Herefordshire & Worcestershire
EARTH HERITAGE TRUST

Newsletter Issue 8: November 1999

The last newsletter of the Millenium. Many thanks for your support. Best wishes for the future.

In This Issue:

Notice of AGM

The Annual General Meeting of the Group will be at University College Worcester on Tuesday 1st February 2000. Please call at Reception for room information on your arrival. Membership fees (£1) will be due at the meeting. Nominations for a maximum of 5 positions on the Executive Committee should reach the Geological Records Centre at least 14 days before the AGM. The current Executive Committee consists of:

Alan Cutler, Chairman
Cheryl Jones
Les Morris
Peter Thomson

The Second UK RIGS Conference

Rockwatch Web Sites Data recording when collecting Jurassic Coast Project Activity of RIGS Groups RIGS Wales Geomorphology / Field Trip
Lake District 'Natural Areas' River Habitat Survey Archaeology Earth Alert AGM Proceedings

The following summary appears in 'Minerals Planner.'

Geological and landscape recording and conservation throughout the UK is now largely carried out on a county basis in England, and regionally in Wales and Scotland. These RIGS groups are made up of professional and amateur geologists and geomorphologists, and most of them came together at University College Worcester in early September 1999 when the conference addressed the issues of 'Best Practice' and 'Recording and Protecting Landscapes.'

Geoconservation involves many facets and the experiences of some RIGS groups as well as the British Geological Survey and other organisations provided a major stimulus to the first day of the conference. There was much to learn from Rockwatch, the only UK-wide club for young geologists,

with about 3000 members. The role of Rockwatch is to promote awareness of Earth science through education. To this end, Rockwatch is endeavouring to establish a network of volunteers across the UK to lead geologically-themed events for families. RIGS groups were encouraged to participate in these promotions. Encouraging quarry operators to assist in the education of school children can help establish an understanding of the relationship between extraction and conservaiton at a very early stage.

For further education and public awareness, a web site offers a unique way for RIGS groups to communicate with a wider audience. However, it is not just a case of loading the latest newsletter onto the Internet. Web site design involves knowledge of the potential audience and how they will want to access information - this may be a recursive process. Getting people to use your web site involves advertising and linking to other sites in the online geological and geomorphological community. A look at the Herefordshire and Worcestershire RIGS Group web site shows how links with other organisations such as museums can be of great benefit.

Museum work was illustrated, and for the potential scientific value and long-term utility of geological material to be realised, a few basic procedures must be followed. Rigorous recording of specimen data, appropriate storage methods and some knowledge of common specimen conservation problems are required. Specialist advice is available from a variety of sources, and RIGS groups were encouraged to create strong links with the museums. County and district museums in some areas have very well established geoconservation projects and form bases for RIGS work. There is much potential here however, to create such links in other not so active areas. Many RIGS groups have museum curators on their assessment panels.

An interesting study for geologists is the Jurassic Coast Project, which aims to promote people's understanding and enjoyment of the Dorset coast and to deliver economic benefits to areas that have lost jobs through cuts in the defence industry. Here the County Council has played a major role in helping with Earth Heritage awareness, a process that is gaining momentum as local authority countryside services throughout the UK get more involved in the promotion of geological trails and site interpretation facilities. The Dorset Project sees the diverse geology contained along the Dorset coast as a new theme to the tourist industry. However, it intends to promote far more than simply the geology and geomorphology, for these subjects underlie the coast and give rise to the landscape, wildlife habitats, local character and industries such as stone quarrying. Site recording in such areas is of paramount importance but, for organised groups, fieldwork safety provision has been increased markedly due to increased awareness and litigation. University student trips now have a strictly controlled safety policy; however, ever larger numbers increase risk. Individual project/field mapping work is now being constrained to the use of overlapping areas, mapping in pairs or group working etc. The lone research worker might be considered to be the most at risk and as such should be discouraged.

In order for field data to be interpreted by others and to have a long life-span (many British Geological Survey records regularly referred to, date back to the last century!) a standard and consistent scheme of recording has been adopted. Data is recorded in field notebooks which comprise a pocket-sized ring binder containing loose leaf reference sheets and record sheets. Reference sheets contain summaries of widely used rock classifications and are intended to impose a consistent framework for rock description and provide guidance for recording geological observations.

The conference also provided delegates with information about the activity levels of RIGS groups in England, Northern Ireland, Scotland and Wales. There is, as yet, no RIGS group in Northern Ireland, but it is hoped that several current developments may encourage the establishment of one. Scotland is home to an amazing range and number of potential geological and geomorphological

sites. Despite the enthusiasm and hard work of existing RIGS group members, the richness of the Earth science resource has not yet been reflected in a dense network of either RIGS groups or RIGS site coverage. The progress made, and problems faced, by each of the four Scottish Groups (located in Lothian and Borders, Fife, Tayside and Highland) were briefly reported. The RIGS network has historically been less well developed in Scotland than elsewhere in the UK. However, devolution of environmental matters to the Scottish Parliament, opportunities to raise Earth science awareness through the local Biodiversity Action Plan process, an increased awareness of RIGS within the statutory planning framework, and a proposal from the Scottish network to set up a Scottish Association of RIGS groups, are all powerful drivers for change.

