stone walls & ancient flora. Location selected based on first site plan provided by British Orienteering.	Well defined path, with no heavy trampling visible.	No notable change to ground conditions.	No change to ground conditions, natural path width and vegetation consistent with first survey.	No change to ground conditions.
P10	North	335764	486884	thumps. quilting. exhaled	2-3m wide track through woodland, used for farming access.	Localised disturbance from farming practice, stones moved to side of track and vehicular tracks present.	No notable change to ground conditions. Farming practice from use of a small tracked vehicle more likely to be damaging.	No change to ground conditions, natural path width and vegetation consistent with first survey.	No change to ground conditions.
P11	North	335868	487345	Walking. perfectly. remark	Area of cleared plantation, with compact access track for machinery.	Compact track, low risk of trampling.	No evidence of trampling or desire lines.	No change to ground conditions.	No change to ground conditions.
P12	North	336019	488215	Headers. rabble. occupiers	Low-lying area of purple moor-grass.	Area not walked.	Notable trampling of vegetation, several footprints within boggy area.	New purple moor grass shoots evident, evidence of trampling less visible, recovery evident.	Evidence of re-growth, mainly purple moor-grass. Plate 9 & 10 show

Photo Ref	Photo Direction	Easting	Northing	what3words	Broad Habitat Character	Visit 1 Comments: 04/04/2023	Visit 2 Comments: 14/04/2023	Visit 3 Comments: 05/06/2023	Visit 4 Comments: 17/04/2024
									evidence of green vegetative growth.
P13	North	336196	488182	Labs. deployed. buggy	Low-lying area of purple moor-grass with Sphagnum.	Area not walked.	New desire line in purple moor-grass and Sphagnum area.	New purple moor-grass shoots evident	Evidence of re-growth, mainly purple moor-grass.



## Photographic Plates

<p><b>Plate 1:</b> P1a main access point for Orienteering Event, minor widening of path noted on second visit (14/04/2023), with vegetative re-growth on the third visit (05/06/2023).</p>	<p><b>Plate 2:</b> Area encompassing PROW and potential frequent route of Orienteering Event incorporating control points. No visible trampling, loss of ground vegetation post event.</p>
	
<p><b>Plate 3:</b> P6, low-lying bog with walk board, small number of footprints and small increase noted on second visit (14/04/2023). Third visit (05/06/2023) there was evidence of vegetation re-growth.</p>	<p><b>Plate 4:</b> P8 entrance to Yewbarrow Woods SAC and SSSI, existing narrow path had not widened post the Orienteering Event and no evidence of desire lines diverting from the path.</p>
	
<p><b>Plate 5:</b> P7 Internal view of Yewbarrow Woods SAC and SSSI, natural scouring only, no evidence of impacts from the Orienteering Event.</p>	<p><b>Plate 6:</b> P12 low-lying <i>Sphagnum</i> bog and purple moor-grass. Desire line and trampling evidence from orienteering event.</p>
	
<p><b>Plate 7:</b> Second survey visit (14.04.23) post orienteering event. P12 desire line created in low-lying bog.</p>	<p><b>Plate 8:</b> Third survey visit (05.06.24), P12 desire line obscured by bracken, some recovering of ground vegetation.</p>
	

<b>Plate 9:</b> P12 low-lying <i>Sphagnum</i> bog and purple moor-grass. Evidence of recovery, fourth survey 17.05.24.	<b>Plate 10:</b> P12 low-lying <i>Sphagnum</i> bog and purple moor-grass. Evidence of recovery, fourth survey 17.05.24.
	

