



Newsletter Issue 9: June 2000

In This Issue:

- **What's new in the Group**
- **Director's Report**
- **Literature Database**
- **Geological and Landscape Trails**
- **Website re-vamp**
- **Funding**
- **Mortimer Forest - SSSI Remedial work**
- **In the next issue**

Introducing...

A new logo: How do you represent geology, geomorphology, Herefordshire and Worcestershire in one logo, without favouring either against the other? The only suitable solution, we felt, was to use an East-West view of the Precambrian Malvern Hills, with the ridge and vale Silurian landscape of Herefordshire to the west, and the flat Triassic plain of Worcestershire to the East. The result can be seen above, and the colour (green) version will appear on our letterheads and website in the near future.

More RIGS employees: The Group now has four employees. At the beginning of this year, Ruth Thornhill and Adam Stinton joined Peter Oliver and Pauline Couper as Trails Managers. Ruth, a PhD student at University College Worcester, is working on the production of geology and landscape trails in Herefordshire. Adam, a graduate of Plymouth University, is doing the same for Worcestershire. Adam will, however, be leaving us this summer to pursue a PhD in volcanology in the United States.

A new Executive Committee: The AGM of the Group was held on February 1st this year, and resulted in the election of a new Executive Committee. The Committee now consists of:

Les Morris (Chair)
Moir Jenkins
Dr Cheryl Jones
John Medley
Peter Thomson

The Third UK RIGS Conference: The Conference this year will be held at Newton Rigg, Penrith, Cumbria, from the 30th August to the 2nd September. The themes are 'RIGS in Operation', 'Case Study Experiences' and 'RIGS and Planning', with a town trail, field trip and social events (such as a cheese and wine evening) included in the programme. For further details telephone 01636 670000.

A party from Herefordshire and Worcestershire will be attending, with member's fees subsidised by the Group. If you are interested in coming along, please contact us.

Director's Report

Since the award from the Heritage Lottery Fund in April 1997 considerable progress has been made in the programme as set out in the contract. The latter calls for the production of an archive of site information (1500 sites) and the designation of RIGS. The funding has also resulted in a number of significant spin-offs.

The Geological Records Centre (GRC) now has approximately 1200 site records. This number is set to increase significantly during 2000 as more emphasis is placed on this aspect of the work. Literature searches are forming the basis of the work with British Geological Survey Memoirs, field club proceedings and published papers being used at present. In addition volunteer members are still carrying out field recording and completing Geology Locality Record forms.

As well as site recording, other significant changes have taken place. The GRC is now housed in a decently sized room with a window and since the beginning of the year, and in addition to the Director and Data Manager, the Group has two Trails Managers, Ruth Thornhill for Herefordshire and Adam Stinton for Worcestershire. Volunteers have taken on major work in certain areas; Rollo Gillespie in the Forest of Dean in southern Herefordshire, Ros Skelton in the Woolhope Dome and the Malverns, Martin Allbutt in Mortimer Forest, Les Morris, work in the Abberley Hills, Wyre Forest, and the Lickey and Clent Hills.

The attempts by the Group to carry out SSSI survey and maintenance work have come to fruition with a contract from English Nature to carry out remedial work on the upper Silurian (Ludlow) succession exposures in Mortimer Forest. Also we have completed the first of two surveys for English Nature in the Malverns, which will probably result in further contract work. These developments are particularly important for two reasons; firstly the Group is clearly recognised as a fully professional organisation, and secondly income is generated for other projects.

Fundamental to the long-term success of the Group are the securing of grants and income. We probably have enough Heritage Lottery Fund money for 2 more years and so we must now concentrate on generating income after that. Anyone wishing to get involved in the financial planning for the Group would be most welcome. We have secured funds for Herefordshire trails from Leader II (European Regional Development Fund) and Herefordshire Council, whilst in Worcestershire the initial money is coming from Worcestershire County Council grants and income from our work on the 1998 and 1999 UK RIGS Conferences. We also have made an application to the Royal Society for Nature Conservation and the local Duckworth Trust for financial support with the Worcestershire trails.

The geological and landscape trails should help to raise the profile of the Group with the general public and schools. A few draft trails will be available in the next few months, thus giving our 'trails testers' the chance, at long last, to try them out. Any volunteers who would like to develop a schools liaison project to promote trails and other aspects of the Group would be very welcome.

The database that has been used to date, GD2, has been abandoned because of its inflexibility. We have been extremely fortunate in that Dr Cheryl Jones has been prepared to devote considerable time to the development of a Microsoft Access database which we can transfer the site records to. This will work with other Microsoft Office programmes and Geographical Information Systems. Pauline Couper has begun trials with the new system before further development occurs. If this proves successful some 400 further paper records will be added to the dataset. The Group has subscribed to EDINA (a Geographical Information System package available to educational

institutions) to complement the database. With some financial support from UK RIGS, the database format could be made available to all RIGS Groups.