Steady progress is being made on RIGS in Wales on a number of diverse topics. There are four regional RIGS groups represented by an Association of Welsh RIGS Groups executive, two members of which served on the UK RIGS Steering Group. A number of new limestone pavement RIGS sites resulted from research work commissioned by the Countryside Council for Wales, and a wide range of soil sites have been notified resulting from the preparation of a RIGS publication. A RIGS book on the Precambrian Highlights of Anglesey is in preparation. There was much to celebrate at the end of the first day, with an evening spent tasting wines from eight different countries.

During the second day emphasis was placed on geomorphology, with many examples of the importance of the physical landscape in education, research, recording and conservation. In terms of conservation, two types of geomorphological sites pose particular challenges: large, landscape sites and geomorphologically active sites. Of the latter, coastal sites are an important component. The need for such sites and the threats posed to them was considered. The delegates were given first hand experience of a dynamic geomorphological site when Les Morris took field parties to Bredon Hill, where mass movement features of the north slope were studied in detail. The area of interest is extensive and complex and poses problems to RIGS groups and planners when defining the limit of those areas to be conserved and protected.

An excellent example of research in the Lake District was given. Here it is generally assumed to have been characterised by an alpine style of glaciation during the Loch Lomond Stadial (c. 12.9-11.5 ka BP), with reconstructed glaciers emanating from corries and valley heads. Nevertheless, recent geomorphological mapping in the central fells demonstrates that some of these ice masses were, in fact, outlet glaciers draining small plateau icefields. Their geomorphological impact was minimal on the summits, where the survival of frost-weathered debris, including blockfield, implies the existence of protective, cold-based ice. Ice-moulded bedrock at some plateau edges, however, document a transition to wet-based, erosive conditions.

Traditionally, conservation has taken a top-down, site-based approach, but the last decade has seen a trend towards wider conservation goals. Related to this has come a new set of environmental initiatives including biodiversity, sustainable development and local distinctiveness. Earth science conservation has been slow to adapt to this new agenda, so that conservation opportunities are being missed and threats to the diversity of our Earth heritage continue. The 'Natural Areas' approach of English Nature has the potential to provide a framework for geomorphological conservation in the wider countryside, but has yet to fully realise its aims of moving away from a site-based approach and of linking biological and geological conservation. The conservation, protection and management of a successful habitat requires that it be understood at all levels. The unique habitat of limestone pavements, particularly Welsh pavements was explored, looking at what the pavements are, why they form and the legislation which purports to protect them. RIGS in Wales has undertaken to notify the limestone pavement sites within the principality and looks at the problems which may arise subsequent to their notification. The management of several Welsh sites was examined and the effect of grazing regimes examined. The problems of safeguarding a dynamic,

evolving system was discussed and raising public awareness of these sites is a priority.

The Environment Agency's River Habitat Survey (RHS) is a system for assessing the character and quality of rivers based on their physical structure. It records geomorphological features of erosion and deposition, flow types, channel substrate, bank structure and rare features as well as surrounding land use and management impacts. Map based information on altitude, slope, distance from source, height of source, solid and drift geology is also used. At present river-based RIGS are selected because of their outstanding geomorphological interest or because they present exposures of important geological materials. RHS can serve to assess and identify potential RIGS sites, by highlighting combinations of rare geomorphological features on rare underlying geology. An indication of the usefulness of the work is illustrated in the recording of the distribution of solid geology underlying UK watercourses, as indicated by analysis of the subset RHS sites. This is undertaken by comparison to the national reference database and evaluation at a national, regional or local scale. Examples of such methods for identifying nationally rare sites include the identification of the sites of large waterfalls, and extensive exposures of riverine bedrock on post-Carboniferous sedimentary rock.

There are potentially strong links to be made between RIGS groups and archaeology. Archaeology is now firmly established within the mainstream of development control with a new role for archaeological 'managers,' skilled in negotiation, as well as the traditional role of undertaking fieldwork. The bulk of funding for archaeological projects now comes from planning applicants themselves, including quarry owners. Indeed, the vetting of applications for quarry extensions has been an important part of this work and case studies from quarry applications in the 1960-80s and the 1990s were presented to illustrate the changes that have occurred.

