

Evaluation Report

Summary

The *Rocks and You* HLF funded project took place over two years from August 2011 to August 2013 and focussed on our geological heritage, but included other aspects of how rocks make landscape, break down into soils, influence the nature that may exist there, and led on to investigating human influences such as quarrying, farming and building with the geological resources in local areas.

The numbers of volunteers swelled to 125 unskilled, 17 skilled and 8 professional, but numbers fluctuated above this on the 'drop in' days at events. The project succeeded in achieving all the outcomes and the number of events and other outputs were exceeded substantially (120 events as well as 29 display sessions, with one permanent display). This was in part due to more volunteer input than anticipated. The enthusiasm of locals at their sites fuelled further work on these areas and also any associated research activities. Members of the public that are known to have engaged in the activities (by counts) is in the thousands over the period of the project. However, many more may join in at some time in the future, either by themselves, or as families, by using the walks and site information on-line or at each site. Teachers and other educational groups can use the learning materials for their school or group activities for many years.

Project aims

The project *Rocks - and You* was a way of combining five key elements:

1. Conservation work ensuring we keep a heritage for the future.
2. Research into key themes surrounding those heritage components.
3. Educating the public and scientific communities.
4. Encouraging people to take part in events or research, and empowering local groups to be able to lead similar events of their own in future.
5. Leaving the site in a better condition than when we started, and with sustainable continuing care afforded to it.

The main project aim was to get local groups engaged with their local geological heritage in order to investigate it, improve our knowledge and understanding and, very importantly, to assess how best to look after it. In order to undertake this we had to first decide what was important. We then needed to determine which sites were worthy of conservation and were safe, affordable and practical to work in or allow the public to visit.

Another major aim was to provide the link showing how everyone is hugely dependant on geology in every aspect of every part of their lives - from raw materials for our houses, tools,

cars, roads, or heating, to our clothes, soils, makeup, medicines - and we even eat rocks (bread and coca-cola proved the most fascinating!).

The logical progression for the volunteers was then to get them involved in key research investigations, with training, and at a level appropriate to their experience, available time and resources. Projects of importance were determined to be chalk streams, geological resources, our industrial heritage (including the brick industry), soils, geology and recreation, building materials and 'pure' science involving fossils, microfossils, and using sediments to investigate ancient environments, amongst others.

Site work necessarily involved clearing vegetation from rock faces, cleaning quarry floors and other disruptive activities. It was therefore ethical to look at what nature is naturally using this site – which could be as a resident (trees, flowers, insects, etc) or visitors (birds, badgers, deer, etc). The aim was to show how simple survey work reveals complex ecological systems – all relying on the same thing – rocks and soils.

The final aim of the project was to compile surveys, rock and fossil research, walk leaflets, classroom sessions, event activities, etc in such a way that others can use them in future. The aim was to have two tiers of dissemination of results and ideas (1) ideas workshops and training with handouts provided to take away (displays also functioned in this category), and (2) information available on-line for download.



Figure (left)
A mammoth tusk found at College Lake in Marsworth and shown to the visiting group by Rodney Sims on one of our visits to this important Ice Age site. Rodney is both a BBOWT volunteer and a member of the BEHG. Liaising with other groups was a vital part of the project to ensure that the geological interest at sites is maintained or enhanced for future generations.

Management issues

As with any project there will be issues – some of them foreseen and some of them not possible to predict. The usual problems in managing large groups of volunteers spread out over a large area was partly solved by training some volunteers early on to manage a local team. This went down very well and resulted in strong team spirit at site events.

Due to the recession there were a lot of land ownership changes and these severely scuppered early plans for some sites we had selected for conservation work – as ownership was not certain for the months ahead. The death of one landowner led to the cancellation of our big re-opening ceremony with a tour for Bugle Pit, near Aylesbury. Ownership is still in dispute and the matter remains in probate, but when access is permitted again the group will arrange a belated opening ceremony.

Outcome overview

Conservation work

A monitoring programme of all sites designated as Local Geology Sites was undertaken, and during the project other potentially new and interesting localities were investigated and rated for their heritage value (using the proforma in Appendix 4).

