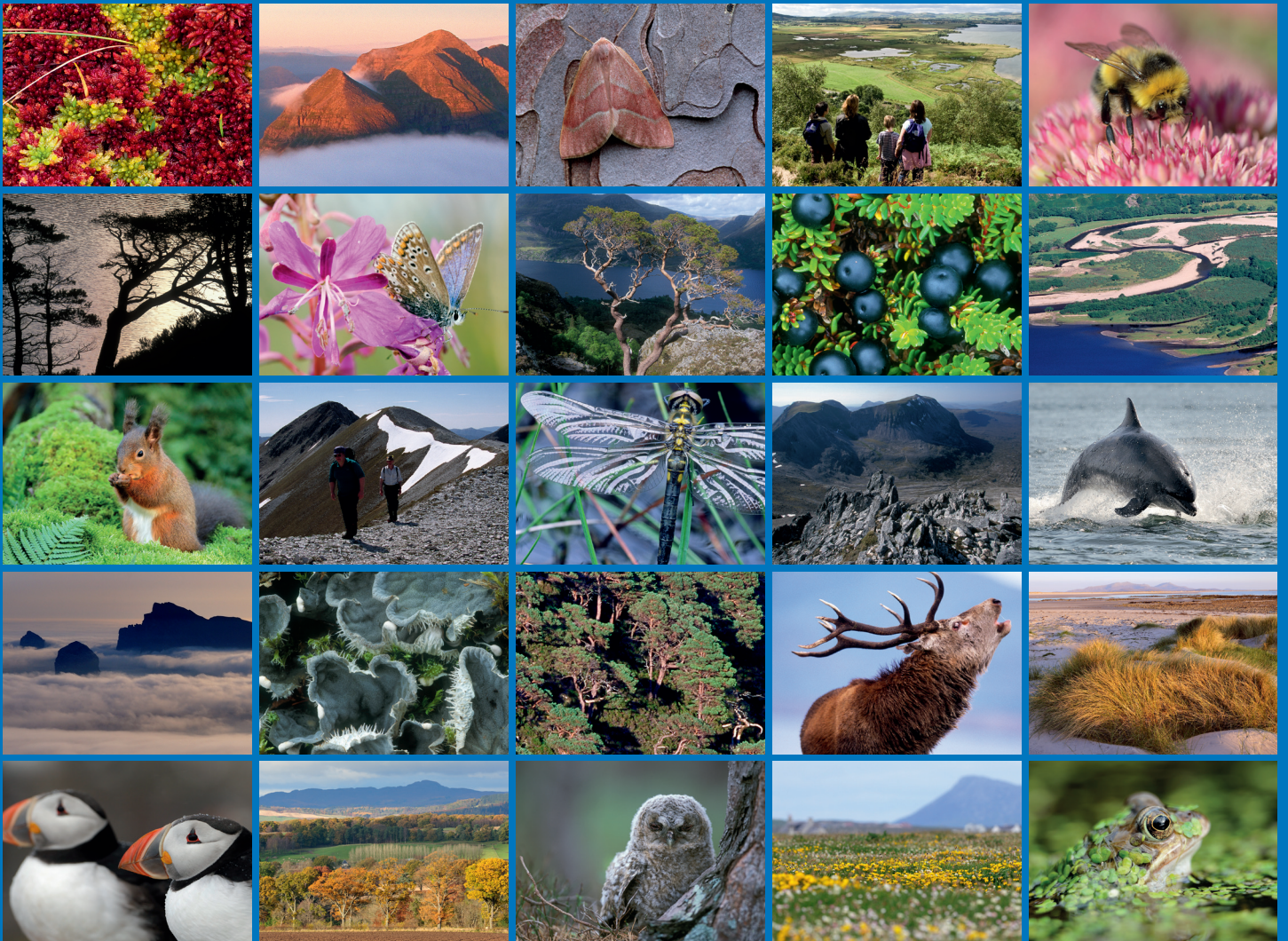


Site Condition Monitoring survey of upland notified features on designated sites – Blood Moss





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RESEARCH REPORT

Research Report No. 1026

**Site Condition Monitoring survey of upland
notified features on designated sites –
Blood Moss**

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SCM Reports

This report was commissioned by SNH as part of the Site Condition Monitoring (SCM) programme to assess the condition of special features (habitats, species populations or earth science interests) on protected areas in Scotland (Sites of Special Scientific Interest, Special Areas of Conservation, Special Protection Areas and Ramsar). Site Condition Monitoring is SNH's rolling programme to monitor the condition of special features on protected areas, their management and wider environmental factors which contribute to their condition.