To illustrate the importance of Earth Heritage, Professor Dick Moody turned delegates' attention to a forthcoming event: 'Earth Alert' will take place in Brighton between the 26-30 May 2000. It is organised around a three day conference and a major exhibition. The conference will address the past, present and future of our planet and focus on aspects of Earth evolution, geoconservation and resource management. The list of speakers reads like a 'Who's-Who' of geology and the Association has already enrolled 152 delegates for the full programme. Of 27 speakers approached only one could not attend due to a sabbatical year in the USA. Numerous agencies and companies will be sending exhibits to Brighton and our call is for interactive displays which will interest everyone who passes through the main exhibition hall.

At the AGM the member groups elected Dr Ken Addison to the position of Chairman of the Association of UK RIGS Groups. The new Committee has some important tasks ahead, not least of which is to establish firm links with the landfill companies in order to develop agreed procedures for the protection of important exposures as quarry restoration takes place. With goodwill on both sides the potential of landfill tax money, as assistance to the non profit-making and largely volunteer run RIGS movement, is great indeed.

Proceedings of the 1998 RIGS Conference are still available. The 1999 Proceedings will be available in late December; send orders to the RIGS Group for Herefordshire and Worcestershire at the address below. The cost of each is £9.50 including postage and packing. Details of the 2000 RIGS Conference will soon be on the website.

Area Volunteers

A volunteer site recording and literature search system now exists within certain areas of the two counties. There are still many blanks on the map but those areas that are active should provide a boost to the site dataset. Rollo Gillespie is concentrating on southern Herefordshire (Devonian, Carboniferous and Recent), Ros Skelton - Woolhope Dome and Shucknall Hill (Silurian), Martin

Allbutt - northern Herefordshire (Silurian and Pleistocene), Moira Jenkins and Ian Duncan - Malvern Hills (PreCambrian and Lower Palaeozoic), Robert Raine - eastern Worcestershire (Lias) and Cheryl Jones - Wyre Forest (Upper Carboniferous).

Geological and Landscape Trails
The Group has been successful in obtaining a grant from Leader II (European Regional Development Fund) to carry out the production of six trail guides and siting of interpretation panels in Herefordshire. The locations actively being considered, but subject to agreement with landowners, are the Wye Valley at Symonds Yat and Goodrich Castle, Queenswood Country Park, Eastnor Castle Estate, Mortimer Cross and Aymestrey, Hereford Cathedral, Hereford Town Centre, and the Black Mountains.

It is hoped that work will be under way on these sites early next year. Thus at long last the 'trail testers' may soon be able to begin work. Anyone with knowledge of useful exposures or features at the proposed locations please pass this information on to the Geological Records Centre.

Conserving Sites
The following information is taken from "Earth Science Conservation in Great Britain - A Strategy," published by the Nature Conservancy Council in 1990.

Approach to site conservation: In describing approaches to site conservation, it is helpful to distinguish two contrasting types of site. They are not mutually exclusive, but each group requires a broadly different approach. The two types have been called 'exposure' sites and 'integrity' sites. They can be defined as follows.

'Exposure' sites: sites whose scientific or educational value lies in providing exposures of a deposit which is extensive or plentiful underground but which is otherwise accessible only by remote sampling. The usual situation is that the deposit or structure in question is widespread underground and is almost certain to contain similar features to those visible at the site, but in practical and economic terms the depositis not available for study other than at the site. Such 'exposure' sites are numerically the most common category of sites and include most quarries, cuttings, cliffs, outcrops and mines.

'Integrity' sites: sites whose scientific or educational value lies in the fact that they contain finite and limited deposits or landforms that are irreplaceable if destroyed. The usual situation is that the deposit or landform is Quaternary in age, and of limited lateral extent, although many geologically older examples also fall into this category. Examples include glacial, periglacial, fluvial and coastal landforms and their associated deposits, cave and karst sites, and unique mineral, fossil, stratigraphic, structural or other geological deposits and features.
The importance of distinguishing these two categories is that conservation of each group usually demands a quite different approach. 'Integrity' sites are, by definition, finite and irreplaceable. The approach to their conservation is to maintain the integrity of their deposits or landforms. This approach is therefore weighted heavily in favour of preservation and of restricting man-made changes. In contrast, the conservation of 'exposure' sites depends almost entirely on preserving the fact of exposure; the actual material that is exposed at a face often does not need to remain, provided equivalent material can be exposed to form equally good or better exposures. Quarrying may, for example, be welcome because it creates fresh exposures. Similarly, continuing marine erosion is often indispensible to the conservation of coastal sites. 'Exposure' sites may be created where none existed before, and man's activities are in general far more compatible with their conservation than is the case for 'integrity' sites.

It must be stressed that 'exposure' sites are no less important than 'integrity' sites; in fact they are

critically important because of the huge cost and difficulty of creating new sites to replace them.

Any given site may not fall exactly into one or the other category, although experience shows that in general it will do so. For sites that are difficult to categorise, the concepts of 'exposure' and 'integrity' remain helpful in determining the approach to their conservation, highlighting conflicts in priority and assisting in developing a coherent approach.