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Fellfoot Forward

Long Meg and her Daughters

Geology and condition survey, May 2023

Condition report and recommendations

Paul Frodsham

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Illustrations

This document was written by Paul Frodsham (ORACLE Heritage Services). References to it should be structured as follows:

Frodsham, P. 2023. *Long Meg and her Daughters. Geology and condition survey, May 2023. Condition report and recommendations.* Unpublished report by ORACLE Heritage Services for the Fellfoot Forward project and North Pennines AONB Partnership.

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Cover image. *Volunteers at work on the geology and condition survey of Long Meg stone circle, May 2023. Note the beast to the bottom-right, with its front legs firmly planted within the erosion hollow to the west of Stone 18.*

1. Introduction

On 21st and 22nd May 2023, as part of the North Pennines AONB Partnership's Fellfoot Forward Landscape Partnership Scheme, a team of volunteers (see Appendix) undertook a geological and condition survey of Long Meg stone circle. The results of the geological survey are of very great importance and are the subject of a separate report; this report deals only with the condition survey. It has been written by Paul Frodsham, who designed and directed the survey and who has led various initiatives at Long Meg over recent years.

The Long Meg stone circle is one of northern England's most spectacular and important ancient monuments. It forms part of Scheduled Monument number 1007866, and is recorded on the Cumbria HER as site number 6154. The site lies at NGR NY57113721, near the village of Little Salkeld some 9 km north-east of Penrith. The stone circle is the most visible element of an extensive complex, described in a recent paper (Frodsham 2021) which also interprets the results of recent survey and small-scale excavation undertaken in 2013 and 2015 by the North Pennines AONB's Altogether Archaeology project in collaboration with Archaeological Services Durham University (ASDU 2013, 2016).

The stone circle dates from about 3000BC and consists of Long Meg herself and 68 of her Daughters (there were almost certainly several more Daughters back in the Neolithic; some, but nobody knows how many, were removed in the 18th century). Following the recent geological survey, Long Meg is confirmed as Penrith Sandstone, almost certainly brought here from an outcrop close to Lacy's Caves on the east bank of the nearby River Eden, and the Daughters are glacial erratics – mostly of the Borrowdale Volcanic Group (BVG) but also including several of Threlkeld Microgranite and four of granite from either Dumfriesshire or the Lake District. The condition survey included all 68 Daughters but not Long Meg, though notes on her are incorporated below.

Visitor management, and in particular car parking, has been a problem at Long Meg for decades, but things have now vastly improved thanks to the provision, through the Fellfoot Forward project, of a car park a short walk from the site. The main management issue requiring resolution is now rabbit damage. This was highlighted back in 2017 in a condition survey commissioned by Historic England (Frodsham 2017), and has been stressed subsequently in email and telephone discussions between Paul Frodsham and Historic England, but until now no systematic overview of the damage has been available. This report provides such an overview, which it is hoped can be used to develop a programme of conservation work, ideally linked to a new management agreement for the site and small-scale research excavations.

2. Methodology

The methodology for the condition survey was very simple. While analysing each Daughter and describing its lithology, volunteers were asked to inspect the surrounding ground and note any damage caused by rabbits or other agencies. Where no such damage was noted, the stone was not placed into a damage category. Where damage, or potential damage, was noted, stones were placed into one of three categories:

- Category 1. Very serious damage that is unquestionably causing damage to archaeological deposits.
- Category 2. Damage that has resulted in removal of grass cover and slight disturbance to the ground surface, on a scale that is not thought (currently) to be detrimental to potentially important archaeological deposits, but has the potential to become more serious.
- Category 3. Scuffing of turf, suggesting superficial scratching by rabbits that has not actually disturbed the ground surface.

Inevitably, there were 'borderline' cases between categories 2 and 3, and a few where damage was so superficial that inclusion in category 3 is debatable, but in such cases volunteers were advised to place stones into the more serious category. Following the survey, each stone was re-examined by Paul Frodsham and some categories were changed in the interest of consistency.

No attempt was made to measure the extent or depth of damage, but photographs with scales give a good indication of the levels of damage in all cases. These photographs are included within the survey project archive, which includes several photographs of all 68 Daughters.

