

# Announcement of Opportunity for the Soil Security research programme: Small grants

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**Call published: 14 June 2016**

**Closing date for full proposals: 09 August 2016, 16.00 BST**

## Summary

The Natural Environment Research Council (NERC) is inviting proposals under the Soil Security programme for research projects costing between **£150K and £250K (80% FEC)**, and of up to **24 months duration**. Funding of up to £1.7M is available for this call.

The projects will complement the existing portfolio of research and address the goals of the programme to seek an improved and predictive understanding of:

- (i) the ability of soils to perform multiple functions in different contexts and at different scales, and
- (ii) their ability to resist, recover and adapt to perturbations, such as those caused by land use change and extreme climatic events.

The Soil Security programme is a NERC-led five-year research programme, with support from Scottish Government, BBSRC and Defra. The research undertaken as part of this programme will deliver improved forecasts of the response of the soil system to changes in climate, vegetation or land management at scales of analysis which match the scale of decision making.

## Background

Soil systems are a key component to the delivery of many ecosystem services upon which societies depend, including those that are crucial to food security, climate mitigation, water and nutrient cycling. They are highly complex systems that involve multiple physical, chemical, and biological processes; these interact to regulate the soil's functioning, and its ability to resist and recover from perturbations, such as drought<sup>1</sup>.

These controls on soil functioning, and their response to perturbations, are likely to vary across different spatial and temporal scales<sup>2</sup>, and across different soil conditions and land types; in other words they are highly scale and context dependent.

Soils are extremely heterogeneous and not all soils can fulfil the full spectrum of services required for the future of the UK, so there is a need to protect their multifunctional attributes in order to preserve national and international natural capital. Changes in the way we

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<sup>1</sup> De Vries, et al. (2012). Land use alters the resistance and resilience of soil food webs to drought. *Nature Climate Change*, 2, 276–280.

<sup>2</sup> Ettema, C. and D. A. Wardle. 2002. Spatial soil ecology. *Trends in Ecology and Evolution*, 17, 177–183.

manage the land surface have resulted in widespread degradation of soils and their ability to deliver ecosystem services. For example, it has been estimated that currently 45% of European soils exhibit very low organic matter contents (0-2% organic C)<sup>3</sup> and degraded soils cover 15-17% of the world's land surface<sup>4</sup>. Once critical functions are lost they can be irrecoverable, potentially for millennia, representing a loss of resources that is potentially highly detrimental to the UK's national livelihood and well-being<sup>5</sup>.

Despite their importance to mankind, our understanding of what regulates the ability of soils to perform these multiple functions in different contexts and at different spatial scales, ranging from the soil profile to the Earth system scale, is very limited, as is our knowledge of the ability of different soils to adapt and respond to changes in climate and land use. This represents a significant gap in knowledge given the rapid rate at which soils are being degraded worldwide and the urgent need to inform policy makers and land managers on the sustainable management of soils.

The UK agri-tech strategy<sup>6</sup> recognises that soil degradation and biodiversity loss threatens food security. In England, the UK Government has committed to safeguarding soils' ability to provide essential ecosystem services and functions by ensuring that all soils are managed sustainably and degradation threats are tackled before 2030, through the 2011 Natural Environment White paper<sup>7</sup>. The Scottish Government published the Scottish Soils Framework in 2009 and a State of Scottish Soils report in March 2011. Scottish policy recognises soil as a valuable but vulnerable natural asset, which contributes vital economic and environmental functions and requires sustainable and effective management for the long term. As well as being important in their own right, an understanding of soil processes is essential to underpin policy areas ranging from food production, flood alleviation, water quality, greenhouse gas emissions and biodiversity.

This call is one of several activities supported by the programme, and part of a wider collaborative partnership on soil security developed under the Global Food Security (GFS) programme.

## Scope of call

The [Soil Security programme](#) (SSP) has the goals to seek an improved and predictive understanding of:

- (i) the ability of soils to perform multiple functions in different contexts and at different scales, and
- (ii) their ability to resist, recover and adapt to perturbations, such as those caused by land use change and extreme climatic events;

in order to inform policy and practice for the sustainable management of soils.

Additional areas where the evidence base for sustainable soil management for the delivery of ecosystem services is limited were identified in a recent [Defra review](#) undertaken by the Soil Security programme.

The small grants will complement and extend the SSP current research investments, either building on the supported [consortia](#) and [fellowship](#) awards, and / or developing new and novel directions within the scope of the programme. Projects that build on other relevant

<sup>3</sup> Jones et al. 2012. State of Soil in Europe. JRC Reference Report 80pp.

<sup>4</sup> Staring Centrum Instituut voor Onderzoek van het Landelijk Gebied., Oldeman, L. R., United Nations Environment Programme. & International Soil Reference and Information Centre. (UNEP ;ISRIC, Nairobi, Kenya, Wageningen, Netherlands, 1991).