## 4.0 EVALUATION

- 4.1 Based on field survey observations over the four site visits, evidence of ground disturbance from the Orienteering Event are assessed as not significant. Only two areas (P12 and P13) were identified for where trampling had taken place, with the fourth survey visit (17/04/2024) confirming the recovery of vegetative growth, indicating by visual evidence of new purple moor-grass shoots. No evidence of desire lines or ground trampling was recorded within Yewbarrow Wood SAC and SSSI.
- 4.2 The findings are based relative to the survey limitations, in that the scale of the site and its complex undulating topography meant that it was not possible to thoroughly cover all aspects of the site. The confidentiality surrounding the Control Points meant that a focused route to fully encompass all potentially high impact areas was not fully covered, although with having developed knowledge of the site, future monitoring should be more accurately focused to reflect potential effects resulting from the event.
- 4.3 The risk of trampling will also have been reduced due to the event not following a pre-defined route, enabling participants to disperse more widely. In addition, the event took place during a very dry period, with ground conditions overall (excluding low flushes / bogs) being very dry. Such conditions will have helped reduce the effects of trampling.
- 4.4 The presence of common lizard may offer a new record for this species within the area of Finsthwaite and Rusland Heights.



## 5.0 CONCLUSION AND RECOMMENDATION

### Conclusion

- 5.1 The field survey concluded the orienteering event to not have any significant impacts upon vegetation throughout the land extents shown as Figure 1. Only two areas of trampling external to Yewbarrow Woodland SAC and SSSI were identified, which reflected recovery from new vegetative growth. The survey visits completed in April 2024 confirmed evidence of purple moor-grass growth, which is a species that typically occurred in the low-lying bog area. Most importantly, there was no evidence of newly established desire lines that could otherwise be used by other recreational users post the orienteering event.
- 5.2 The survey did have limitations that reduced the focus of the study. This related to the complexity of the site, confidentiality of data that could not be provided and the limited scope / methodology linked to the event. As such, the recommendations detailed below are given to improve upon field survey to enable for collection of data that can be used for monitoring of future events.
- 5.3 The recommendations below area also given to ensure the event is planned to avoid sensitive habitats across the site, and to factor in seasonal timings to avoid and minimise any future potential trampling effects.

### Recommendations

- 5.4 **Event Planning:** It is recommended that where possible, the event is planned during a consistent dry period as the field evidence reflects that trampling is more visible within wet areas. Summer events are would therefore be more appropriate than winter and months of notable higher rainfall. Consideration could also be given to maintaining participating numbers to a given threshold, i.e., no greater than 2400 participants.
- 5.5 **Route Planning:** The field survey confirmed evidence of trampling within low-lying wet areas purple moor-grass and Sphagnum areas, which did recover post the event. Despite vegetative recovery, Sphagnum communities are sensitive to trampling and will result in the fragmentation and loss of these species and their function in the formation of peat. Future events could therefore consider positioning control points with an aim of diverting foot traffic away from low-lying boggy areas. Whilst this is a potential difficult task, careful design should seek to achieve this where possible.
- 5.6 **Fixed point photography:** Due to the scale of the site and extents of the event, it is recommended that fixed point photography locations are established. No more than 15 fixed point locations are recommended, and these should be positioned where there are likely to be high concentrations of foot traffic relative such as around control points. Re-location of fixed-point photography maybe difficult to achieve with handheld GPS, therefore, colored wooden posts with reference numbers written on them should be securely fixed into the ground. The most effective means of establishing fixed point photography will be to arrange a site visit between the appointed ecologist and a member of British Orienteering that has knowledge of future planned events.

- 5.7 **Yewbarrow Wood:** Consultation with Natural England resulted in confirmation that recreational activities involving high volumes of people are not desirable within sites of international significance. Whilst there was no evidence of desire lines or trampling within Yewbarrow Wood SAC and SSSI, the potential for negative impacts upon the designation remains a risk for future events. In addition, the event may increase the recreational profile of the site, resulting in other potentially impacting activities such as camping and mountain biking. Natural England identified remote sites such as Yewbarrow Wood to be a rare biodiversity asset and every effort should be explored to safeguard the integrity of such sites. It is therefore recommended that future orienteering events are planned beyond the designation boundaries of Yewbarrow Woods SAC and SSSI.
- 5.8 **Desk Study Data:** Communication with Natural England highlighted there was limited information about the wider site in respect of reptiles and ground nesting birds. It was therefore requested that desk study information of the site is sourced prior to any future planned event across the site. It is further recommended that the client allows the Ecology Resources ecologist to submit the record for common lizard to Cumbria Biodiversity Data Centre.

