DOCUMENT 6

Soil science in the establishment, management and/or conservation of natural habitats and ecosystems

WORKING WITH SOIL
setting standards in soil science

Background

The characterisation and management of soil can form an important input to the establishment, management, conservation and restoration of natural habitats and ecosystems. The context of such work can be rural or urban and linked to anything from the sustainable management of protected nature reserves or wildlife communities and the restoration of degraded habitats to the creation of biodiversity on reclaimed land targeted for urban green space.

Soil science is fundamental to all habitat and ecosystem projects, and a lack of understanding of soil systems, soil characteristics and the relationship between soils and biodiversity can lead to the failure of habitat establishment, conservation or management schemes.

Professional competence in soil science in this context builds upon foundation skills in field soil investigation, description and interpretation (BSSS PCSS Document 1), BSSS PCSS Document 4 on soil science in soil handling and restoration, covering aspects of soil storage, handling and the preparation of a Soil Management Strategy and BSSS PCSS Document 3 on soil science in integrated soil and water management.

Qualifications

Professional scientists and engineers with competence in soil science for the establishment, management and/or conservation of natural habitats and ecosystems will have graduated in a relevant science subject. They will also have a second degree and/or a number of years of relevant field experience and will have, or be adequately qualified for, **full** membership of a relevant professional body such as the British Society of Soil Science (BSSS) or the Institute of Ecology and Environmental Management.

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Minimum competencies

Skills:

1. Competency in the Foundation Skills (field soil investigation, description and interpretation) as per BSSS PCSS Document 1
2. Where soil is to be stripped, stored and/or re-instated, competency in soil handling and land restoration as per BSSS PCSS Document 4
3. The ability to design and implement a programme of exploratory, experimental or research work, if required, that leads to the improved soil information and understanding necessary to achieve the objectives of the project in question
4. The ability to apply the principles of soil science and/or soil engineering to the relevant aspects of nature conservation practice and land management for biodiversity
5. The ability to communicate soil science accurately and informatively, verbally and in writing at all stages of the project with clear statements as to the reliability and certainty of the results

Knowledge and understanding:

1. Knowledge of the soils present within the study area, or of the chief sources of such information, and an understanding of how the soils of the study area fit within the wider landscape
2. An adequate understanding of the role of soil as a physical, chemical and biological system within natural ecosystems
3. An understanding of how alterations to the soil system affect soil properties (soil chemistry, soil physical characteristics and the soil water regime), which can have a resultant impact on biodiversity and ecosystem
4. Sufficient understanding of the relationships between soil and individual organisms (plants and soil-living animals), local biodiversity and habitat types to satisfactorily complete the required work
5. Knowledge of soil management theory and practice associated with nature conservation and habitat management including the impact of soil nutrients on wildlife communities
6. An awareness of restoration ecology theory and ecological restoration practice
7. An adequate knowledge and understanding of international, national and local policy and law relating to the management of wildlife communities and ecological restoration
8. Knowledge of relevant Health and Safety, Environmental and Biosecurity regulations, including any animal or plant health restrictions in force and all relevant safe working practices
9. An awareness of the importance of systems of quality assurance and control in all aspects of professional work