

**SUMMARY OF TEACHING AND RESEARCH ACTIVITIES ON
THE HILTON EXPERIMENTAL SITE, EAST SHROPSHIRE
(1976-2010)**

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FOREWORD

Accelerated erosion resulting from farming activities is not a new problem in Britain, as there is abundant evidence for it since at least the Neolithic period. What is new is the realization that even small amounts of runoff from agricultural land can seriously pollute streams, rivers and lakes because of the nitrogen, phosphorus, pesticides and other agrochemicals carried in solution or as fine soil particles. In crop production terms soil erosion was always seen as a small, localized and intermittent problem. Even the most severely affected farmers learnt to live with it. Flooding and blockage of nearby roads and storm-drains by transported soil was also regarded by most local authorities as only a trivial and occasional nuisance. However, the recently recognized problems are on a very different scale. During most periods of moderate or heavy rain, small quantities of runoff and fine soil particles are lost from almost all sloping sites. Usually they are too small to noticeably damage the soil surface, so they hardly qualify as even minor erosion events. However, the runoff and fine soil often contain sufficient phosphorus and nitrogen to cause eutrophication of surface waters and enough pesticides to seriously damage wildlife.

Based on many years' observation of erosion events on the sloping fields and very erodible sandy soils of east Shropshire, Dr A.H. Reed saw the need for an experimental site to measure erosion rates under various agricultural and climatic conditions, to assess soil treatments designed to prevent erosion and to investigate the fundamental processes of runoff generation and sediment transport. When it was established in 1976 the Hilton Site was easily the best facility in Britain and most other countries for this range of research work, and this position has been maintained to the present by the scientific ingenuity and hard work of Dr Mike Fullen and many other staff and students of the School of Applied Sciences, University of Wolverhampton. Apart from the research achievements, as represented by over 50 scientific papers published since 1979, the most impressive feature of the experiment's 26-year history is the way it has been used to stimulate over 100 of the University's undergraduates to write dissertations on numerous aspects of soil erosion.

So there is good reason at this time to celebrate Dr Reed's foresight in founding the Hilton Site. At a national level, the need for it has increased beyond what even he could have imagined, and in research and educational terms it has achieved more than I suspect he ever dared to hope.

John A. Catt
Professor of Soil Science
University College, London
September 1999.

As Dean of School of Applied Sciences, I have seen at first hand the advantages and opportunities which have arisen from the experimental site at Hilton. Projects range from soil erosion to catchment behaviour of the River Worfe. The meteorological station has provided valuable long term data which has and can be used in extended analysis of catchment behaviour.

The site and facilities have stimulated postgraduate and staff research and, most importantly, have enabled undergraduates in their final Honours projects to gain hands-on experience of complex environmental systems. Experience has been gained in sampling, measurement, experimental design, data logging, data presentation, analysis and interpretation. A much better understanding of how environmental systems operate has been gained using this valuable University resource.

As a colleague of Dr Reed's of many years standing, I can confirm that his foresight and initiative have been of great value to the advancement of science at Wolverhampton.

Dr Edward Morgan
Dean of the School of Applied Sciences
October 1999.

The Hilton Experimental Site is a key component of the research facilities in the School of Applied Sciences. The significance of the site can be judged by the number and range of publications produced from work associated with Hilton, which are listed in this report.

The study of soil erosion and ways to control it within an agricultural context are of paramount importance both in this country and abroad, wherever intensive production methods are practised. Soil loss, deterioration of soil structure and loss of fertility are major factors limiting the sustainability of many farming systems. Where pressures on food production require intensive systems to be adopted on sloping land, it is essential that soil conservation measures are implemented at the same time, to minimize the inevitable erosion problems that will occur.

Much of the research at Hilton has been aimed at understanding the processes of soil erosion and testing measures designed to conserve soil and alleviate the impact of damaging cultivation practises on hillslopes. There are now a number of international programmes underway in both Europe and South-East Asia, carried out by multinational research teams led by the University of Wolverhampton, which have been developed from early studies carried out at Hilton. This international expertise has not only been an invaluable catalyst for generating external income, it has fed back into the teaching process through Masters and Honours projects. Therefore the contribution of Hilton to the research work of the University extends well beyond its boundaries within a delightful Shropshire valley. It will remain a focus of important soils research for many years to come.

Trevor J. Hocking
Professor of Applied Biology and Associate Dean (Research)
School of Applied Sciences
November 1999.