<sup>5</sup> Haygarth P.M., Ritz, K, 2009. The future of soils and land use in the UK: Soil systems for the provision of land-based ecosystem services. Land Use Policy 265, 187-197. De Vries, et al. (2012).

<sup>6</sup> [www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/227259/9643-BIS-UK\\_Agri\\_Tech\\_Strategy\\_Accessible.pdf](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/227259/9643-BIS-UK_Agri_Tech_Strategy_Accessible.pdf)

<sup>7</sup> <http://www.official-documents.gov.uk/document/cm80/8082/8082.pdf>

NERC investments (e.g. the Newton NERC-NSFC [Critical Zone Observatory programme](#), [ESPA](#), [BESS](#)) are also welcome. Whilst projects may focus on non-UK soil systems, they must also generate knowledge that may be used to understand the functioning and inform the management of UK soils. Examples of areas of focus include but are not limited to:

- Analysis of a suite of soil processes in an integrated and holistic manner to inform changes in soil function
- Understanding the role of specific soils or soil types (e.g. peat, forest or urban soils) in delivering soil ecosystem services
- Understanding soil management practices to improve soils resilience e.g. against erosion and flooding, heat or drought
- Understanding the benefits derived from soils, their value and how land management practices influence changes in these

Projects are encouraged that adopt approaches that are both novel and multi-disciplinary, encompassing ecology, biology, chemical and physical soil sciences to understand the functioning of soil. Approaches that are particularly encouraged include:

- Incorporating modelling and the use of big data
- Recognising scales (both spatial and temporal) in function and integrating across scale
- Application of new tools or technology – including new technological developments and their role in helping with soil security- proximal sensing, tomography remote sensing etc.

## Call requirements

### Knowledge exchange and impact

Excellence with impact is a central goal for NERC and all the Research Councils. NERC aims to deliver maximum economic and societal benefits from its investments, to support UK economic competitiveness, to make public services and policy more effective, and to improve people's health and wellbeing. To achieve this we need excellent impact activities, which anticipate and deliver the needs of the ultimate users of our science, whether they are in business, policy, the third-sector, the wider public or other groups. The Research Councils' policy is that grant applicants are responsible for considering how their research can achieve excellence with impact.

Whilst NERC does not expect applicants to be able to predict the economic and societal impact of their research, NERC does expect applicants to have explored the following from the outset:

1. Who could potentially benefit from the proposed research over different timescales?
2. How might the potential beneficiaries benefit?
3. What will be done during and after the project to increase the likelihood of the research reaching the identified beneficiaries and maximise the likelihood of the identified benefits being achieved?

Pathways to Impact activities do not have to be cost-incurring; it is not a requirement to include funded activities. However funds requested to carry out any proposed, outcome-driven activities identified within the Pathways to Impact statement **must** be fully justified within the Justification of Resources statement.

Pathways to Impact submissions will be assessed but they are not used in proposal ranking; however research grants will not be allowed to start without an acceptable Pathways to Impact statement. Applicants are advised to read the guidance on the [NERC website](#) for further information.

A programme-wide Impact Strategy will be developed, and applicants will be expected to work with the Programme Coordinator and Programme Executive Board, to maximise the impact of the programme as a whole.

### Data management

NERC believes that data generated from the research it funds are a valuable long-term public-good resource. To ensure the data can be fully exploited in support of the activities that they were collected for, and to enable them to be available for effective, longer-term post-programme exploitation, it is NERC's policy that data must be managed effectively from the time of generation onwards. NERC grant-holders must offer to lodge a copy of the data resulting from the supported research with the relevant NERC Data Centre when it is completed, together with documentation/metadata describing these data.

Applicants are required to submit an outline data management plan as a separate attachment, to identify the data sets likely to be made available to NERC Data Centres for archiving and reuse at the end of the grant. Guidance on completing this is available on the [NERC website](#):

There will be no charge to the project for a NERC Data Centre to accept and manage the agreed data sets at the end of the grant. Any in-project data management activities should, however, be costed and clearly identified within the proposal.

There will be a programme-wide Data Management Plan developed, with which the projects will be expected to comply.

### Collaboration and integration

The Soil Security programme is a group of collaborative researchers, within a wider community of soil researchers and programmes. The successful award holders are considered an integral part of the Soil Security programme and will be expected to work and interact significantly with the existing group of researchers and with the Programme Coordinator. This includes participating in workshops, working groups and other activities specifically organised by NERC or the Coordinator. *Expenses to attend these meetings should be included in the application and would typically be two meetings per year.*

### Eligibility and funding

Applicants from organisations eligible for RCUK funding (i.e. UK Higher Education Institutions (HEIs), RCUK Research Institutes and Collaborative Centres, and Independent Research Organisations (IROs) that are eligible to receive NERC Managed Mode funding) may apply for the NERC funding. Please refer to the RCUK website for more information on [RCUK eligibility](#).