3. Results

The results are summarised in Fig 1. The numbers of Daughters in each category are summarised here:

Category 1. Very serious damage.	5
Category 2. Potentially serious damage.	15
Category 3. Superficial scuffing.	18
(No damage)	(30)

No space is allocated here to discussion of categories 2 or 3. The damage recorded around these stones is currently only superficial and should be monitored. Photographs of all such cases are included in the project archive, which will enable comparisons to be made in future.

The focus here is on the stones included in category 1, all of which require urgent work. It should be noted that no evidence was noted of the burrows around and beneath these stones being active (and no rabbits were noted on site at any time during the survey) but the fact that they are present and seemingly in at least some cases becoming larger is a real cause for concern (as discussed in Section 4, below). In addition to the visible damage around the stones, the extent of burrowing beneath the ground surface is completely unknown.

The following descriptions should be studied alongside the photographs at the end of the report. Unless otherwise stated, all photos were taken by volunteers during the May 2023 survey.

The recent stone-by-stone geological survey has demonstrated that each Daughter is unique, with her own special characteristics. Some, however, appear particularly special, by virtue of their stone type and/or position within the monument. While damage around any of them is cause for concern, it is particularly alarming that of the five discussed here, Stones 2 and 18 are in very special positions and Stone 38 is one of only four granite Daughters. These stones and the deposits immediately below and around them may contain evidence unavailable elsewhere, which could be lost forever through rabbit burrowing.

Stone 2

Stone 2 is a very large BVG boulder measuring 290 x 260cm. It is presumed to have stood upright and to have fallen south-westwards onto its inner face; its current height above the turf is 120cm. It forms the western outer portal of the circle's supposed south-west entrance, opposite the eastern outer portal that still stands. The eastern portal has its flat face facing

across the entrance; the buried face of the Stone 2, where exposed by rabbit burrowing, appears to have a similarly flat face. Stone 2 has a large quartz nodule in what would have been its upper surface when erect; nothing like this has been noted on any other stones and its presence here cannot be by chance. Stone 2 is the closest daughter to long Meg, and lies on the circle's crucial winter solstice sunset alignment. Stone 2 is therefore a very important stone, and the extent of rabbit burrowing beneath it is of very great concern.

Stone 15

Stone 15 is a BVG boulder that still stands to a height of 178cm. Its maximum circumference (parallel to the ground surface) is 572cm. Burrowing beneath it has exposed packing stones. Given its rather squat shape, the extent to which it may be set in the ground rather than simply sitting on the old ground surface is unclear. It is perhaps unlikely to topple, but the extent of burrowing beneath it is clearly disturbing archaeological deposits and must be stopped.

Stone 18

Stone 18 is a fallen BVG boulder measuring 183 x 123cm, with a height above the turf of 130cm. It occupies an important position within the circle, being the eastern inner portal of the circle's supposed north-west entrance. Excavations around the opposite side of this entrance in 2015 demonstrated the presence and fragility of important archaeological features and deposits here. There is extensive burrowing around and beneath the stone, linked to a large hollow to the west. Old photos show a burrow within this hollow, which may extend for some distance underground. During the recent survey, cattle were observed standing within this hollow and one beast seemed to enjoy kicking soil out of it (see photo). A photo taken in May 2022 shows an eroded hollow to the east of the stone partly backfilled, into which someone had seemingly tried to plant a tree; this is no longer present. The area around Stone 18 is a crucial part of the monument, probably containing evidence relating to the relationship between the stone circle and the adjacent enclosure. Conservation work should take place here as a matter of urgency.

Stone 34

Stone 34 is a BVG boulder of an unusual type, not noted elsewhere within the circle. It measures 285 x 195cm, with a height above the turf of 184cm. It looks as though it must once have been standing, and apparent packing stones are visible in the large hollow beneath it which appears to have been dug out from several different directions.

Stone 38

Stone 38 is one of four granite boulders within the circle. The source of these has yet to be determined, but they are thought to be from either south-west Scotland or the Lake District. The 2025 excavations demonstrated that the size and shape of partly-buried Daughters cannot always be discerned from surface evidence, as they can extend a long way beneath the turf, but as currently exposed Stone 38 measures 213 x 70cm, and extends just 40cm above the turf. This makes it potentially one of the smallest of Long Meg's Daughters. The damage around it is severe, especially around and beneath its north-east angle; although not directly observed during the survey, this may be partly due to digging by cattle as with Stone 18 (as noted above). Whether or not the small number of granite Daughters at Long Meg were treated differently from their much more numerous BVG and Threlkeld Microgranite sisters cannot be known without excavation; relevant evidence may lie within the ground so it is absolutely essential that the damage here is arrested as soon as possible.