THE HILTON EXPERIMENTAL SITE, SHROPSHIRE

Soil erosion studies have been in progress in east Shropshire since the mid-1960s. A detailed survey of the Quaternary geology of the area by Dr Alan Harrison Reed provided evidence of an increased incidence and severity of soil erosion. Erosion events were usually directly attributed to particular agricultural management systems. In the three parishes of Claverley, Rudge and Worfield, 32.3% of the 108 km² area experienced erosion over a 10 year period (1967-76) (Reed, 1979). Field surveys have continued to investigate the extent, severity and causes of water erosion (sheet, rill and gully) and wind erosion. To complement these field surveys, the Hilton Experimental Site was established in 1976 by Dr Reed, to facilitate detailed experimental investigations and to quantify erosion rates and processes.

The Hilton Experimental Site is used for a range of studies on soil erosion and conservation and for studies on water, sediment and solute dynamics within the 40 km² Claverley Brook Catchment. The site is located 15 km west of Wolverhampton and 8 km east of Bridgnorth at 52°33'05.7"N, 2°19'18.3"W (U.K. National Grid Reference SO778952). It covers 0.52 hectares (5,214 m²) and has an upper elevation of 67.46 metres O.D. (Figure 1, Plate 1). The soil is a loamy sand (Psammcept) of the Bridgnorth series. The site was established in 1976 and possesses a fully equipped meteorological station (including a Unidata Automatic Weather Station and data logger), 21 runoff plots and soil moisture measuring equipment, including lysimeters. Stream monitoring equipment includes an Ott stage recorder at a rated section, an automatic water sampler and bedload traps.

The site has been a venue for field visits during international conferences, including the 'European Society for Soil Conservation,' the 'British Geomorphological Research Group' and the 'British Hydrological Society'. Experimental results from the Site are published in international journals (e.g. *Advances in GeoEcology*, *Archives in Agronomy and Soil Science*, *Agriculture, Ecosystems and Environment*, *Catena*, *Earth Surface Processes and Landforms*, *Environment Now*, *Hydrological Processes*, *International Journal of Environmental Studies*, *Journal of Meteorology*, *Journal of Soil and Water Conservation*, *Journal of Yunnan Agricultural University*, *Outlook on Agriculture*, *Soil and Water*, *Soil Technology*, *Soil & Tillage Research*, *Soil Use and Management*, *Span*, *Turf Craft Australia* and *Weather*). Experimental results from the Hilton site have been presented at many international conferences (in Atlanta, Barcelona, Birmingham, Bologna, Brussels, Budapest, Buenos Aires, Cadiz, Coventry, Durban, Indianapolis, Jelgava (Latvia), Kathmandu, Leeds, Leicester, Lleida (Spain), Liverpool, London, Mekelle (Ethiopia), Montpellier, Munich, Oxford, Palermo, Purdue, Reading, Reno, Riga, Rio de Janeiro, Rothamsted, São Luis (Brazil), Seattle, Siauliai (Lithuania), Silsoe, Tartu (Estonia), Telford, Toronto, Vienna and Vilnius). The Site has also attracted media coverage (e.g. BBC 1 'Farming Programme' 27/01/85, BBC 'Midlands Today' 23/10/95, BBC Radio Shropshire 13/11/91; 'Express & Star' Newspaper 22/04/92).

The Hilton Site supports undergraduate, postgraduate and staff research programmes. To enhance the international exchange of research and technology, two scientists (Professors Zheng Yi and Wu Bo Zhi) from Yunnan Agricultural University, Kunming, P.R. China, visited Wolverhampton. Each spent six months conducting field and laboratory work with their British colleagues at the Hilton Site. The Site also provides a facility for field testing and calibration of instruments and techniques before fieldwork overseas. For instance, both Dr W. Fearnough and Dr E. Milne field tested equipment at Hilton in advance of their Ph.D. field work in China. Hilton also provides facilities for the research training of placement students (e.g. Raja Istafar, Dudley College, 2000).

Adjacent to the Hilton Site, the Environment Agency is establishing a deep well. This will assist studies of the hydrogeological behaviour of a Triassic sandstone catchment. This is a long-term investigation, with a scheduled programme of over 30 years of monitoring.

A number of international visitors have visited the site (e.g. Dr B. Jankauskas (Lithuanian Institute of Agriculture) and Dr P. Matthews (The University of The Gambia)). Furthermore, research activities on the Hilton site are increasingly co-ordinated with international research efforts. For instance, there is joint research on carbon sequestration rates with the Kaltinenai Research Station of the Lithuanian Institute of Agriculture. The experimental design at Hilton has assisted and informed the design of other field experiments (e.g. at the Campus of Yunnan Agricultural University and Wang Jia Experimental Catchment, Yunnan Province, China and field experiments of Chiang Mai University, Thailand and The University of The Gambia).