The first RIGS Designation report will be made available in the near future. Copies will be sent to County and District Councils and landowners. The designation process has now been fine-tuned with a combination of site visits and indoor meetings by the Panel of Assessors. The Panel has proved to be a truly professional committee in the way that it has exercised rigorous scientific appraisal of the nominated sites before designation. The Panel in 1999 consisted of Professor David Dineley, Rollo Gillespie, Jonathon Cooter, Dr Cheryl Jones, Les Morris, Peter Thomson, Rosemary Roden, Pauline Couper, Dr Derek McDougall, Kate Andrew, Martin Allbutt and Dr Peter Oliver.

Other notable events during the last year were a second successful UK RIGS Conference, representation on the Local Biodiversity Action Plan committee for quarries and pits, consultation by Worcestershire County Council and Herefordshire Council for their Structure Plans and Landscape Character Assessments and the publication of the Proceedings of the 1998 and 1999 UK RIGS Conferences.

Finally, it should be recorded that the Group is indebted to Alan Cutler for his contribution to the setting up of Herefordshire and Worcestershire RIGS Group. He sat on the Steering Group, along with Helen Stace and Peter Oliver, up to 1997 and then took over as acting Chairman until the first AGM in 1998, when he was elected as Chairman.

Literature Database

John Payne, a volunteer member of the Group, has begun work on the generation of a literature database. He writes:

The intention is to create a full listing of publications relevant to sites in Herefordshire, Worcestershire and closely adjacent areas. Eventually this will complement, and form a part of, the all-important sites database in Microsoft Access format. In addition, it is anticipated that a sizeable collection of reprints and photocopies of the papers containing information on specific sites will be created and held in the H&W Geological Records Centre as a reference source.

The publications list will form the basis of the systematic search of the literature for specific site information on potential RIGS. To date, a listing of 849 papers and books has been compiled and computerised, principally from the reference lists within the available BGS Memoirs. The listing, the results of the search and additional information will be merged with the developing RIGS sites database.

In order to assist this work, we appeal to any H&W RIGS members who hold personal copies of relevant literature to consider loaning them to the GRC for possible photocopying and rapid return.

Geological and Landscape Trails

Herefordshire

Ruth Thornhill writes:

Work has begun on three of the six geology and landscape trails planned for Herefordshire. Wigmore Glacial Lake Trail will be the first to be published later this year. Sites on this trail include Wigmore Castle and Downton Gorge. The castle provides a good viewpoint over the former glacial lake as well as a forum for the examination of different types of building stones used in its construction. Downton Gorge is a dramatic landscape feature - an overflow channel of the former glacial lake.

A second trail under construction is entitled The Building Stones of Hereford City Centre. A route

has been identified and research is underway to identify the provenance of some of the building stones in the city centre. If anyone has any information on either the source of local stones or some of the more exotic building stones, please let us know at the Geological Records Centre. Initial research has also been carried out for a separate trail proposed for Hereford Cathedral, for which permission has been given in principle by the Cathedral Authorities.

Trails planned for 2001 are the Wye Valley at Symonds Yat, Goodrich Castle and one other, yet to be decided. The project is part-funded by LEADER II (European Regional Development Fund) with contributions from Herefordshire Council.

Worcestershire

Adam Stinton writes:

Since taking up my post as Trails Manager for Worcestershire, I have been working on trails in 3 areas: The Lickey Hills, Worcester City Centre and Worcester Cathedral, all of which are walking trails. The selection of these localities from a list of about 6 was based on a number of factors, including visitor numbers and whether the geology/geomorphology of the locality was suitable enough to be turned into a simple trail. I am targeting the guides at the public who have no prior knowledge of geology and geomorphology. Consequently, the technical language has to be kept down to an absolute minimum - probably the most difficult part of producing these guides.

The Lickey Hills trail leads people around a 3 mile loop showing them the geology and geomorphology in the area. All of the major rocks in the area (Lickey Quartzite, Keele Clay, Kidderminster Formation), are included, allowing the visitors to walk through the geological history of the area. The trail around Worcester City Centre is primarily a building stones trail, taking people around the main shopping areas and pointing out the various types of stone seen. I have also included a section that points out some interesting points concerning the River Severn (e.g. meanders, the flood levels at the Watergate), as the river has played a significant part in the development of Worcester. Both this trail and the Lickey Hills trail have a figure of 8 route that allows for a break about halfway round if required. The Cathedral trail is purely a building stone trail and allows the public to explore a completely different and unusual perspective on the history of the Cathedral. I have tried to tie in some aspects of the history and architectural development of the cathedral as the choice of stone has changed in accordance with the architect's preference at the time. In producing this trail, I have been very surprised by the number and variety of stones found within the building. There are about 25 different stones, not all of which have been included as there is a limit as to how much information people are going to want to read and see.