## Appendix A - Figures



**Figure 1:** Orienteering event extents as provided by British Orienteering (black dashed line reflects approximate route walked)

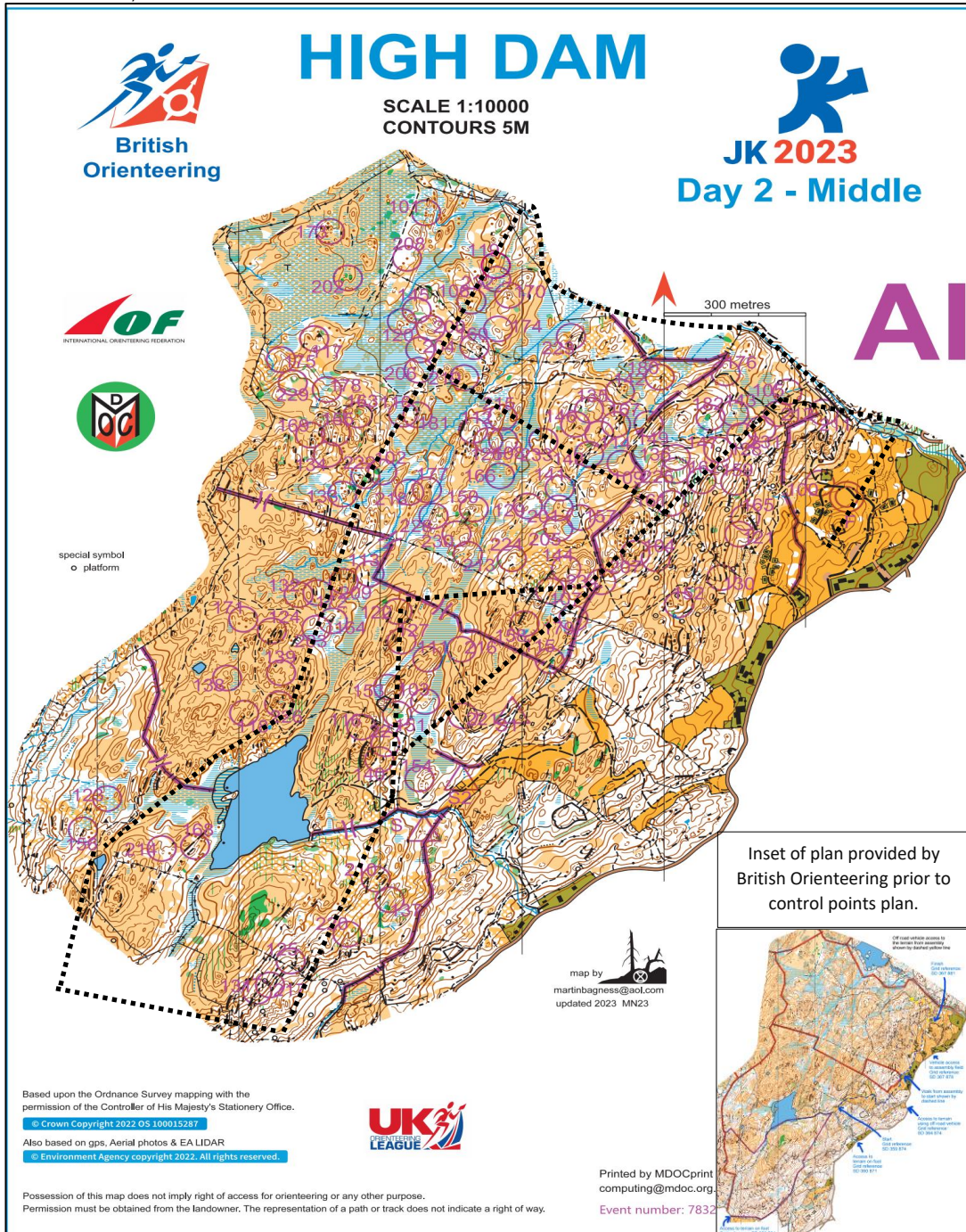




Figure 2: Photographic Location points checked for trampling.