The views expressed in the report are those of the contractor concerned and have been used by SNH staff to inform the condition assessment for the individual special features. Where the report recommends a particular condition for an individual feature, this is taken into account in the assessment process, but may not be the final condition assessment of the feature. Wider factors, which would not necessarily be known to the contractor at the time of the monitoring, are taken into consideration by SNH staff in making final condition assessments.



RESEARCH REPORT

Summary

Site Condition Monitoring survey of upland notified features on designated sites – Blood Moss

Research Report No. 1026
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Keywords

Site Condition Monitoring; Protected Area; Upland; Site of Special Scientific Interest; Condition; Invasive non-native species; Blanket bog

Background

Site Condition Monitoring is SNH's rolling programme of monitoring of the condition of natural features (habitats, species populations and earth science interests) on protected areas in Scotland. This report was prepared by Peak Ecology Ltd. It provides findings of monitoring undertaken at Blood Moss SSSI (central NGR: NX 27230 72542) in the Southern Scotland SNH Area. This was Site Condition Monitoring (SCM) of the Blanket Bog and Valley Bog (Upland) Feature.

Common Standards Monitoring guidance produced by JNCC and SNH upland fieldwork methodology were followed. SNH provided a Site Attribute Table tailored to the Blanket Bog feature. Desk study included the 1999 report when the blanket bog feature was found to be Favourable Maintained. Fieldwork took place on 15th August 2013. A total of 11 sample points were assessed on the blanket bog. Positive and negative management activities were also recorded.

Main findings

- Most targets were easily met on the bog feature, except for one: cover of non-native species should not exceed 1%. Sample points 6 and 7 failed this target and 8 was marginal, because of the amount of conifer regeneration from the forestry which previously encircled the SSSI. These young trees should be removed as a priority without damaging the bog surface which is very wet in places.
- The remainder of the bog is in good condition.

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Table of Contents	Page
1. INTRODUCTION	1
2. METHODS	2
2.1 Monitoring guidance	2
2.2 Desk study	2
2.3 Selection of sample points	2
2.4 Field survey	2
2.5 Survey limitations	3
3. RESULTS	3
3.1 Desk study	3
3.2 Field survey	3
3.2.1 Organisation of results	3
3.2.2 Blanket bog feature	4
3.2.3 Other observations	4
4. MANAGEMENT OF BLANKET BOG	5
4.1 Positive and negative activities	5
4.2 Discussion of management	5
5. CONCLUSION	5
6. REFERENCES	6

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1. INTRODUCTION

Site Condition Monitoring is SNH's rolling programme of monitoring of the condition of natural features (habitats, species populations and earth science interests) on protected areas in Scotland. The purpose of the monitoring is to determine the condition of natural features on a protected area and determine whether current management practice and wider environmental factors are likely to sustain the feature in favourable condition in the medium to long term.

This report has been prepared by Peak Ecology Ltd for Scottish Natural Heritage (SNH). It provides findings of monitoring undertaken at Blood Moss SSSI (central National Grid Reference: NX 27230 72542) in the Southern Scotland SNH Area. This consisted of Site Condition Monitoring (SCM) of the Blanket Bog and Valley Bog (Upland) Feature. The work was undertaken by Carol Crawford.

From henceforth in this report the Blanket and Valley Bog Feature will be referred to as the blanket bog or bog feature.



Figure 1. Drosera anglica on Sphagnum lawn with pools at Target Note 5.

The objectives of the monitoring were:

1. An assessment of the condition of the selected notified features, in the field.
2. A report on the overall condition of the selected notified features.
3. A report on which attributes fail, and estimates of how much target variables differ from targets, at which sample locations, for each notified feature.
4. A written general description of the state of all the notified features over the whole site, highlighting any pattern in condition across multiple features.
5. Completed field recording forms, in a standardised format, showing the results for the notified feature and notes on the reliability of observations (e.g. as affected by bad weather or poor visibility).
6. A record of management activities observed which are likely to affect feature condition (from a supplied standardised list).
7. Photographs of sample points and examples of condition.