All three trails have reached various stages of a draft version. The Lickey Hills guide is the most advanced, with a complete draft guide produced. As for the city centre and cathedral trails, I have draft versions of the text and a complete draft guide will be finished within the next 2 weeks. All three guides (and those for the Herefordshire trails) will be in exactly the same format (an A5 4/6-page booklet as suggested by the Executive Committee, or a normal style leaflet) with the same style front cover making the trails instantly recognisable as H & W RIGS Group Trails. It is hoped that the Group can publish at least one of the trails (the Lickey Hills) by September and possibly all three. Unfortunately I will not be able to see the guides published as I have accepted a Teaching Assistantship to study for my PhD at the University at Buffalo in New York State. As luck would have it, the university term starts mid-August. As a result, I am aiming to have draft versions of all three guides ready to be printed by the end of July so that any loose ends can hopefully be sorted before I leave.

Website re-vamp

Adam Stinton writes:

First of all, on behalf of the group, I would like to thank Lance Woodman for all the hard work he

put into setting up the website. He did an excellent job that was much appreciated by all.

Since taking over from Lance, I have given the site a bit of a make over. The two biggest changes are a new address (www.worc.ac.uk/rigs) and a new colour scheme. Other changes include a new section for information on trails and another for information about the sites that have been designated as RIGS in the two counties and some general reorganisation.

In the section about the trails, people who visit our site will soon find a brief description about each of the trails (e.g. where it is, what they will see) along with a few sketches and photographs from the guide and one of the guide itself. They will also be able to find out where they can buy the guides. The new section on RIGS Sites in Herefordshire and Worcestershire at the moment contains general information about what RIGS sites are and how they are designated. I would hope to have pages containing limited information about the sites that have been designated so far, such as a description of the geology/geomorphology of the site, a few photos/sketches and information on where to obtain more information (i.e. the group). Whether I am able to start this before I leave, I don't know. If this is the case, I hope that whoever takes over the website from me will be able to do so. In the meantime, if any one has any comments about the site, please contact me at the Geological Records Centre or by email (a.stinton@worc.ac.uk).

Funding

The major supporter of the work of the Group is the Heritage Lottery Fund. In addition there are other organisations that have played an important part in helping with the on-going work of maintaining the Geological Records Centre, of the production of trails and guides and of building up a type collection of local geology samples. Grants have been received from the European Regional Development Fund, English Nature, Herefordshire Council and Worcestershire County Council. University College Worcester has also provided much support. It is essential that the Group secures long-term funding for the important and various undertakings, particularly in education. The Group has started a campaign to seek grant aid from the District Councils in Worcestershire and businesses in the two counties. Any suggestions to further this programme would be greatly appreciated.

Mortimer Forest - SSSI Remedial work

The following is a fuller version of the article produced by Peter Oliver and Martin Allbutt which appears in the July issue of Earth Heritage magazine.

The Mortimer Forest Site of Special Scientific Interest is a dispersed set of forest track sections and was designated in 1975 following the important work of Holland, Lawson and Walmsley (1963), Lawson and White (1989) and others. The sections are listed within the Geological Conservation Review and illustrate the full succession (see table) of the Ludlow Series of the Silurian. The Ludlow Anticline sometimes referred to as the Wigmore Dome, is that wonderful example of a pitching anticline in the northern part of Herefordshire just south of the Shropshire border, where rocks of the Wenlock, Ludlow and Pridoli Series outcrop. The chrono- and lithostratigraphy for these are shown in the table.

The deteriorating condition of the sections had led Herefordshire and Worcestershire RIGS Group and neighbouring Shropshire RIGS Group to carry out an assessment of the extent of the loss of the type sections. Recommendations for remedial work were discussed with the local English Nature (EN) office and formal proposals were made for H&W RIGS Group to carry out the work for EN. The proposals for restoration and vegetation clearance fell neatly within the major geological SSSI 'Facelift' programme of English Nature. As a result H&W RIGS Group was contracted by English Nature to carry out remedial work and was asked to liaise with the land managers Forest Enterprise. The work was undertaken in the early part of 2000. Forest Enterprise gave much support and

assistance to the operation thus enabling an early start and efficient progress.

There are eight sections in the SSSI. The locations of three of these that required remedial work are known as Goggin Road, Deer Park Road and Sunny Hill track. They are all deep within the forest and as a result topographical views are restricted except along the Goggin Road section where there is an excellent view westwards along the axis of the anticlinal fold and showing a landscape of two inward facing scarps resulting from erosion of the crest of the fold.