Sites designated as Local Geology Sites, and therefore monitored and assessed, appear in the listing of Appendix 5 (a total of 34 sites). Other sites were added for consideration (by local suggestion) and this resulted in the following list of twelve sites for conservation and research during this project:

Coombs Quarry, Coombs, near Buckingham
Buckingham Sand Pit, Buckingham town centre
Stowe Quarry, Home Farm, Stowe (National Trust)
Whiteleaf Nature Reserve and Whiteleaf Quarry, Monks Risborough
College Lake, Marsworth, near Tring
Northmoor Hill, near Denham
Bugle Pit, Hartwell, near Aylesbury
Naphill Common
Brickhills stone quarry, Great Brickhill, near Leighton Buzzard
Moorend and Cadmore End brick pits and kiln
Medmenham Chalk Pit, Medmenham, near Marlow

Site work at these locations varied widely. The geology at these sites ranges from Jurassic (200 million years old) to Ice Age (2.6 million to 10,000 years old). The rocks, fossils and environments represented were also very different – from tropical ancient seas at Coombs and Whiteleaf, to icy tundra at College Lake, and ice sheet debris at Buckingham and Stowe. Industry was evident at several sites from chalk quarrying and cement making (College Lake) to clay extraction and brick making (Cadmore End). At several sites the human influence on landscape (other than industrial) was evident as archaeological features were present on site

and these added an interesting variety to the topics and research agendas developed by the volunteers.

The types of ecosystem present in each of these areas are also very different and a direct link to the rock type was evident. Nature surveys were very popular with all age groups and the information gathered was not only of interest and of use to many local groups, but has been submitted for national records via BMERC.

Major conservation work was focussed on Bugle Pit, Coombs Quarry, Buckingham Sand Pit, and Stowe, with minor work and research undertaken at the others.

Research

Research took place at many different levels:

- experimentation with school groups (soil investigations);
- literature research from archives and web searches into old industries;
- research into local public buildings and the stone resources used to build them;
- research into specific rock types e.g. sarsens; Oxford Clay, Chalk
- basic geological recording of newly cleaned quarry faces;
- wet sieving to retrieve microfossils leading to professional research (at least two research papers in preparation now)
- fossil collecting from newly cleaned faces followed by interpretation (all specimens to be lodged with the collections at the Bucks County Museum, Aylesbury)

An example of a record of the new geological face appearing after the major clean-up of Coombs Quarry can be seen below. The log was recorded by a team of new recruits with no geological experience, but after training they were able to accomplish a professional geological log of the section (seen over page).



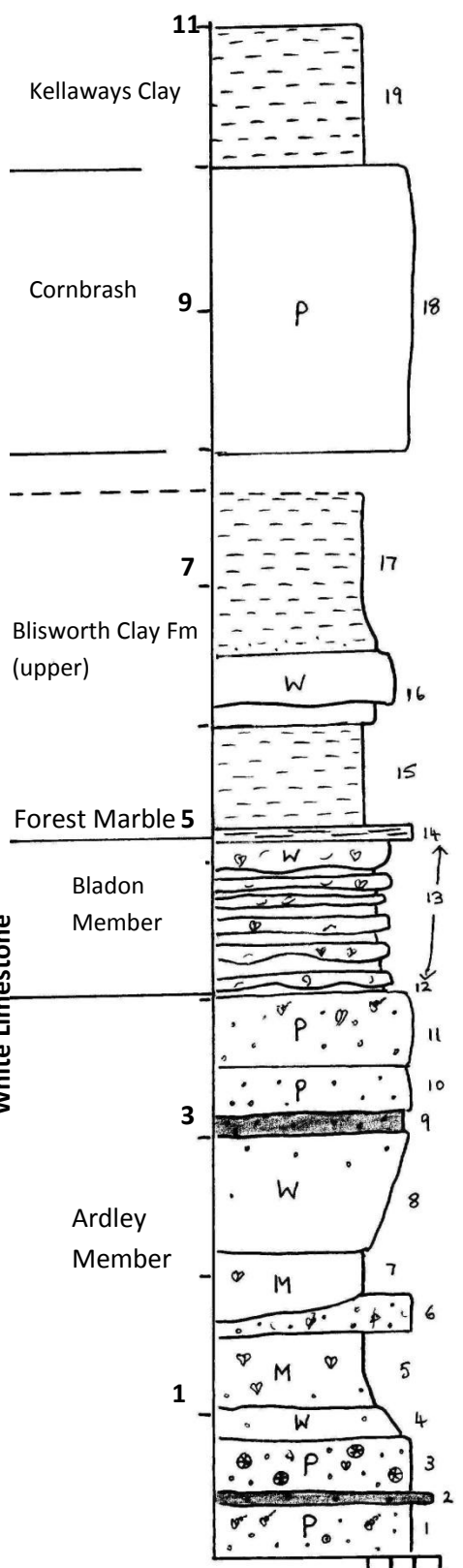
Figure (left)

One of the faces at Coombs Quarry showing an investigation into the ancient environment that these limestones provide – which is a window into a tropical sea much like the Bahamas of today.