Current and completed research programmes include:

- * Quantifying erosion rates on bare arable land and their response to rainfall erosivity and slope angle.
- * Studies on the effects of soil erosion on soil physical and chemical properties.
- * The potential of soil conditioners for soil conservation.
- * The potential of geotextiles for soil conservation.
- * An evaluation of the effects of set-aside land use on runoff and soil erosion rates.
- * Small-scale variability in precipitation amounts and analysis of rainwater chemistry.
- * Pathways of water throughflow within grassland soils.
- * Sediment and solute loss from a small agricultural catchment.
- * Catchment water balance and analysis of hydrographs and flow regimes.
- * Stream ecology.
- * Fluvial geomorphology, including channel geometry.
- * Comparative air quality assessments, using Hilton as a rural control site.
- * Evolution of radon gas from Triassic sandstones.
- * Carbon sequestration rates in sandy soils.
- * Long-term trends in soil organic matter.

This report reviews and summarizes progress at Hilton since its establishment in 1976 until the Year 2010. This review is in several sections:

1. A list of dissertations (B.Sc., M.Sc. and Ph.D) completed on the Hilton Site.
2. A list of Project Supervisors who have supervised projects on the Hilton Site.
3. A list of Technical Staff who have contributed to the development of the Hilton Site.
4. University of Wolverhampton modules which have used the Hilton Site as part of their teaching programme.
5. Published articles on the Hilton Site and related soil erosion studies.
6. Conference and miscellaneous papers on the Hilton Site and related soil erosion studies.
7. Consultancy reports which have used the Hilton Site for field experiments.

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Information is also available on the World Wide Web from the following address:

<http://asp.wlv.ac.uk/Level5.asp?UserType=11&Level5=469>

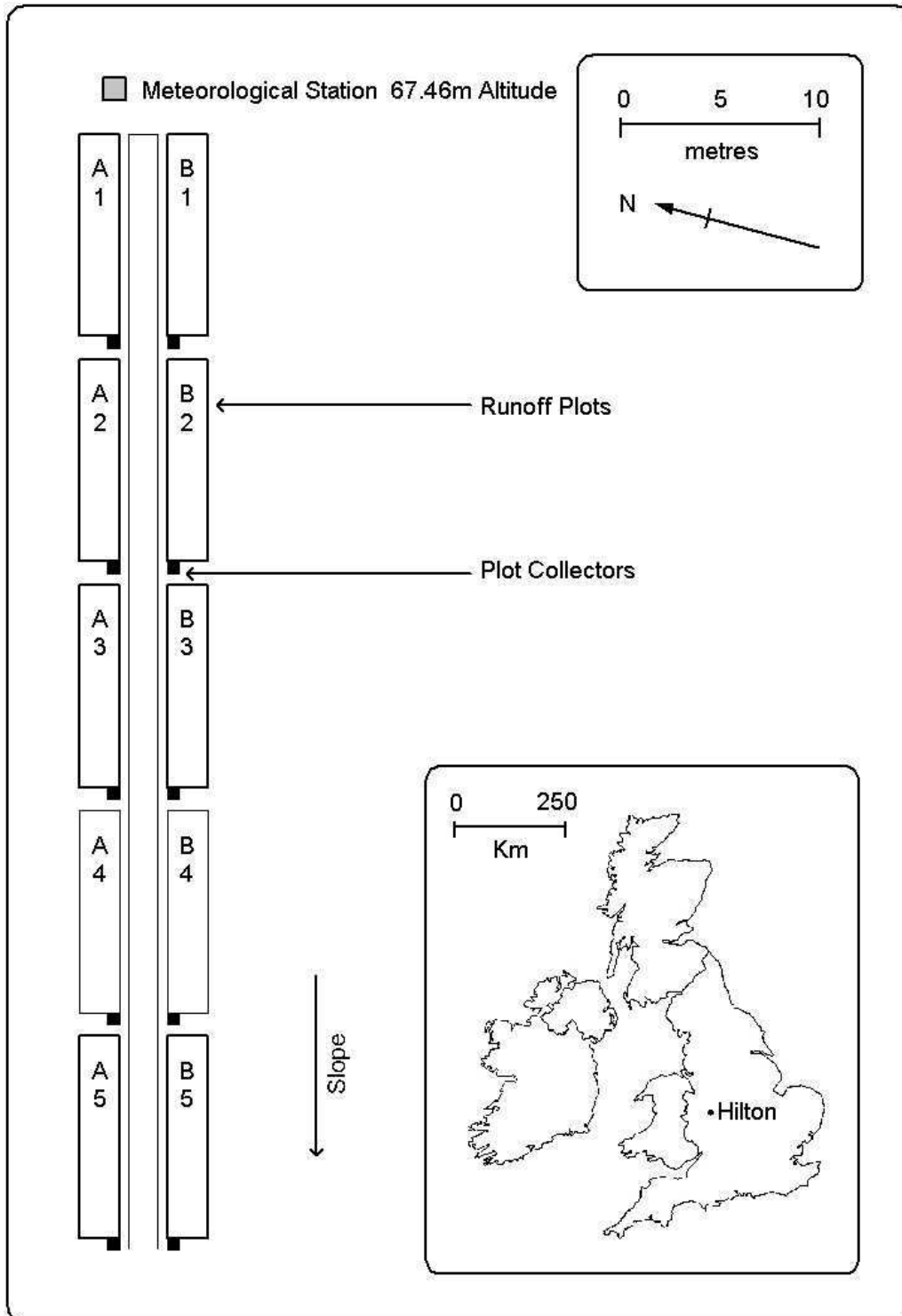


Figure 1: Sketch plan of the Hilton Experimental Site, Shropshire.



Plate 1: Aerial view of the Hilton Experimental Site, 1997.
(Photograph by Dr G. Barrett).

DISSERTATIONS COMPLETED ON THE HILTON SITE

Undergraduate Projects

(Initials of project supervisor denoted in parentheses)

Adamson, P. (1989). The inter-relationship between discharge and velocity with the downstream invertebrate drift in Claverley Brook. B.Sc. Applied Sciences dissertation (DJM).

Aitchison, R.C. (1989). Dynamics of soil organic matter within the Ap horizon of crusting Bridgnorth series soils. B.Sc. Applied Sciences dissertation. (MAF).

Armstrong, P. (1991). Measurement of the variability of rainfall on a west facing slope in Shropshire. B.Sc. Environmental Science dissertation, 68 pp. (DJM).

Barton, A.P. (1993). An assessment of the sources and seasonal characteristics of phosphate within the Claverley catchment. B.Sc. Environmental Science dissertation. (DJM).

Bird, C. (1998). Temporal and spatial variation in bedload transport in Claverley Brook. B.Sc. (Hons.) Physical Geography dissertation. (DJM).

Bogue, D. (1994). Water balance of the Claverley catchment. B.Sc. Environmental Science dissertation. (DJM).

Booth, M. (1993). The statistical analysis of precipitation from weather stations within and surrounding the Claverley catchment. B.Sc. Environmental Science dissertation. (DJM).

Bradshaw, M.W. (1991). The effects of tractor compaction and wheelslip on soil properties. B.Sc. Applied Sciences dissertation, 50 pp. (MAF).

Brookes, G.S. (1987). An analysis of the interception effect of a *Picea abies* canopy on the quantity and quality of gross rainfall at Hilton, east Shropshire. B.A. Humanities dissertation, 91 pp. (MAF).

Burns, P. (2002). The sediment yield of the Claverley Catchment. B.Sc. Environmental Science dissertation. (DJM).

Cape, R.P. (1992). An assessment of the characteristics of the Claverley catchment, Shropshire. B.Sc. Environmental Science dissertation. (DJM).

Carter, L. (2006). How and why does the soil temperature regime change at differing depths throughout the year at the Hilton Experimental Site. B.Sc. Environmental Science dissertation, 48 pp. (MAF).

Chaplin, S.A. (1992). The effects of grass strips on soil and water loss from agricultural slopes. B.Sc. Environmental Science dissertation, 67 pp. (MAF).

Cheesman, P.E. (1992). Morphometric analysis of Claverley catchment, Shropshire. B.Sc. Environmental Science dissertation. (DJM).

Christie, G. (1996). A comparison of atmospheric particulate deposition in urban, suburban and rural areas. B.Sc. Environmental Science dissertation. (PG).

Clarke, D.C. (1995). Analysis of storm hydrographs of Claverley Brook, Shropshire. B.Sc. Physical Geography dissertation. (DJM).

Clark, G. (1991). The comparability of the Thornthwaite and Penman Equations for calculating open water evaporation. B.Sc. Applied Sciences dissertation, 51 pp. (MAF).

Clayton, M. (1998). Splash erosion processes. Independent Study Module. B.Sc. Environmental Sciences. (KA).

Clinton, I. (1994). An investigation into the use of artificial substrates for sampling freshwater invertebrates. B.Sc. Environmental Science dissertation. (CMT).

Cookson, K.E. (1993). The effect of 'Agri-SC' and 'Humus' soil conditioners on the erodibility of a sandy loam soil at the Hilton Experimental Site. B.Sc. Applied Sciences dissertation, 87 pp. (MAF).

Cope, R. (1999). Precipitation and soil acidity at urban and rural sites in the West Midlands. B.Sc. Environmental Science dissertation. (DJM).

Cutler, J. (1993). The effect of land use on respiration rates in agricultural loamy soils. B.Sc. Environmental Science dissertation, 55 pp. (MAF).

