

# Cross-Institute Programme for Sustainable Soil Function

## SoilCIP

Newsletter for August 2009



### National Ecosystem Assessment

In recognition of his expertise in wetland and floodplain processes, Martin Blackwell has been invited to join the National Ecosystem Assessment (NEA) as a Lead Author with the Freshwater, Wetlands and Floodplains Team. Hilary Benn, Secretary of State for Environment, Food and Rural Affairs, announced last year that Defra would support an ecosystem assessment for England. The project has received additional support from the Devolved Administrations and the Natural Environment Research Council, which has led to the broadening of its geographical scope. Therefore, this two-year assessment will cover the terrestrial, freshwater and marine ecosystems of the whole of the UK. The National Ecosystem Assessment will be based on the principles developed in the 2005 global Millennium Ecosystem Assessment (MA) and will work with different scientific and stakeholder communities to collate and synthesise existing evidence on our natural environment to give a comprehensive picture of its current state and the provision of ecosystem services. It will then go on to explore scenarios for future change and examine possible policy responses. The NEA is co-chaired by Professor Bob Watson (Defra & UEA) and Professor Steve Albon (Macaulay Institute).

### Meeting reports

Phil Murray and Felicity Crotty recently attended the Joint meeting of the Society of Nematology and the Soil Ecology Society in Burlington, Vermont. Phil was invited to give a presentation based on the Highfield experiment - 'Are long-term changes in soil organic matter reflected in the soil communities' with Penny Hirsch, Lucy Gilliam, Saran Sohi, Jennie Williams, Ian Clark and Phil Brookes as co-authors. Felicity gave a presentation: 'Investigating soil food webs – tracking the translocation of  $^{13}\text{C}$  and  $^{15}\text{N}$  through microbial interactions within the soil'. Felicity won a 'Parkinson Award' for student travel and also secured funding from the Royal Entomological Society and Sercon to enable her to attend the conference.

### New student bursary

Earlier this year a collection of soil invertebrates taken from the Highfield experiment in 1966 was unearthed in a cupboard. Felicity Crotty, together with her supervisor at Plymouth applied for, and won, a 'Seale Hayne Trust' student bursary to employ a student to catalogue and digitise the collection. Duncan Allen started work on this at North Wyke in July.

## **Defra's Agricultural Change and Environment Observatory**

The Agricultural Change and Environment Observatory was established to monitor, and where possible anticipate changes in agriculture and at farm level arising from the 2003 CAP reform and other key drivers of agricultural change, and to assess the environmental implications. It achieves this by identifying environmental risks from a changing agriculture sector and to provide an evidence base for informing future policy. The Observatory aims to identify significant trends and predict changes in farming patterns and practices, assessing their resulting environmental impacts and highlighting any areas of particular concern or success. It also aims to predict and highlight the longer term impacts of farm level changes and assess the implications for the strategic priorities and the delivery of Government objectives. It does this through an integrated programme of monitoring and evaluation, with a strong stakeholder contribution.

The Observatory was formally launched in July 2005, initially as a 3 year programme of work. The likelihood was recognised at the outset that this would be extended, reflecting the extent and ongoing nature of the changes impacting on the agriculture sector and the high level of uncertainty, magnitude and timing of the environmental consequences of these. The Phase 2 Observatory formally started in April 2008. It is proposed the programme will run for an initial 3 years, with a further option for an additional 2 years. The Observatory website is at:

<https://statistics.defra.gov.uk/esg/ace/index.htm>

### ***Observatory reports - uplands survey and nutrient balance report***

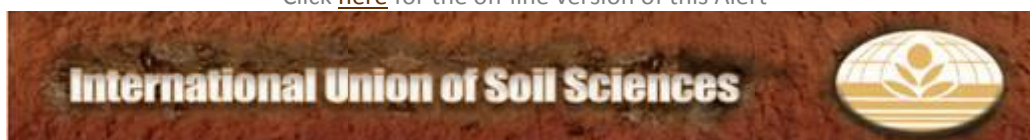
The latest National Statistics produced by Defra from the 2009 Farm Practices Survey of uplands and other Less Favoured Areas (LFAs) in England were released on 30 June 2009. It presents information on attitudes, opinions and farming practices. The information will help to fill the gaps in current survey data and improve Defra's understanding of a range of issues affecting farming in the uplands. The results from the survey are available at:

<https://statistics.defra.gov.uk/esg/publications/fps/FPS2009uplands.pdf>

A recent project assessed the methodology developed by OECD and adopted by Eurostat for calculating soil nutrient balances. Soil nutrient balances provide a method for estimating the nutrient loadings of nitrogen and phosphorus to agricultural soils. Whilst a shortage of nutrients can limit the productivity of agricultural soils, a surplus of these nutrients poses a serious environmental risk. Losses of nutrients to the environment can impact on air quality (ammonia emissions), water quality (N& P levels in rivers) and climate change (nitrous oxide emissions). This project, funded by Eurostat assessed the overall approach, evaluated the effectiveness of the current spreadsheet system, checked the quality of the data currently compiled for the UK estimates and improved the overall reliability of the balance sheets. A copy of the final report is available at:

<https://statistics.defra.gov.uk/esg/ace/research/pdf/nutrientbalance.pdf>

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## IUSS Alert 52 (August 2009)

Information for and from the global soil science community

### Earth Science Week 11-17 October



Since October 1998, the American Geological Institute has organized this national and international event to help the public gain a better understanding and appreciation for the Earth Sciences and to encourage stewardship of the Earth.

This year's Earth Science Week will be held from October 11-17 and will celebrate the theme "Understanding Climate." The objectives of the week are: To engage students in discovering the Earth sciences. ; To remind people that Earth science is all around us; To encourage Earth stewardship through understanding; To motivate geoscientists to share their knowledge and enthusiasm about the Earth. For more details see: <http://www.earthsciweek.org>

### Workshop

**6th International phosphorus workshop.** 27 Sept-1 Oct, 2010. Spain. The International Phosphorus Workshop constitutes an important forum for discussion of the main issues related to the loss of phosphorus from soil and its impact on the environment, especially the surface waters. The workshop is held every three years, the present one following those held in 1995 (Wexford, Ireland), 1998 (Antrim, Northern Ireland), 2001 Plymouth (UK), 2004 (Wageningen, The Netherlands) and 2007 (Silkeborg, Denmark). Most of attendees in this last workshop were in favour of holding the next one in Seville, the ad hoc organizing committee being presently formed by Antonio Delgado (University of Seville), José Torrent (University of Córdoba) and Fernando Gil (University of Santiago de Compostela). Further details are here: <http://www.ipw6.us.es/>



**Holistic approach to biodiversity and bioindication in soil.** By Cenci, R.M. and Jones , R.J.A. (Eds). Office for the Official Publications of the European Communities, 2009. To study and investigate soil biodiversity is a difficult task because of the complex interactions that exist in soil and the need for considerable expertise to undertake the necessary investigations. The factors that influence biodiversity are diverse: some are natural, for example soil acidity, water retention, temperature and organic matter content, others are anthropogenic, for example human population pressure. This report summarises the results of the multidisciplinary BIO-BIO study of biodiversity.

## **'New' report**

On December 12-14, 2005, the National Academies convened the Frontiers in Soil Science Research Workshop, summarized in this volume, to identify emerging areas for research in soil science by addressing the interaction of soil science subdisciplines, collaborative research with other disciplines, and the use of new technologies in research. The workshop focused around seven key questions addressing research frontiers for the individual soil science disciplines, and also addressing the need for integration across soil science with other disciplines.

The report may be downloaded as a free PDF file at <http://www.nap.edu/catalog/12666.html>.

Keith Goulding, 1<sup>st</sup> September 2009