Figure (overpage) The geological log recorded by volunteers

Ancholme Group

Metres Bed No.



Log of the section at Coombs Quarry

Clydoniceras, Meleagrinnella

Cerethyris, numerous bivalves
A. bladonensis, bivalves: modiolus, Liostrea, Plagiostoma
 Lignite, plagiostoma, Modiolus, Bakervillia, Pleuromya
 Modiolus, Pleuromya, fish teeth, lignite
 Numerous *Liostrea* in marl partings
A. bladonensis

Thamnasteria
Aphanoptyrus langrunensis

Great Oolite Group

White Limestone

Ardley Member

Bladon Member

Forest Marble

Blisworth Clay Fm (upper)

Cornbrash

Kellaways Clay

micrite
 wackestone
 packstone
 grainstone

- Echinoderm
- ◡ Gastropod
- ⊗ Coral
- ∩ Brachiopod
- ♥ Bivalve
- ⋄ Oolites
- Limestone
- Sand, calcareous
- P Packstone
- W Wackestone
- M Micrite

An example of a photographic record from the building stones survey is shown here for Ivinghoe Church (recording sheets for 22 sites may be found on the memory stick provided):



Education and engagement: a very wide-ranging variety of events was organised to incorporate everything from the large public show events where thousands of people attend to one-to-one training in a particular skill. The latter was employed where that one person was to take the newly found skill or knowledge to go on to train others.

Training and recording sessions were the most numerous (50 events), with 25 talks, 21 walks, 12 family or 'big' events, 13 school classes and 29 mobile display locations along with one substantial and permanent display at College Lake (many thousands of visitors annually). Examples of many of the events can be found on the memory stick.

Project legacy for our heritage and local communities

The importance of this project lies in the knowledge that without the input of professional assistance that the funding allowed, many of the sites that received conservation work would now be so overgrown that they would not be used or even accessible to see. Without the *Rocks and You* project many individuals, groups and community leaders would not have realised how important their local heritage is – important for them locally, but also important as excellent examples of British heritage. Education was a major factor in this project. The information and events were presented in such a fun and accessible way that this has left many of the sites in a good condition, with a workforce in place to keep them in good



Bugle Pit, Hartwell – before (above)

Before the group work the site was completely overgrown, steep sides with no steps in, hence no access and no rock faces visible.



Bugle Pit – after (left and over page)

This is the pit almost there – with open, safe access. The next stage was to clear the floor and faces to reveal the rocks. The debris was deposited in gabions, which then formed seating. The site is now suitable for all ages and abilities to visit with teaching samples and information available for ‘show and tell’.

condition, and also with a wealth of information that can be used for many years to come. Trained volunteers can now lead walks or give simple presentations to their own local groups. A good example of what we achieved is provided by Bugle Pit, a site which shows a story of Jurassic dinosaurs and a tropical landscape suddenly flooded by the sea – in the middle of modern-day Buckinghamshire!



Stromatolite Layers arrows indicating location of 2nd layer sample



Review

How did we do?

You need good ways of measuring this and how you did also depends on what you aimed to do, plus any adjustments to that plan, and also how you measure ‘success’. As the project was so varied in its approach and its content, our methods of measuring also had to reflect this variability. We used many methods:

- **Direct counts (using a hand-held counter)** for public events in an enclosed area such as Stowe Geology week, the Henley show or indoor displays and talks. Results appear in the events table Appendix 1.
- **Direct counts** of volunteers on our e-mailing list and those then contributing to site work, at events, or research.
- **Talking to people** directly at events, or via e-mails, telephone calls or receiving letters or thank you cards – assessing qualitatively how people had reacted to certain events and whether it had helped them in any way (such as understanding, skills, pleasure, etc).
- **Reflection slips** – handed out to people and once completed they put them into collection boxes at events. On the slips we asked a few key questions about their enjoyment of the event, what they had particularly enjoyed, what they did not enjoy, what might be improved or added, and to name a key thing they would remember. A prize from a draw was offered to entice more entries. The total was 651 slips returned from five selected large events.
- **End of project evaluation form.** Sent out to all volunteers, all groups that had been involved and BEHG members (Appendix 3). Fifty-three forms returned.