2. METHODS

2.1 Monitoring guidance

The methods for assessing the condition of the habitats followed those given in the JNCC (2009) Common Standards Monitoring (CSM) Guidance. This contains attribute tables with targets to be assessed for each feature.

A Site Attribute Table (SATs) tailored to the Bog Feature was provided by SNH with the instruction that at least one target per attribute be used; some targets being more applicable than others. Mandatory targets were indicated in the SAT. The SNH suggestion that the SAT be included in the return for the site, with final two columns completed, was followed.

SNH's (2012) Statement of Requirements (SoR) and detailed SCM method (MacDonald, 2004) were also used.

2.2 Desk study

Ordnance Survey (OS) maps, recent aerial photographs, the SAT and the SNH (1999) SCM report for this feature, provided by SNH, were studied before the field survey. CSM and SNH guidance and a 2005 aerial photograph on Google Earth were also referred to.

Two recording forms were designed in Excel: one to capture data necessary to assess blanket bog targets; the second to record notes and details of photographs. In the former the targets are in the same order as in the SAT provided for that site and feature.

2.3 Selection of sample points

The air photo provided by SNH was used to study the bog feature. A spread of sample points within it was selected by eye with Anquet software and uploaded to the GPS handset.

The 2012 SoR states that 28 to 37 sample points are required per feature. However for smaller sites, defined by the nominated officer as less than 100 ha in size, 5 – 20 points were required, the number to be determined by the surveyor in order to safely cover the majority of the feature. Blood Moss SSSI is 10.1 ha in size.

2.4 Field survey

The site was visited on 15th August 2013. Field methods followed those in: SNH (2012) Statement of Requirements (SoR) issued June 2012; MacDonald (2004), the SATs provided by SNH; and the CSM guidance.

The GPS handset (accurate to 3m in the open) was used to navigate close to uploaded points and suitable sample points were selected on the ground. A ten figure national grid reference (NGR) was taken at the arrival point. A 2m x 2m sample plot was set out from the arrival point. Corners of the plot were marked with pieces of kit.

As prescribed, some targets were assessed in the 4m² plot, some in the area visible from it and a few both inside the plot and in the surrounding visible area. Active drainage and eroding peat were also recorded between sample points.

All mandatory targets and other targets given for attributes were assessed.

Positive indicator species lists given in the results spreadsheet are not exhaustive. Obvious species were recorded rapidly and once at least six species had been seen recording

ceased. Vascular plant names follow Stace (2010) and bryophytes names follow Atherton *et al* (2010).

Oblique photographs were taken of each plot (and direction noted) and its context in one or more directions. At least one vertical view of the ground layer, at wide angle setting, was also captured.

Target notes cover management activities and other observations of interest and also include photographs.

The three most significant positive management activities and up to three most significant negative activities for the blanket bog feature were recorded.

2.5 Survey limitations

Targets for the 'Vegetation structure – indicators of browsing' attribute were sometimes difficult to assess, given the time of year (optimum late winter – spring) and therefore these assessments may not be accurate. This is probably not an issue at this bog as there were no signs of livestock grazing.

Though cloud was low, visibility was fine for most of the assessment. Drizzle and darker skies slightly affected the quality of photographs for the last sample points and photos.

3. RESULTS

3.1 Desk study

The extent of the SSSI could be seen on the maps and aerial photographs. No NVC mapping was available. Between the 2005 Google Earth air photo and the more recent one provided by SNH nearly all the forestry which surrounded the bog had been felled.

The Blanket Bog and Valley Bog (Upland) Feature is defined in the CSM guidance as comprising the following NVC communities: M1 – M3 bog pool communities and M17 – M21 blanket and raised mire communities. Communities which may indicate degraded blanket bog are also listed.

The 1999 SCM report was studied before the visit. In it the condition of the SSSI was assessed as Favourable Maintained. The only issue was three drains observed carrying water. On the other hand dead heather and dying trees suggested the bog was getting wetter.

The 2009 CSM guidance recommends that to report the condition of a feature as favourable, it should be possible to state with a high degree of confidence that each target is met over at least 90% of the feature. MacDonald (2004) explains that 28 is the number of samples that gives a percentage of the feature passing closest to 90%. The 2012 SoR states that for smaller sites 5 – 20 points were adequate; here 11 points were sampled.

