

Imagine yourself leaning contentedly on a farm gate bathed in the warmth of the late evening sun. A buzzard, wheeling lazily overhead, calls plaintively to a distant mate but is ignored by sheep contentedly grazing the pastures below. All is peace and harmony. At least, that is how it seems.

Unheard, and therefore unnoticed, is the frenzy of activity going on beneath the very ground on which you stand. Underneath the apparently peaceful pasture, vast armies of soil microorganisms – equivalent in weight to 1,000 sheep for every hectare – are at war.

The carnivores feed off each other and the herbivores recycling soil organic matter.

This enormous, complex ecosystem, unseen by all but soil biologists, is the environmental engine room on which life on Earth is founded. Without the living soil that clothes our planet we would have no food, no timber, no stable landscapes, no means by which the planet's life cycle would cycle.

Soil breaks down dead organic material and resupplies the nutrients and water that are essential to life. In scientific terms, soil is a multi-functional resource.

We rely on it to support food and timber production, but it also supports biodiversity and performs a range of environmental functions such as storing, filtering and releasing water, recycling nutrients and acting as a carbon store.

More carbon is stored in UK soils than in vegetation.

In urban environments, soil acts as a heat sink helping to lower air temperatures.

As a vital environmental resource, you would think that soil's importance would be recognised in

environmental legislation and policy. It is in other countries. In the United States, the 1930s dustbowl that followed the ploughing up of the prairies resulted in soil protection legislation that still exists. In Europe, despite the despoliation and widespread erosion of Mediterranean soils in past millennia, the need for formal protection measures is still being argued over. Soil is still the Cinderella among environmental resources while the protection of air and water receive much greater attention.

At European level, the Commission has drafted a Thematic Strategy for the Protection of Soil (COM(2006)231) with the overall aim of protecting soils and ensuring their sustainable use. These aims were to be achieved through the introduction of four mechanisms: framework legislation; the integration of soil protection into other national and Community policies; research to address knowledge gaps; and measures to increase public awareness. Of these measures, the drafting of a Soil Framework Directive is the most significant for professionals working in the environmental and landbased sectors.

The draft Directive (COM(2006)232) includes a number of measures:

- Establishment of a riskbased framework to protect soils and their functions from a number of perceived threats with risk area identification and the identification of measures to reduce risk and counter soil degradation
- The identification and assessment of the impacts of other sectoral policies with the potential to affect soil
- A requirement for land users to take precautionary measures against hampering soil functions
- The need to minimise sealing and its impacts on soil functions
- Limiting further soil contamination
- A more transparent and interventionist approach to addressing existing contaminated land sites

A modified draft of the Directive was ratified by the European Parliament in the autumn of 2007 and, following further negotiation, the Directive was on the agenda at the December 2007 Council of Ministers meeting in Lisbon. Five member states, including the UK, spoke against the Directive and no vote was taken. The Directive is therefore likely to come up again under the French Presidency and may be discussed at the October 2008 Council meeting.

Europe may yet have a legislative framework for the protection of our soils.

Nationally, the 2/3% of soils that qualify as contaminated land are the only ones for which there

is legislative provision. Part IIa of the UK Environmental Protection Act introduced measures for addressing sites with such grossly contaminated soil that they represent a significant risk to human health and/or the environment. A range of policy initiatives are targeted at the protection of all our other soils.

The 2006 First Soil Action Plan for England identified a range of threats to soil and some 50 actions that were to be addressed. Soil management on construction sites and in the urban environment were one target.

There is now a Code of Practice for Soil Management on Construction Sites. Further to this, the Government's proposals over the use of permeable pavements and the need for planning permission where householders seek to pave over their front gardens are aimed at protecting soil's water management function.

The Code for Sustainable Construction and the Ecotowns initiative could eventually lead to the wider use of green roofs to increase the area of soils within urban landscapes.

Although the First Soil Action Plan was to be followed by a second, Defra has, instead, published a consultative draft of a soil strategy with comparatively unambitious aims. Those wishing to learn more about this can view the strategy at <http://www.defra.gov.uk/corporate/consult/soilstrategy/index.htm>

For Wales, the National Assembly Government has published a consultative Welsh Soil Action Plan that can be viewed at <http://new.wales.gov.uk/consultations/currentconsultation/envandcouncurrcons/130308welshsoilsactionplan/?lang=en>

Among the 28 actions identified are the Assembly's support for the protection of Best and Most Versatile land, and the aim to develop 'a clear and consistent approach to tackling land contamination issues in Wales that identifies priorities for action'.

The Scottish Executive is working on a soil policy document.

Although there are many initiatives at both the national and European levels, it is difficult to predict exactly what the outcome will be in terms of legal measures relating to soil protection and sustainable management.

They may, however, be significant, particularly if a Soil Framework Directive is ratified. It will be wise to keep abreast of developments.

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IPSS is a licensed body of the Science Council and has some 150 members, of whom more than half are Chartered Scientists. For more information about the Institute go to www.soilscientist.org