During the project we set target dates to assess how we were doing and every 4 to 6 months held an evaluation meeting to discuss progress and make plans for adjustments or bounce new ideas into the programme. At several stages we also asked people (BEHG members, other groups or individuals coming to events what they were interested in and why they had joined in the programme that day and what would like to see happen in future. This was very useful and helped new ideas quickly enter the programme. Although there are certain key targets that form the thrust of any project, flexibility is crucial to success. People have excellent ideas and are keen to get involved in a greater way if they feel they have engaged in the decision-making.

Who took part?

The target audience was ‘everyone’ from every walk of life and from every background. We achieved just that. Age-wise from 3 years old to 93 (I didn’t ask, but guessing!). Ability wise: from no knowledge to professional researchers. Educational backgrounds and ethnic groupings were equally as varied, often dependant on which area we held the events – truly a local catchment, with a few eager beavers who started attending all events.

What worked well

Information from Question 1 of our evaluation sheets (Appendix 3) indicated that only 15% of people taking part in the project had ever been involved in a heritage project before. Of the 85% for whom this was a new experience, all responded that it had been enjoyable and that they had learnt a new skill, which was very positive.

Question 2 on the survey asked 'Why did you get involved?' From all the respondents to the survey all selected that they had got involved to contribute to local activities and knowledge, and 96% responded that they also wanted to have fun and learn new things, with 45% using it as relaxation, 28% said they wanted to know more about geology, 23% to do conservation work, and 19% to meet people. In the 'other' category there were 15% who got involved in order to help their own groups or societies.

Question 3 on the evaluation survey asked 'Has this project helped you know more about geology in general and particularly the local area?' A very positive 94% said 'a good deal' with the remaining 6% responding 'a reasonable amount'.

Question 4 'Have you enjoyed participating or hearing about the project?' A total of 90% responded with a 10 (hugely enjoyed) with the remaining 10% rating this as 8 or 9 out of a scale of 1 to 10.

Question 6 was possibly slightly confusing as the response seems to be related to precisely what parts of the programme the respondent was engaged in. Those involved with exciting new sites such as Bugle Pit or Coombs Quarry rated this as very important between 9 and 10 on the National scale and 10 for the local importance. For those people involved mostly in topic research or workshops this question became confusing.

All respondents ticked the 'yes' to take part in follow-on projects or new projects. Extra comments added to the sheets were mostly a 'thank you' for allowing them to join in or awaken their eyes to hidden sites around them. Some noted that they had joined local groups that they had met alongside us on the events days.

All events were well attended. Only one event (the Northmoor open day for displays and tours) was not well attended. This was entirely due to trusting an outside organisation to do the advertising and invitations, and not checking to see that it had been done. Lesson learnt.

Events were really enjoyed, often with enthusiastic requests for more events and sites suggested for our attention for future surveys. The feedback from talking to people and from the reflection slips showed that this was due to several factors. Firstly, it was the unusual nature of the topic. Many people had not thought of 'geology', as in rocks and fossils, as a heritage item. The majority had no prior knowledge of their local geology or concepts of how geology slots into everyday lives. In general, children were quite knowledgeable, whereas adults from the general public knew very little and even held a little 'fear' in having a go during events, as it was perceived as a science and therefore difficult. Adults from local

geological or archaeological groups were more informed. Children just got stuck in – dragging adults with them! As children were particularly excited about dinosaurs we used this early on to develop a trail to follow a route around our sites or within an events arena to find us. This took the form of a laminated set of dinosaur footprints strategically placed so the ‘dino trail’ could be followed and led to our display.

Other groups have taken an interest in our methods of engagement and we have shared knowledge and shared speakers or site leaders. College Lake (a BBOWT site) was very enthusiastic about a permanent display. Their displays so far have only incorporated nature and particularly birds, for which their lake is famous. The lake, however, is on old chalk quarry and our two board large interpretation panels will now form pride of place in a new geology centre for which they are currently securing funding.