Darwent, J.M. (1990). An assessment of the inter-relationship between vegetation and stream flow. B.Sc. Applied Sciences dissertation, 66 pp. (DJM).

Davies, K. (2000). An evaluation of the effectiveness of palm mat geotextiles on the conservation of loamy soils of the Bridgnorth series. B.Sc. Environmental Science dissertation, 78 pp. (MAF).

Davis, A.J. (1989). The influence of slope and meteorological variables on soil splash. B.Sc. Applied Sciences dissertation. (DJM).

- Downward, K. (1996). Water and solute transfer in a hillslope system at Hilton, Shropshire. B.Sc. Environmental Science dissertation, 154 pp. (DJM).
- Elferink, P. (1996). A comparison between the suspended sediment and water chemistry of Hilton Brook, Shropshire. B.Sc. Environmental Sciences dissertation. (DJM).
- Fletcher, S. (1993). Geochemical analysis of suspended sediment in Claverley Brook, Shropshire. B.Sc. Environmental Science dissertation, 66 pp. (MAF).
- Follis, D. (1984). The inter-relationships between water quality, biological indicator species and discharge in three contrasting catchments. B.Sc. Applied Sciences dissertation, 115 pp. (DJM).
- Frost, D. (1991). Analysis of the sediment load of Claverley Brook, Shropshire. B.Sc. Environmental Science dissertation. (DJM).
- Garner, S. (1994). An investigation into the interflow routes in a grassed loamy sand soil and the relationship between interflow, runoff and precipitation. B.Sc. Applied Sciences dissertation, 49 pp. (MAF).
- Geraghty, R.I. (1999). A study into the effects of agricultural practices upon the rates of soil erosion. B.Sc. Physical Geography dissertation, 58 pp. (LdW).
- Good, A.M. (1988). Organic content and its effects on the splash susceptibility of loamy sands. B.Sc. Applied Sciences dissertation, 63 pp. (MAF).
- Goodland, K. (1995). A detailed assessment and comparison of air, water and soil temperatures at the Hilton Experimental Site. B.Sc. Applied Sciences dissertation. (DJM).
- Grispos, J. (1991). Interception and tree geometry of *Ulmus glabra*. B.Sc. Applied Sciences dissertation, 54 pp. (MAF).
- Grist, J.P. (1990). The effects of hedgerows on wind erosivity. B.A. Humanities dissertation, 74 pp. (MAF).
- Gullick, G. (1993). Sources of suspended sediment in the River Worfe. B.Sc. Environmental Science dissertation. (DJM).
- Halsey, D.P. (1992). An assessment of the potassium budget of Claverley catchment. B.Sc. Environmental Science dissertation. (DJM).
- Hammond, L.J. (1993). Comparative sediment movement on cultivated and wheeled loamy sand soils. B.Sc. Environmental Science dissertation, 72 pp. (MAF).

- Hasan, T. (2002). A comparison between different methods of measuring evaporation. B.Sc. Environmental Science dissertation. (DJM).
- Hedger, S. (1997). An assessment of the environmental quality of Hilton Brook and its importance as an ecosystem. B.Sc. Physical Geography dissertation. (LdeW).
- Hercock, D.B. (1993). Lead and cadmium determination along the Ring Road - average deposition and dependence upon driving mode. B.Sc. Environmental Science dissertation. (GK).
- Howell, D.J. (1990). The effects of Cornish Calcified Seaweed on soil moisture solutes. B.A. Humanities dissertation, 103 pp. (MAF).
- Hubbard, V. (1994). The ecological assessment and comparison of the hedgerows of three farms within the Claverley Catchment, using the hedgerow evaluation and grading system (HEGS). B.Sc. Environmental Science dissertation. (DJM).
- Ireland, M.J. (1990). The relationship between clast size, slope and sediment transport on arable loamy sands. B.A. Humanities dissertation, 60 pp. (MAF).
- Jones, E. (1993). An analysis of the palaeo- and present meander pattern of the River Worfe. B.Sc. Environmental Science dissertation. (DJM).
- Jones, G. (1988). Pathways of slurry derived nitrogen through a pasture soil. B.Sc. Applied Sciences dissertation, 119 pp. (MAF).
- Keen, G.L. (1992). An assessment of the calcium budget of Claverley catchment. B.Sc. Environmental Science dissertation. (DJM).
- Kelleher, V.J. (1990). The establishment and assessment of a flow gauging station on Claverley Brook at Hilton. B.A. Humanities dissertation. (DJM).
- Khanalvi, I. (2001). Monitoring trends in night time surface air temperature over Wolverhampton and Hilton. B.Sc. Environmental Science dissertation, 43 pp. (PG).
- Leith, R. (2000). The water balance of Claverley Catchment (1995-1999). B.Sc. Environmental Science dissertation. (DJM).
- Lingard, K.A. (1994). Soil and bank erosion and their controlling factors. B.Sc. Environmental Sciences dissertation. (DJM).
- Lloyd, G. (1993). The variability of nitrates in the Claverley catchment over the winter period. B.Sc. Environmental Science dissertation. (DJM).