Long Meg (Stone 1)

Long Meg is a red sandstone monolith standing 3.8m above the turf, to the south-west of the circle. Unlike her Daughters, she is of very local origin, having apparently been sourced from nearby Penrith Sandstone river cliffs above the east bank of the Eden. The turf around Long Meg, especially to the N and E, is often worn away by visitors, exposing bare soil. In wet conditions this can become very muddy. However, this has been the case for decades, and no serious damage seems to be occurring.

Other than the damage noted here, the stone circle is in very good condition. It lies within a pasture field with a healthy grass cover. Some rabbit burrowing in the area of the trees to the west of the road has been recorded previously (Frodsham 2017, 13), but this does not currently appear to be a problem. Cattle do rub against some of the stones, and trample around them, but this does not appear to causing any problems; indeed, in several cases it has resulted in removal of lichen and has polished the surfaces of stones, aiding geological analysis and identification of stone types.

A road passes through the eastern sector of the circle, and until recently there was an unsightly patch of erosion where this passes through the S edge of the circle. However, recent conservation work, undertaken by the Fellfoot Forward project, has replaced the eroded area with healthy grass cover, much improving the appearance of this part of the site.

4. Discussion and Recommendations

To the people of northern England, Long Meg is no less important, and arguably more so, than Stonehenge. The kind of damage detailed in this report would simply never be allowed at Stonehenge, where £27 million of public money can be found for a visitor centre, along with a further £2 billion for a road tunnel. Surely some resources can be found to undertake basic site management at Long Meg, ideally linked to a small-scale programme of archaeological investigation to investigate and record the degree of damage while at the same time undertaking research to salvage any available information from the damaged areas?

Stones not allocated to a damage category on Fig 1, together with those allocated to categories 2 and 3, probably only require monitoring in the short term. However, those allocated to category 1 require urgent work. While the damaged areas could be simply backfilled and seeded, serious thought should be given to a more proactive approach, seeking to salvage something positive from the damage.

Small-scale excavations around some, if not all, of the stones recorded here as category 1 could potentially tell us a great deal about the form and chronology of the stone circle, building on the impressive results from the small-scale 2015 excavations (ASDU 2016; Frodsham 2021) while also addressing stated priorities within the Archaeological Research Framework for North West England. For example:

- Are the stones set in a bank? If so did this predate the erection of the stones, and does it contain (or seal) potentially useful environmental deposits?
- Can dates be obtained from stone sockets, as was done for stone 17A?
- Is there evidence for pits or postholes as found adjacent to Stone 17?

Such work would also enable us to assess the extent of damage caused by rabbit burrowing, and thus to inform future conservation management. The 2015 excavations demonstrated the fragility of archaeological deposits on the site, and it is quite possible that the rabbits (and cattle) are damaging such deposits every year, thus destroying evidence that it will be impossible to obtain elsewhere. Without such assessment, we are just guessing as to the possible levels of ongoing damage.

Excavating beneath large stones such as Stone2 is clearly impractical, and moving these stones to enable investigation beneath them would also be far from straightforward. It may be that the best that can be done here is to record the damage as accurately as possible and backfill the hollows. In contract, working around some of the other stones would be much more feasible; some could perhaps be carefully dragged out of position to enable excavation beneath them, as long as they were replaced in their exact positions on completion of work.

Ideally, these proposed excavations should be done by Archaeological Services Durham University, to provide continuity with earlier survey and excavation work. The work would obviously have to be done to the highest professional standards, but there could nevertheless be limited opportunities for participation by local volunteers. Even if all five of the category 1 stones were to be investigated, this would only represent a small percentage of the scheduled site, and the potential benefits in terms of new knowledge and public interest (both locally and further afield) would be immense. Linked activities could be developed for local schools, as several local teachers are very interested in the site.