3.2 Field survey

3.2.1 Organisation of results

The route taken, sample points and target note locations are shown in **Figure 2**. This is also provided as shape files in the accompanying data. The data sheets; completed SATs; notes on each sample and target notes, both with lists of photographs are provided in the Excel **Appendix**.

Photographs retain their original numbers and are contained in folders in the accompanying data, each folder labelled by Sample Point or Target Note numbers.

Bog Sample Points and Target Note locations are shown on **Figure 2**. See Excel **Appendix** Sheets 1 for data, Sheet 2 for the SAT completed with Target Results and Sheet 3 for each Sample Point's Notes and Target Notes.

- On (1) the Data sheet, the first column shows if the target was assessed within a 4m² sample plot and/or the area visible round the plot (denoted 4m² or X respectively).
- On (2) the SATs sheet the Target Results are in the final two (yellow) columns.
- On (3) the Notes are: the NGR for each sample point, a brief description and/or notes for each sample point and lists of photograph numbers for each.
- Sheet (3) also contains Target Notes (TNs), their NGRs and relevant photos. These notes are below the Bog Points notes.

3.2.2 *Blanket bog feature*

Eleven samples were taken within the bog feature. At these sample points most targets were easily met.

Two samples failed and a third was marginal for one target of the: '*Vegetation composition - cover of indicator species*' attribute. The target was: '*Less than 1% of vegetation cover should be made up of non-native species*'. This is a mandatory target. The non-native species were lodgepole pine *Pinus contorta* and Sitka spruce *Picea sitchensis* regenerating from the forestry which encircled the bog until recently. These conifer saplings could be observed from most sample points but the concentration was greatest in the north part of the SSSI. Sample points 6 and 7 failed with over 1% such cover in the visible area, and point 8 had 1%, i.e. was marginal. At sample point 8 there were also Sitka spruce seedlings inside the sample plot.

Otherwise the bog is in good condition.

3.2.3 *Other observations*

Cladonia lichen was present in ten out of eleven sample points, usually with a cover of 3 – 25%, but with 33-50% in one plot. This is a greater frequency and abundance than at the other peat bogs surveyed in Wigtownshire during this contract and is probably a result the lack of grazing.

W18 is the main bog community present and it seems more like raised bog than blanket bog. There are good populations of *Andromeda polifolia*, *Vaccinium oxycoccus* and *Sphagnum magellanicum* (all in 50% of sample plots). It is a wet bog with surface water and pools often observed. The sighting of *Drosera anglica* at TN 5 (see cover photo) and between it and Sample Point 10 indicates how wet the bog is in places.

Dead heather was recorded in places, e.g. Sample Points 4 and 6 and TN2. This might be a result of wetness as suggested in 1999 assessment.

4. MANAGEMENT OF BLANKET BOG

4.1 Positive and negative activities

The most positive activities seen were:

1. No livestock have been using the site; deer are the main browsers but having little impact
2. The felling of conifer trees on bog and other habitats surrounding the SSSI
3. Drainage ditches do not appear to be maintained, most were infilled and inactive

The most negative activities were:

1. Conifer regeneration particularly in the north half of the SSSI
2. Some drains may still be active, though don't appear to be affecting the main bog area

4.2 Discussion of management

The removal of conifers surrounding the bog is welcome and there is potential to restore some of the felled habitat to raised or blanket bog. The area crossed en route to the SSSI from the north, included pockets of active bog with peat-building *Sphagna* such as *S. papillosum*. Stems and brash have been left on the surface which together with the forestry drains slow down foot access. Blocking these drains should be considered, to rewet the areas with bog vegetation. A starting point could be pre-planting air photos.

The SSSI bog areas appear to have a little active drainage, e.g. TN 2. Most old drainage seems to be redundant. Though this is generally a wet bog, it might be worth blocking the few drains which hold water if this can be done without damaging the bog surface – a systematic hydrological study would be advisable first.

The most negative activity is the legacy of the forestry on the edges of the SSSI which has now been felled. The concentration of conifer regeneration in places caused two of the eleven sample points to fail and a third to be marginal. If the trees continue to grow they will cause drying out of the bog surface. The young trees should be felled in a way which does not damage the bog surface, e.g. light vehicles at dry time of year (or foot access) and chainsaws.