- MacNaughton, K. (1998). A statistical comparison between the three University automatic weather stations. B.Sc. Environmental Science dissertation. (DJM).
- Maddox, R.G. (1982). Erosion substrate characterization and suspended sediment in a small east Shropshire catchment. B.A. Humanities dissertation. (JPS).
- Marley, S. (1989). The influence of land use and habitation on the water quality and benthic invertebrate community of a stream. B.Sc. Applied Sciences dissertation, 70 pp. (DJM).
- Martin-Jones, S. (1995). Design, construction and monitoring of a lysimeter to determine rates of evapotranspiration. B.Sc. Environmental Sciences dissertation. (DJM).
- Meredith, D. (1993). The effect of dredging on stream invertebrates in the River Worfe and Claverley Brook. B.Sc. Environmental Science dissertation. (DJM).
- Meredith, J.M. (1999). A comparison of hydrology, water quality and invertebrate populations between an urban and rural stream. B.Sc. Applied Sciences dissertation. (DJM).
- Metcalf, P. (1997). An investigation into the accuracy of rain gauges at Hilton Experimental Site. B.Sc. Environmental Science dissertation. (DJM).
- Miller, C. (1997). A comparative study of heavy metals in rainwater. B.Sc. Environmental Science dissertation. (PG).
- Morris, D. (1996). The effects of a geotextile cloth on splash erosion rates on a loamy sand soil. B.Sc. Environmental Science dissertation, 26 pp. (MAF).
- Mossop, A. (1993). The role of volatile organic compounds in Wolverhampton - a study of emissions and controlling factors of VOCs in urban air pollution. B.Sc. Environmental Science dissertation. (GK).
- Mountford, M.J. (1989). Textural changes on Bridgnorth series catenas. B.Sc. Applied Sciences dissertation, 61 pp. (MAF).
- Mulholland, B.J. (1989). The effects of cattle trampling on infiltration rates in Bridgnorth series pasture soils. B.Sc. Applied Sciences dissertation, 64 pp. (MAF).
- McCracken, V. (1990). The effects of soil moisture on the thermal conductivity of a sandy loam soil. B.A. Humanities dissertation, 59 pp. (MAF).
- McKibben, R. (1998). The variation in spatial distribution of fish species in Hilton Brook. B.Sc. Environmental Science dissertation. (CMT).

- NG Chi Pang (2006). Soil temperature at the Hilton Experimental Site, Shropshire (January 1999-December 2004). B.Sc. Geography and Environmental Management dissertation. (MAF).
- Nicklin, C. (1997). An investigation into the quantity and composition of leached water under vegetated and non-vegetated soils. B.Sc. Environmental Science dissertation, 91 pp. (MAF).
- North, S.J. (1998). The effects of geotextiles on soil splash at Hilton Experimental Site. B.Sc. Environmental Science dissertation. (DJM).
- O'Brien, J.L. (1995). An investigation of total hardness of Claverley Brook, Shropshire. B.Sc. Environmental Science dissertation. (DJM).
- O'Hehir, B. (1998). An evaluation of the impact of sampling strategies on macro-invertebrate indices using Hilton Brook, Shropshire, as a case study. B.Sc. Environmental Science dissertation. (IDH).
- O'Keefe, C. (1993). Diurnal variations in invertebrate drift. B.Sc. Environmental Science dissertation. (CMT).
- Padfield, S. (1992). Remedial effects of 'Agri-SC' soil conditioner on mechanically compacted loamy sands. B.Sc. Applied Sciences dissertation. (MAF).
- Phillips, S. (1999). The effects of grass ley set-aside on the structure of sandy soils of the Bridgnorth series. B.Sc. Environmental Science dissertation, 60 pp. (MAF).
- Power, N. (1996). Interactions between crop canopy surface roughness and wind fields at sites in Shropshire and the West Midlands. B.Sc. Environmental Science dissertation, 55 pp. (MAF).
- Price, C.E. (1997). Precipitation gradients of the West Midlands. B.Sc. Environmental Science dissertation, 60 pp. (MAF).
- Pritchard, D.A. (1988). The effects of 'Agri-SC' soil conditioner on runoff and erosion from arable loamy sands. B.A. Humanities dissertation, 123 pp. (MAF).
- Redgrove, C.N.J. (1999). An analysis and comparison between six heavy metals in industrial, urban, sub-urban and rural soils across Wolverhampton. B.Sc. Physical Geography dissertation, 87 pp. (KA).
- Reynolds, H.A. (1990). The effects of 'Agri-SC' soil conditioner on the splash-susceptibility of loamy sands. B.A. Humanities dissertation, 88 pp. (MAF).