Should excavations along these lines be undertaken, the excavated areas should be carefully reprofiled upon completion of work so that within just a few weeks there should be no sign on the ground surface that they ever took place. In some cases, for example around Long Meg, thought could perhaps be given to introducing some kind of matting that would protect the surface from erosion and prevent further burrowing, while enabling the grass to grow through it and appearing invisible at the surface; various such products are available.

Maintaining control over rabbit burrowing in future will necessitate ongoing monitoring, which could be undertaken by volunteers from the proposed Friends of Long Meg group, with occasional remedial works arranged as necessary. Ideally this should be linked to a site management agreement between the owners and Historic England. This is not the place to consider such future options in any detail, but it is certainly recommended that a management agreement (which has been talked about for years) should be drawn up without delay.

PF

August 2023

References

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Appendix
List of project volunteers

The Long Meg geology and condition survey was undertaken by a team of volunteers from the Fellfoot Forward Landscape Partnership Scheme, together with a team of geologists assembled by Sylvia Woodhead. All gave their time on an entirely voluntary basis. Participating volunteers were:

Rod Allwright, Daisy Bagshaw, Robert Beech, Bruce Bennison, Geoff Brambles, Lottie Brzozowski, Paul Carling, Joy Davies, Constance Elphinstone, Pauline Goodridge, Karen Greenhill, Damon Hall, Caroline Hartley, Mark Hartley, Helen James, Claire Jeffery, John Lackie, Paul Logan, Dan Normandale, Sarah Orme, Noel Pearson, John Pickin, Matthew Pullan, Steve Rozario, Deborah Sisk, Martin Sisk, Caroline Steven, Heather Tipler, Maralyn Wade, Lucy Watson, Geoff Wilson, Peter Woodhead, Sylvia Woodhead.