Stowe was a one week event called simply ‘Geology Week’ with displays and activities changing each day over 7 days. There were 970 visitors catered for, averaging 1 to 2 hours per visit; some stayed longer or returned for a second day. One particularly good method of finding out the event catchment area for our visitors was to put up a very large geological map of England on the wall (backed by a soft board). As visitors arrived we had the ‘meet and greet’ volunteers welcome them and invite them to put a pin in the map showing where they were from. The pins were left in place over the day and so we could see the visitor distribution picture grow. The pins were colour-coded: red for families, green for couples and yellow for an individual, hence their proportion was easy to calculate, along with a hand-held counter in operation at the entrance. This led to much excitement as people could immediately see from the map what rocks their house lay on, it also led to amusement when we quickly needed to haul out a map to include northern England and Scotland. However, we

were beaten when we had visitors from Switzerland, Austria, Holland, Germany and New Zealand!



Pers, a budding young geologist at Stowe. He came for a quick visit, saw the microscope, and stayed all day!

By the time Pers left he could ID all fossil shark teeth and was going to be a geologist.

What did not work well

Considering the hundreds of people that the end of project evaluation sheets went out to, and despite a couple of reminders to send them back, only 53 were returned. Prize draws worked well to boost returns earlier in the year (via the events slips) and I should have learned from that point. It was a mistake to believe that just the notion of helping the end of project evaluation would be enough to return the forms.

Changes in land ownership meant there was a large delay in being able to start the conservation programme at several of our sites, and one (Bugle Pit) still has problems, hopefully to be resolved very soon.

We could have engaged with the media much better. Although lots of attempts were made such as media release briefings, contacting news offices, sending in little stories, snippets and photos, very little happened media-wise. Despite this, we had a very good turn out to events and word of mouth swelled the ranks of the volunteers. For any future projects I will engage one volunteer just as the media person, but unfortunately this did not happen on this occasion.

The evaluation survey could be anonymous, but unfortunately this did not allow a follow-up on a response. This form should continue to be anonymous, but the questions need to be very clear cut to avoid ambiguity. Literacy was also an issue at a few events, which was fortuitous that we all enjoy chatting as verbal feedback was very useful on these occasions.

Project conclusions

In summary, the project has been highly successful. The project has completed far more than we set out to do in our original bid to the HLF (as laid out in the events list and in the printed outputs file). Achieving this can only be possible with good leadership, a sprinkling of inspiration, lots of energy and enthusiasm and a really good team of volunteers. We had engaged a huge number of people new to geology, many remaining with an interest in their local site either informally or with direct membership of a local group. We had also undertaken some tricky and complex conservation work which has allowed a number of sites to be open for visitors as a direct result. The interpretation, surveys and research undertaken has been a very enjoyable part of the work for everyone involved. This data has improved our knowledge and made information available to people at a level appropriate to them – for children, the general public, geologically aware public or specialists. This work will continue as part of the group's on-going work as there were too many sites and too many interpretations possible for the time and resources of the project. The BEHG committee would like to thank the HLF for being so supportive, as without this funding we could not have achieved very much at all.

Appendix 1 Events list

To add

Appendix 2 In-kind record

To add

Appendix 3 Evaluation questionnaire

Rocks & You

End of HLF project questionnaire

Please mark your selection (as many as are relevant), save the form, and e-mail or post it to:

Jill Eyers, 13 Pusey Way, Lane End, HP14 3LG. J.eyers@btopenworld.com

1. Have you ever been involved in a heritage project before?

YES NO

2. Why did you get involved with this project?

- (a) learn new things
- (b) to relax
- (c) to have fun
- (d) to contribute to local activities and knowledge
- (e) discover more about geology
- (f) meeting people
- (g) do conservation work
- (h) other:

3. Has this project helped you to know more about geology in general and particularly the local area?

- (a) A great deal
- (b) A reasonable amount
- (c) A little
- (d) Not much, if anything

4. Have you enjoyed participating or hearing about the project?

Scale of 1 to 10 (1 is not at all and 10 is hugely enjoyed)

5. Did you learn a new skill?

(This could be a technical skill like recording, or a thinking or observational skill, or a practical skill such as site work)

YES NO

6. How important do you think the project is in national terms?

On a scale of 1 to 10 (where 1 is no importance to 10 of national importance)