5. CONCLUSION

Most targets were easily met at the sample points.

Two sample points failed and a third was marginal for one target; with cover of at least 1% of non-native conifers in the visible vegetation. Removing these trees without damaging the bog surface should be a priority.

Apart from these locations the bog feature is in good condition.

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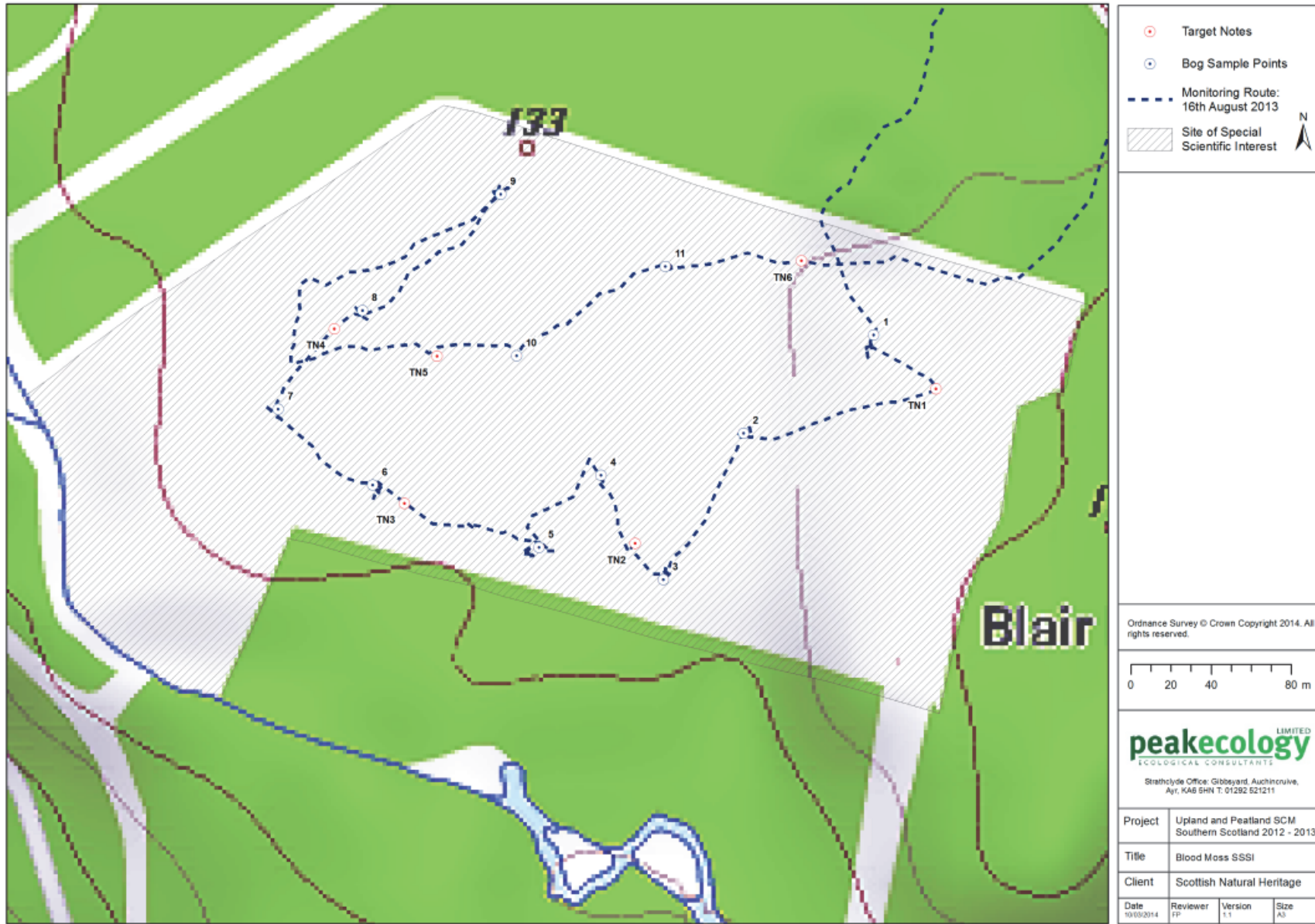


Figure 2. Route Taken, Sample Points and Target Note locations

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