- Robbins, W.C. (2001). Radon transport through soil. B.Sc. Physical Geography dissertation, 81 pp. (PG).
- Robbins, W.C. (2001). Rainfall variability on Hilton site. B.Sc. Physical Geography Independent Study Module, 34 pp. (DJM).
- Robins, M. (1999). A comparison of soil and sediment properties as rainfall intensity varies. B.Sc. Environmental Science dissertation. (DJM).
- Robinson, M.J. (1991). The inter-relationship between rainfall and storm hydrographs for Claverley Brook. B.Sc. Applied Sciences dissertation, 55 pp. (DJM).
- Rodger, C. (1987). The hillslope hydrology of two contrasting soils. B.Sc. Applied Sciences dissertation. (DJM).
- Smith, D.A. (1988). Effects of *Potamogetan natans* (broadleaved pondweed) on potential evapotranspiration. B.Sc. Applied Sciences dissertation, 97 pp. (MAF).
- Steven, J. (1996). Erodibility of Bridgnorth series loamy sand soils under set aside and pasture land uses. B.Sc. Environmental Science dissertation, 26 pp. (MAF).
- Steverton, A. (1991). Lead concentration levels on Wolverhampton ring road. B.Sc. Applied Sciences dissertation. (GK).
- Stewart, D.M. (1987). The effect of mechanical soil compaction on soil structure and hydrology. B.Sc. Applied Sciences dissertation, 79 pp. (MAF).
- Tarrant, R. (1990). The comparison of surface runoff and interflow from grass and bare soil plots at Hilton. B.Sc. Applied Sciences dissertation. (DJM).
- Tavner, S. (1986). The characterization of sandy colluvial soils on slopes in east Shropshire. B.A. Humanities dissertation, 78 pp. (JPS).
- Thomas, H. (1985). Field drains and water quality in Claverley. B.Sc. Applied Sciences dissertation, 70 pp. (DJM).
- Thomas, N. (1993). The chemical composition of precipitation sampled at Wolverhampton, Compton and Hilton. B.Sc. Environmental Science dissertation. (GK).
- Thompson, P.A. (1994). The abundance of earthworms on six different land use types in relation to environmental factors at the Hilton Experimental Site in Shropshire. B.Sc. Applied Sciences dissertation, 100 pp. (DJLH).
- Troke, L.E. (1994). An examination of the chloride sodium ratios in Claverley Catchment. B.Sc. Environmental Science dissertation. (DJM).

- Tull, J. (1992). The relationship between bedload and suspended sediment particle size. B.Sc. Environmental Science dissertation. (MAF).
- Tye, A.M. (1989). Throughfall rates beneath a *Picea abies* canopy. B.Sc. Applied Sciences dissertation, 58 pp. (MAF).
- Vale, A. (1995). Effects of set-aside land use on the erodibility of loamy sand soils. B.Sc. Environmental Science dissertation, 48 pp. (MAF).
- Venton, G. (1998). A comparison between the Smestow and Claverley Brooks. B.Sc. Environmental Science dissertation. (DJM).
- Vernon, I. (1996). The suitability of the Hilton Brook as a habitat for brown trout, *Salmo trutta*. B.Sc. Biological Sciences dissertation, 65 pp. (CMT).
- Wallder, D. (1994). An examination of soil crusting on Bridgnorth series soil. B.Sc. Environmental Science dissertation. (DJM).
- Wallwork, W.P. (1990). Channel morphology of Claverley Brook, Shropshire. B.A. Humanities dissertation. (DJM).
- Walsh, J. (1998). A comparison of different deposit gauge designs for collecting airborne dust. B.Sc. Environmental Science dissertation. (PG).
- Webb, J.P. (1981). An investigation into the effects of rainfall and run-off on sediment yield using fallow plots. B.A. Humanities dissertation, 104 pp. (AHR).
- White, I.R. (1989). A colonization study into the effects of substrate size on benthic microdistribution in a lotic habitat. B.Sc. Applied Sciences dissertation. (EM).
- Wilson, S.J. (1991). A comparison of the nutrient store in forest ecosystems. B.A. Combined Studies dissertation, 46 pp. (MAF).
- Winder, J. (1993). Grass strips as a potential soil conservation technique on arable loamy sand soils. B.Sc. Environmental Science dissertation, 53 pp. (MAF).
- Winspear, K. (2006). An environmental assessment of geotextiles as a soil conservation measure. B.Sc. Applied Environmental Geology dissertation, 78 pp. (MAF).
- Woodcock, J.A. (1990). The effects of storm flow on selected solutes in the Claverley Brook at Hilton. B.Sc. Applied Sciences dissertation. (DJM).