It is believed that the earlier publication of Holland et al first introduced the subdivision of the Ludlow series using type sections drawn from named localities within the Mortimer Forest area, i.e. the Gorstian and Ludfordian Stages with the Elton, Bringewood, Leintwardine and Whitcliffe Formations. The later publication of Lawson and White provides the most recent specification of Ludlow Series stratigraphy and its type sections.

The details of the proposed work and the assessments following completion are all contained within a summary report including a full photographic record (Herefordshire and Worcestershire RIGS Group, 2000). The three sections that were surveyed are:

1) Goggin Road.

Overall this, the longest section of the eight SSSIs, is in good condition. It contains no fewer than five stratotype or reference sections, spanning the Lower Elton to Lower Bringewood. Of these, in the first survey, it was found that the Lower Elton Formation (LEF) base was obscured; the LEF body was friable but accessible; the Middle Elton Formation (MEF) body was particularly good both for graptolites and its display of a set of bentonite layers; the Upper Elton Formation (UEF) body and the Lower Bringewood Formation (LBF) base which lie on a high, steep bank were beginning to suffer from encroaching vegetation and soil coverage. Excavation was required here to expose the base of the Lower Elton and its boundary with the underlying Wenlock Limestone. The latter is also well-exposed here and such an enhancement would complement the more inaccessible boundary in the nearby Pitch Coppice Quarry.

As the MEF body was suffering from heavy collecting (of graptolites etc.), a small widening of one side of the deep trench-like section was proposed in order to produce a large increase in the amount of talus and minimise the use of hammer and chisel and damage to the exposed bentonite layers. The UEF was in need of excavation as far as and a little across UEF/LBF boundary whilst the LBF itself would simply benefit from a cutting back of vegetation.

2) Deer Park Road.

Almost the whole of this rich section was lost by degradation and vegetation cover. The body stratotype of LBF in the 'conserved bank' (Lawson and White, p89) had all but gone. The basal boundary of the Upper Bringewood Formation (UBF) (Lawson and White, p90) was the only rock showing; the Lower Leintwardine Formation (LLF) basal reference section was submerged beneath a heavy cover of soil and grass; the LLF body stratotype was in very poor condition, fragmented and vegetated as were the Upper Leintwardine Formation (ULF) base and the Lower Whitcliffe Formation (LWF) base; conditions were only slightly improved for the LWF body stratotype. Since it was the better quality of sections along the Deer Park Road which prompted the replacement of a number of earlier type sections, this part of the SSSI is particularly important. With the exposure in such a poor condition its enhancement would involve considerable re-excavation of localities which lie within the 2 metre high bank on the north side of the road.

3) Sunny Hill.

The Sunny Hill quarry displays the basal stratotype for LLF and Ludlow Shale. The clarity of the exposed face is good but there is gradually encroaching vegetation of trees and ivy. The sections

along the track to the east-south-east, which contain LLF body stratotype and ULF boundary reference section, had all but disappeared, lost by degradation and under vegetation. It was proposed that much of the ivy and tree cover around the eastern (Overton) quarry be removed and that consideration be given to re-excavating at least two exposures, one of the LLF body, the other of ULF boundary, alongside the track and within the SSSI area.

The remedial work, which was jointly supervised by members of H&W and Shropshire RIGS Groups, resulted in a total length of 293 metres of roadside embankment scraped and/or excavated to heights of between two and four metres. All feasible boundary sections have now been re-exposed or exposure improved, with the exception of UBF/LLF along Deer Park where the expected Aymestry Limestone facies has not developed but instead is represented by calcareous siltstones and mudstones with interbedded rubbly limestones. In addition, there have been three extensive excavations aimed primarily at generating abundant talus at the Wenlock Limestone Formation(WLF)/LEF boundary; within a notable graptolitic exposure in the MEF and at the ULF/LWF boundary.

The co-operation of the two RIGS Groups enabled a quick and efficient programme to be carried out. The undertaking illustrates the way in which the expertise of RIGS groups can be utilised by English Nature in the management of geological and geomorphological SSSIs. Those groups around the United Kingdom that are already involved in similar close co-operation with English Nature know the benefits; recognition of professional status, streamlined working links, successful track record, better geoconservation and improved finances. Payment for the Mortimer Forest project has enabled Herefordshire and Worcestershire RIGS Group to continue with its programme of the production of geological trail guides and Shropshire RIGS Group plans to produce an itinerary as part of a proposed Geologists' Association guide for the south Shropshire area.

References

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LAWSON, J.D. AND WHITE, D.E. 1989. The Ludlow Series in the Ludlow Area. In Holland, C.H. and Bassett, M.G. (eds) *A Global Standard to the Silurian System*. Geological Series No. 9. National Museum of Wales, Cardiff. 73-90.

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In the next issue

Findings and recommendations following on from the Group's survey work in the Malvern Hills.