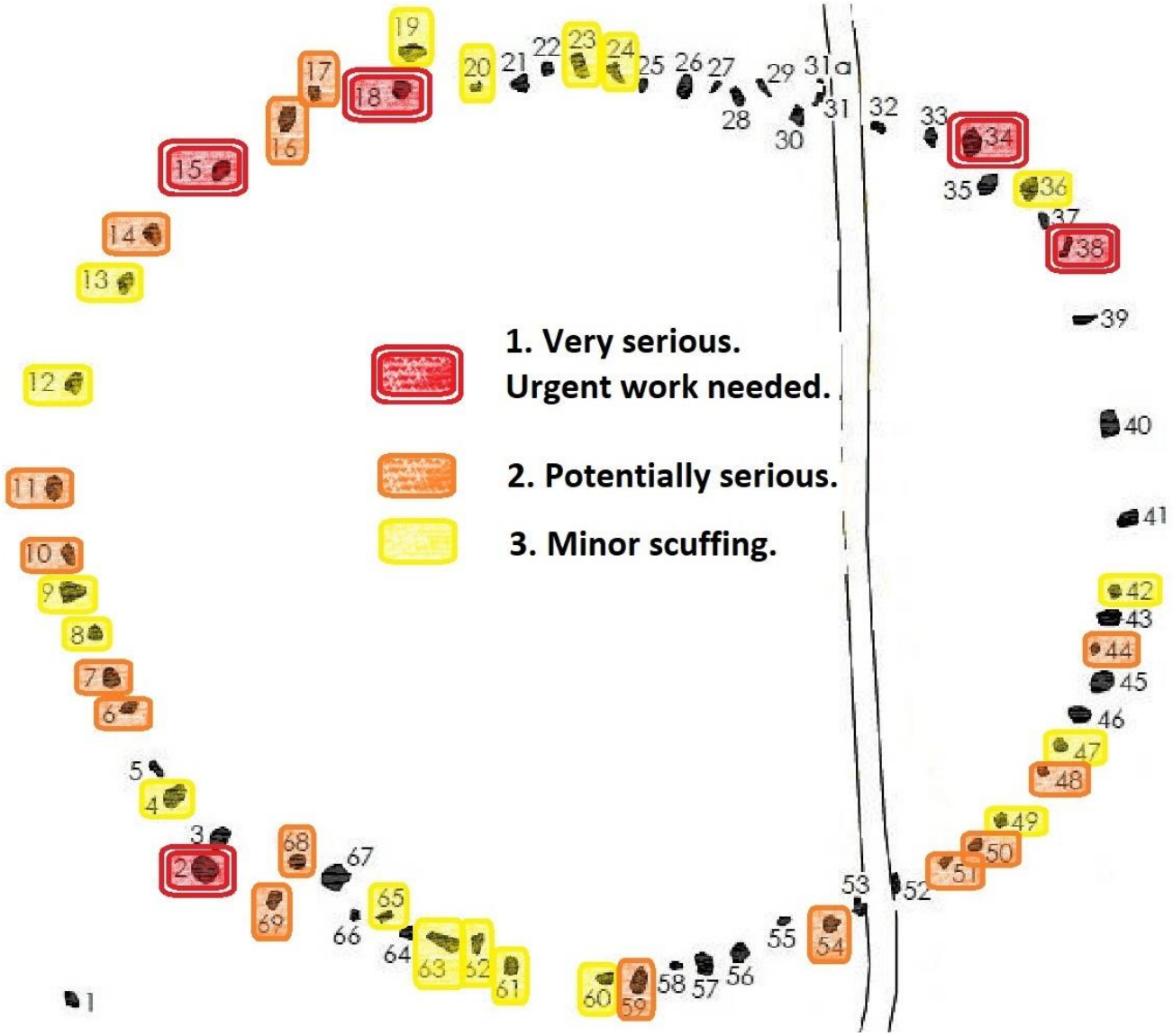


Fig. 1. Plan of Long Meg and her Daughters showing rabbit damage around stones as recorded in May 2023. See text for discussion of the three categories and recommended action for each.

Stone 2

Top left: General view from the SE showing burrowing beneath the stone.

Top right: Close-up, showing flat buried face of stone and burrowing beneath.

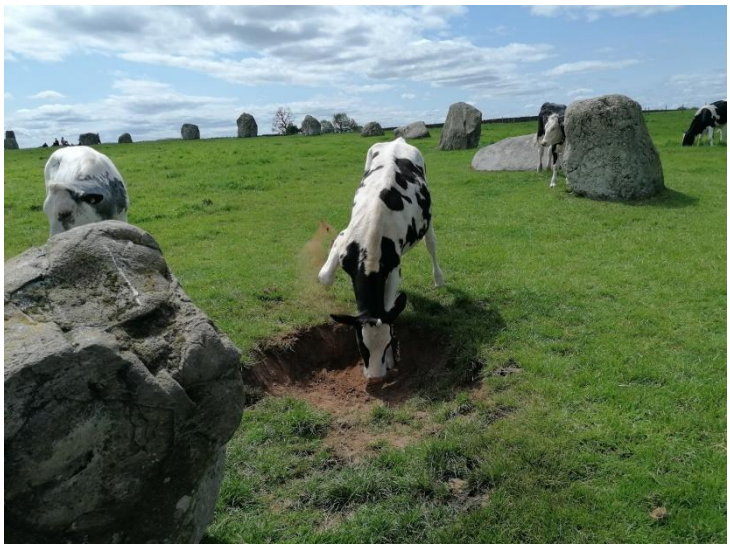
Centre: A view taken in December 2021, with damage clear due to low grass cover.

Right: A view from the E taken in April 2023, showing damage extending around the stone.

Stone 15

Top: General view from the NW showing burrowing at base of stone.

Bottom: Close-up showing small stones which are presumably packing stones, exposed through rabbit burrowing.



Stone 18

Top: General view from the E taken in May 2022, showing burrow within erosion scar, and apparent recent attempt to plant a tree at the E end of the stone.

Centre left: General view from the N, showing burrowing beneath the stone.

Centre right: Proof that it isn't just rabbits that are responsible for damage here!

Right: Close up of burrowing beneath the stone, showing apparent packing stones.

Stone 34

Two views showing burrowing beneath the stone. Top: from the NE. Bottom: from the SW.

Stone 38

Top: From the N, showing extensive erosion, taken in April 2023.

Centre left: From the E.

Centre right: From the E, showing erosion at E and W ends of stone. Taken in April 2023.

Right: From the W, showing burrowing beneath stone.

Long Meg (Stone 1)

Views taken in October 2022 (left) and April 2023 (right), showing seasonal variation in grass cover. Sometimes, in wet conditions, the bare ground around Long Meg can be very muddy, but this has been the case for decades and is not considered to be a serious problem. Erosion here is probably due mostly to human visitors. Ritual offerings of various types are always present beneath Long Meg's north face.