M.Sc Theses

Ebtisam Butti (1999). Use of rain gauges for the measurement of dust deposition from the atmosphere. M.Sc. Environmental Science dissertation. (PG).

Stevens, C. (2001). Rainsplash erosion. M.Sc. Environmental Science dissertation, 48 pp. (MAF).

Zhang Jianan (1995). The application of synoptic patterns in modelling rainfall and runoff of the Claverley Catchment, Shropshire. M.Sc. Environmental Science dissertation. (DJM).

Ph.D. Theses

Bhattacharyya, R. (2009). Utilization of palm-mat geotextiles for soil conservation on arable loamy sands in the United Kingdom. Ph.D. thesis, The University of Wolverhampton, 326 pp. (MAF/CB).

Brandsma, R.T. (1996). Soil conditioner effects on soil erosion, soil structure and crop performance. Unpub. Ph.D. thesis, University of Wolverhampton, 277 pp. (MAF/TJH).

Davies, K. (2005). The potential of palm (*Borassus*) mat geotextiles as a soil conservation technique. Ph.D portfolio (submitted posthumously), The University of Wolverhampton, 160 pp. (MAF).

Fullen, M.A. (1984). An investigation of rainfall, runoff and erosion on fallow arable soils in East Shropshire. Unpub. Ph.D. thesis, Council for National Academic Awards, 195 pp. (AHR/JAC).

Reports

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J. Poesen and T. Smets (Katholieke Universiteit Leuven, Belgium).

A. Kertesz, A. Toth, Z. Szalai, G. Jakab and K. Kozma (Hungarian Academy of Sciences, Budapest, Hungary).

B. Jankauskas, V. Trimirka and G. Jankauskiene (Lithuanian Institute of Agriculture, Kaltinenai, Lithuania).

C. Böhmann and G. Paterson (Agricultural Research Council-Institute for Soil, Climate and Water, Pretoria, South Africa).

A. Guerra and J. Mendonça (Federal University of Rio de Janeiro, Brazil).

Zheng Yi and Li Yongmei (Yunnan Agricultural University, P.R. China).

M. Panomtarachichigul (Chiang Mai University, Thailand).

Dao Chau Thu, Tran Huu Cuong and Truong Thi Toan (Hanoi Agricultural University, Vietnam).

F. Jonsyn-Ellis (The Catholic Development Organization (CaDO), The Gambia).

C. Corkill (The Centre for Manx Studies, Isle of Man).

B. Mulholland and M. Dearlove (Duchy Agricultural College, Cornwall, U.K.).

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[Total count: January 2010 117 dissertations](#)
02/03/10.

List of Project Supervisors

The following academic staff have supervised research projects on the Hilton Site:

Dr K. Addison
Mr. A.W. Black
Dr C.A. Booth
Dr R.T. Brandsma
Professor J.A. Catt (University College London)
Dr R.V. Dackombe
Dr L. de Waal
Professor M.A. Fullen
Dr P. Giess
Dr D.J.L. Harding
Professor T.J. Hocking
Dr I.D. Hooper
Dr G. Karani
Professor D.J. Mitchell
Dr E. Morgan
Dr A.H. Reed
Dr C. Roberts
Dr J.P. Smith
Dr C.M. Tobin
Professor I.C. Trueman.

Technical Support

Many technical staff have actively supported research activities on the Hilton Site. These include:

Dr L. Besenyei
Mr. A.W. Black
Mr. M.K. Fenn
Mr. M. Hallett
Mr. I. Khanalvi
Mr. V. Knowles
Mr. D. Luckhurst
Mrs. G.M. Moore
Mr. K.A. Muggleston
Mr. K. MacNaughton
Mr. W. Robbins
Mr. K. Thompson
Mr. D. Townrow.

UNIVERSITY OF WOLVERHAMPTON MODULES USING THE HILTON EXPERIMENTAL SITE

Vocational Skills A (EA1022)

Hydrological Processes (ES2211)

Advanced Seminar in Physical Geography (ES3302)

Undergraduate Research Project (EA3300 and EA3301)

M.Sc. in Environmental Science Research Project (ES4400)

Soil Use and Management (EA3306 and EA4066).

In addition, the site has been a venue for a number of field trips by local schools and study groups (e.g. the Farming and Rural Conservation Agency, Woodthorne, Wolverhampton, 29/6/99). The site has also been used for student study placements (e.g. Raja Istafar, Dudley College, June-July 2000).

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For open access to published papers, see:

<http://wlv.openrepository.com/wlv/>

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