7. How important do you think the project is to local people and local geology?

On a scale of 1 to 10 where 1 is no importance and 10 is very important

8. Please add any other brief comment you may wish to make: (overleaf, or extra sheet)

9. Would you want to take part in any follow on project or new project?

YES (if yes then please add name below) NO

Name: (not obligatory)

Thank you very much for your time, much appreciated, Jill

Appendix 4 LGAP form for assessing geological heritage (4 pages)

Geodiversity Profile

File reference:

Location:	Grid Reference:		
Type and extent of site, including rock exposure:			
Summary of geodiversity (lithologies, structures, fossils, minerals, geomorphology, applied geology):			
<p>Part A: Geodiversity Measure</p> <p>Geological interest categories at the site (underline or circle those that apply):</p> <p>Sedimentary rocks, Igneous rocks, Metamorphic rocks, Structural/tectonic features, Palaeontology/palaeoecology, Minerals/mineralisation, Stratigraphical relations, Geomorphology.</p> <p>(Criteria: D – poor exposure / poorly developed geological interest, C – clearly exposed single category, B – clearly exposed 2 categories, A – clearly exposed 3 or more categories).</p>	(A, B, C or D)		
<p>Part B: Geodiversity Values</p> <p>There are three parts. The criteria are defined below. Further details with examples are given in the Guidance Notes.</p>	X		
1. Scientific value	<table border="1" style="width: 100%;"> <tr> <td style="width: 50%;">Range</td> <td style="width: 50%;">Value</td> </tr> </table>	Range	Value
Range	Value		

<p>1. a. Litho / bio / chronostratigraphy 1- 4</p> <p>Justification:</p>	
<p>1. b. Geological history and/or process 1- 4</p> <p>Justification:</p>	
<p>1. c. Applied geology 0- 4</p> <p>Justification:</p>	
<p>2. Educational value for pure and applied geology</p> <p>Justification: 1- 4</p>	
<p>3. Historical, Cultural and Aesthetics value 0- 4</p> <p>Justification:</p>	
<p>only) TOTAL (Part B</p>	

Part C: Ecological Component (give details below) Range 1-3 1. There is no link demonstrable 2. A link may be present but cannot be clearly demonstrated 3. A clear link can be demonstrated	
The geo- and biodiversity link is direct (a), indirect (b) or both (ab) a, b or ab 	
Name of person(s) making the assessment: Dr J. Evers	Date:

Geographical area chosen for site comparison in determining Scientific Value:
Additional Comments, Parts A and B: Geodiversity Measure and Geodiversity Value. (Further details of the geodiversity. Include any information from fieldwork and literature that is used to justify the Measure or Value, and is not given above)
Additional Comments, Part C: Ecological Component Details of direct or indirect link:

Main literature references and other sources of information (including personal knowledge):		
Existing designation(s) of site?: (underline or circle)		
Site of Special Scientific Interest (SSSI)	Yes / No	
RIGS / County Geology Site	Yes / No	
Other(s) :	Yes / No	
Provide information:		
Designation applies to:	whole of site?	<u>Yes</u> / No
	part of site	Yes / No
	extends beyond site	Yes / No
Photographic record made?	<u>Yes</u>?	No?

(NB Instructions are provided with these forms, but not provided here)

Appendix 5: List of Local Geology Sites

Buckinghamshire: 27 sites

Beacon Hill, Ellesborough
Bradenham Sarsens
Brill Hill
Buckingham Sand Pit
Burnham Beeches Gravel Pit
Cliveden Caves
Colestropes Pit
College Lake
Coombs Quarry, Thornborough
Dinton Castle
Downley Common
Dunton's Brickpit, Latimer
Frith Hill, Great Missenden
Gubbins Hole, Moor End Common
Hartwell Estate Walls
High Wycombe Pit
Holtspur Bank LNR
Ivinghoe Beacon to Incombe Hole
Medmenham Chalk Pit
Northmoor Hill
Soulbury erratic
Springfield Farm Gravel Pit
Stowe, Home Farm Pit
Tring Hill A41 section
Wendover Woods
Whiteleaf Cross Nature Reserve
Whiteleaf Quarry

Milton Keynes: 7 sites

Bradwell Abbey
Great Brickhill, St Mary's
Great Linford
Haversham Mill River Bank
New Bradwell Railway Cutting
Stony Stratford Nature Reserve
St Peter and St Paul's, Olney

Total LGSs = 34 sites