Applicants are also referred to the [NERC Research Grants Handbook](#) for details.

**All applicants need to be registered or be able to register on RCUK's Joint Electronic Submission system (Je-S) to be directly named as an applicant on a proposal.**

Potential applicants should contact NERC Swindon Office using the contact details provided in this document well in advance of the closing date if they have queries concerning their eligibility.

Funding of up to **£1.7M** is available for grants of up to 24 months duration, costing between £150-250K (80% FEC).

## Application procedure

### Submission of proposals

Individuals are limited to involvement in no more than two proposals submitted to this call; only one of these may be as lead Principal Investigator.

Submission of proposals will be via Je-S.<sup>8</sup> **The call will be listed under Scheme 'Directed' and Call 'Soil Security Small grants' and will utilise the standard Je-S pro forma.**

**The closing date for proposals is 4 pm (BST) 09 August 2016.**

Guidance on the application process, including details of eligible costs, is available in the [Research Grants Handbook](#).

Applicants should leave enough time for their proposal to pass through their organisation's Je-S submission route before this date. Proposals will not submit through to NERC after 4 pm on that date. Any proposal that is incomplete, or does not meet the eligibility criteria of this call, will be rejected and will not be considered.

All documents (including embedded references) should be completed in single-spaced typescript of minimum font size 11 point Arial font or other sans serif typeface of equivalent size to Arial 11, with margins of at least 2 cm. Please note that Times New Roman, Arial narrow and Calibri are not allowable font types as they are smaller and any proposal which has used either of these font types within their submission will be rejected. Applicants referring to websites should note that referees may choose not to use them. In addition to the standard Je-S pro forma, applicants will also be expected to provide the following documents:

#### 1. Case for Support

- a. A common Previous **Track Record** incorporating all the Research Organisations involved (up to **2 sides of A4**).
- b. A common **Description of the Proposed Project** (up to **8 sides of A4**), to include:
  - Underlying rationale, scientific and technological issues to be addressed
  - Specific objectives of the project, including their relevance to the Soil Security programme goals, and anticipated achievements and outputs, including datasets
  - Methodology and approach
  - Risks and mitigation strategies

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<sup>8</sup>Grant applications must be submitted using the Research Councils' Joint electronic-Submission system (Je-S). To use this system, the applicant's research organisation must be Je-S registered, see <http://www.nerc.ac.uk/funding/application/> for further details.

- Programme and/or plan of research, evidence of access to required facilities, data, collections
- Management of both project and resources

**2. Outline Data Management Plan (up to 1 side of A4).**

The outline data management plan (ODMP) should identify data sets likely to be made available to NERC Environmental Data Centres for archiving and reuse at the end of the grant (guidance available on the [NERC website](#)). Any costs associated with preparation of the data by the investigator's team should be included and clearly identifiable in the grant proposal. The ODMP and Case for Support for successful proposals will be made available to the appropriate NERC Environmental Data Centre, and where appropriate, used by them to draft, in collaboration with the PI (and consultation with the Programme Coordinator), a full Data Management Plan (DMP) within three to six months of the start date of the grant.

**3. Justification of Resources (up to 2 sides of A4).**

This should include justification for all Directly Incurred Costs, Investigator effort, use of pool staff resources, any access to shared facilities and equipment (excluding HPC) being sought. No justification for Directly Allocated Estates and Indirect Costs is required. For HPC no cost estimates are required, but an estimate of the use of HECTOR in Million Allocation Units (MAUs) should be included an application must be attached when use of HECTOR exceeds 160MAU (in any one year).

For all items of equipment costing between £10k (including VAT) and the RCUK Equipment limit (£138k), but excluding those used for instrument development, the applicants of the proposal will need to provide evidence of an evaluation of the use of existing relevant capital assets.

Additional information will be required for capital equipment costing more than £25k (quotations and involvement of RCUK procurement services) or the RCUK Equipment Limit (full business case required); both cost thresholds include VAT. For details of these requirements see the [RCUK website](#).

NERC will make best endeavours, but does not expect to be able to fund more than a fraction of any capital equipment. In most cases, the maximum NERC support will be 50%, thus applicants will need to provide evidence of co-support for at least half of capital costs.

**4. Pathways to Impact (up to 2 sides of A4).**

This should include an outline of:

- Who could potentially benefit from the proposed research over different timescales?
- How might the potential beneficiaries benefit?
- What will be done during and after the project to increase the likelihood of the research reaching the identified beneficiaries and maximise the likelihood of the identified benefits being achieved?

