Soils research

WHY: SHOULD WE CONSERVE AND MANAGE OUR SOILS?

BECAUSE: IT TAKES 10,000 YEARS TO CREATE A SOIL BUT ONLY 10 YEARS TO DESTROY IT

Soils are critical for life, yet are vulnerable to pollution and unsustainable exploitation.

Soils store 10 billion tonnes of the UK's terrestrial carbon and play an important role in modulating the greenhouse gas cycles which control our climate.

Soils provide the nutrients and water to grow our food and they regulate floods and droughts.

Biologically, soil organisms recycle nutrients, clean our waste and water and provide a biodiverse resource for medical, industrial and agricultural economies.

The diverse and often conflicting services provided by soils demand an integrated, multidisciplinary approach to their understanding and management.

Centre for Ecology & Hydrology
NATURAL ENVIRONMENT RESEARCH COUNCIL

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DELIVERING IMPACT

CEH delivers the UK Countryside Survey, the UK Land Cover Map, and the Environmental Change Network to provide detailed ground-based ecosystem assessments of the stock and change in our soils including stored carbon, organisms and pollutants.

CEH has developed models such as the Joint UK Land Environment Simulator (JULES), which links soil processes – e.g. soil moisture – with atmospheric processes and climate models.

CEH reports annually to the Department of Energy and Climate Change on inventories and projections of UK greenhouse gas emissions by sources and removals by sinks due to land use, land-use change and forestry.

CEH led the soil section of the Defra Review of Transboundary Air Pollution (RoTAP). The review focuses on the main chemicals that cause acid deposition, eutrophication, ground-level ozone and heavy metal pollution in the UK and their impact on soils and their function.

CEH has initiated the first national survey of the distribution and genetic diversity of soil microbiota across our landscape.

FUTURE CHALLENGES

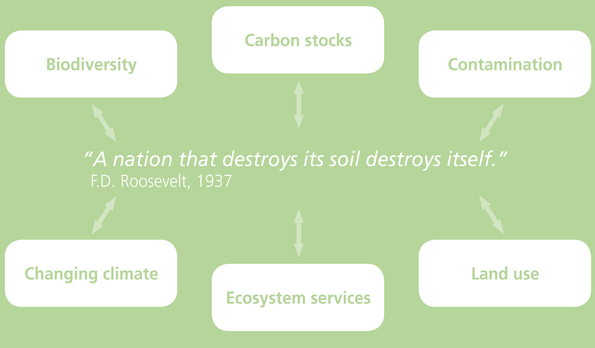
Future vulnerability assessments need multi-disciplinary approaches – including microbes, nutrients, water and climate.

Landscape and regional scale assessments will require novel modelling and measurement technologies.

How do we identify the thresholds for soil functions and the ecosystem services they provide?

How do we best monitor and protect our soil natural capital?

How should society prioritise, conserve and manage soils to deliver multiple functions across whole landscapes?



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