**5. Project Partner Letters of Support (up to 2 sides of A4 each).** A Letter of Support is required from each named Project Partner. This letter should confirm that the support and facilities required to enable the associated collaborations will be made available. Note that there is a Je-S validation requiring the same number of attachments as Project Partners.

Each component proposal (including the lead) will additionally require the following attachments, where applicable.

- A **CV** (up to 2 sides of A4 each) for each named PI, Co-I, research staff post and visiting researcher.
- **Price quotations** for equipment costing more than £25k
- Where applicable, a **Business Case** of up to 2 sides A4 per item, for items of equipment above the RCUK Equipment Limit. Further guidance regarding capital costs can be found in the NERC Grants Handbook.
- **Facility forms** (including aircraft).  
PIs wishing to use a NERC facility will need to submit a mandatory 'technical assessment' with their proposal (including aircraft but excluding ships and HPC). For NERC, this means a quote for the work which the facility will provide. A full list of the Facilities requiring this quote can be found here:  
<http://www.nerc.ac.uk/research/sites/facilities/apply/> in the section 'NERC grant applications involving NERC facilities'.

Please note that 'Other attachments' do not go out to reviewers and should not be used, except for internal documents for NERC.

## Assessment procedure

Proposals will be subject to an Assessment Panel. The panel will be comprised of independent experts who will review, grade and rank the proposals. The recommendations of the Panel will provide the basis for the funding decision by NERC.

All proposals will be assessed against the following criteria:

- **Research Excellence:** a proposal that demonstrates excellence can be characterised by terms such as: novel, ambitious, timely, exciting, at the international forefront, adventurous, elegant or transformative, but need not demonstrate all of them.
- **Fit to Programme Objectives:** proposals will be assessed against the extent to which they address the programme's scope and scientific requirements as detailed in this AO.

Pathways to Impact are no longer scored by reviewers and are no longer used as a secondary criterion for ranking proposals. The assessment panel will discuss Pathways to Impact plans and any proposals within the funding frame will **not** be allowed to start unless unacceptable Pathways to Impact plans are enhanced to an acceptable level within 2 months of notification of the panel outcome.

The Assessment Panel will make funding recommendations to NERC based on the criteria outlined above and the potential for the projects to deliver a balanced portfolio to address the programme objectives. NERC reserves the right to weight *Fit to Programme Objectives* appropriately to achieve a balanced portfolio of research that meets the strategic aims of the programme.

Feedback on the successful and unsuccessful proposals will be provided.

## Programme governance and reporting

NERC Swindon Office, on behalf of the funders, retains the overall executive authority for the governance and management of the programme. It will be responsible for:

- the overall Research Programme budget, including the high-level budget management and allocation of resources, e.g. profiling of funds within the programme budget and awards for research and funds for procurement of services
- commissioning, delivery and management of key funding opportunities, including authorisation of funding decisions, issuance of awards, post-award administration and payments, and award completion.

The Programme Executive Board (PEB) is chaired by the NERC Head of Terrestrial Sciences, and will include representatives from the other programme funders and relevant users/stakeholders as required. The PEB will provide the strategic direction for the programme and will be the ultimate decision-making authority.

The Programme Coordinator will lead and coordinate activities within the Soil Security programme and link and develop synergies with SARISA and other relevant initiatives of the funders; facilitate two-way knowledge exchange between researchers and policy/practitioner audiences; and maintain an oversight of the funded research activities, ensuring progress in delivery against the programme objectives. The successful projects will be expected to cooperate and work with the Programme Coordinator in order to ensure a successful programme outcome and maximise its impact.

In order for NERC to manage performance against its Strategic Objectives and Delivery Plan and report to the Department for Business, Innovation and Skills (BIS) and NERC Council, suppliers of strategic research are required to report regularly on the outputs and outcomes they have been commissioned to deliver. The Principal Investigator (PI) will be required to submit the following:

- regular reporting on the outputs, outcomes and impacts of the project using [ResearchFish](#); and
- other reporting as required by the Programme Coordinator and Executive Board, in order to enable them to monitor progress against the programmes objectives, and meet their own institutional reporting responsibilities.

## Call timetable

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|------------------------------|---|
| Announcement of opportunity: | 14 June 2016                                |
| Deadline for proposals:      | 09 August 2016                              |
| Assessment Panel meeting:    | September 2016                              |
| Grants awarded:              | October 2016                                |
| Grants actual start date:    | 1 <sup>st</sup> February 2017 at the latest |

## Contacts

James Box email: [soils@nerc.ac.uk](mailto:soils@nerc.ac.uk).

Further information on the Je-S system can be found on the Je-S website: <https://je-s.rcuk.ac.uk> or be obtained by contacting the Je-S Helpdesk by email at [JeSHelp@rcuk.ac.uk](mailto:JeSHelp@rcuk.ac.uk) or by telephone on 01793 444164.