

## **Nicholas R. Corker FRSA, MIAgrE**

**Innovation Manager** (12/2015): NERC Centre for Ecology & Hydrology (CEH), Maclean Building, Crowmarsh Gifford, Wallingford, Oxfordshire, OX10 8BB.

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Staff page: <https://www.ceh.ac.uk/staff/nicholas-corker>

I'm responsible for innovation management and the commercialization of research from the NERC sciences to industry: winning funding, project evaluation, the innovation pipeline, prototyping, spin-out management and collaborations with SME's, licensing of intellectual property, patent management and trademarking. Gathering relevant business, market and technological intelligence and brokering relationships are key activities.

I lead innovation activity within CEH via nudging strategies and formal procedures for innovation management and reward. In doing so, particularly in developing new innovation pipeline protocols managing change is central to my role.

I have oversight of green-economy developments and the dynamics of public sector science and innovation. R&D areas include Agri-tech, green-infrastructure interventions and restoration economies. Natural capital, climate change and resilience, remote sensing and environmental monitoring. I have over 25 years' experience of many aspects of ecology focussed sustainable development work in the private, public and voluntary sectors.

### **Skills**

Innovation leadership and management, project iteration, knowledge exchange, technology transfer and commercialization, project management, negotiation and brokering, sustainable development, environmental planning and management of regeneration. Partnership and executive roles include:

- CEH partnership manager to the Centre for Global Eco-innovation at the University of Lancaster: <http://www.globalecoinnovation.org/> (from 2015);
- Board member of Oxford Expressions Technology a NERC spin-out company (from 2011);
- Convener: British Water Innovation Focus Group: <http://www.britishwater.co.uk/innovation.aspx> (from 2014);
- Chair of activities in the green economy working group for the Partnership for European Environmental Research: <http://www.peer.eu/> (2014).

**Fellow:** The Royal Society of Arts Manufacture and Commerce (2016)

**Member:** The Institute of Agricultural Engineers (2017)

**Honorary Research Associate:** School of Civil Engineering, University of Birmingham (2007-2012) renewed (2012-16), awarded for work on the Defra Making Space for Water project in 2007 and Designing Resilient Cities in 2011.

### **CEH Innovation Manager (12/15-present)**

As Innovation Manager at CEH I reside with the Research and Innovation Services Directorate. A multidisciplinary group that includes, innovation, business development, corporate communications, legal, contracts and licensing services. I manage over £300,000 of innovation and intellectual property protection activity each year, within a framework of £16m of core funding and competitively won funds.

Knowledge exchange and commercialisation projects include:

- utilizing the Sentinel 2 satellite to produce the first UK crop map 'CEH Land Cover ® plus: Crops' from RADAR satellite
- lake bouys for the automatic monitoring of lake environments
- a family of app's called 'iRecord' ® with Defra's Biological Record Centre
- new partnerships to facilitate CEH's contribution to Peatland Conservation
- a NERC UK network of soil moisture sensors (COSMOS)
- a vessel for OECD bee toxicology tests (patent pending)
- a tool for the prediction of Japanese knotweed for the conveyancing sector
- a patented algal biosensor
- a Dissolved Organic Carbon (DOC) sensor
- mySoil: smart soil data platform
- NERC/BBSRC ASSIST 'sustainable intensification' 10 year research programme
- AGRIMETRICS account in relation to Land Cover products
- Ecosystem Knowledge Network
- Ozone intolerance in wheat assessment

### PREVIOUS EMPLOYMENT SUMMARY

- **Commercialisation Manager**, Natural Environment Research Council (7/2011-12/15)
- **Principal Consultant, Sustainable Development:** Building Research Establishment (4/2006- 7/2011)
- **Business Innovation Manager, Innovation in Crops (InCrops):** University of East Anglia (secondment from BRE 3/2009 – 3/2010),
- **Natural Environment Team Leader:** Northamptonshire County Council (secondment from Northamptonshire Borough Council (3/2005-4/2006)
- **Sustainable Development Co-ordinator:** Northampton Borough Council (1/2001-3/2005)

- **Curriculum Manager:** Northamptonshire College of Agriculture (2000-2001),
- **Environmental Co-ordinator and Senior Lecturer:** Derbyshire College of Agriculture (1992-2000)
- **Practical Conservation:** Director of an SME undertaking nature conservation and forestry work in North Wales (1989-1992)
- **Field Supervisor,** Nature Conservation: British Trust for Conservation Volunteers (1986-1988)

## EDUCATION

- **MSc.** (Wales) Rural Resource Management (1990)
- **Post Grad. Cert.:** Sustainable Business Management, University of Cambridge (2014)
- **Post Grad. Cert.:** Architectural History, University of Oxford (2011)
- **Post Grad. Cert.:** Environmental Impact Assessment, Oxford Brookes (2006)
- **Cert. of Ed.:** (FE) Agricultural Education Training Unit (Wolverhampton Polytechnic 1988-1989)
- **BSc.** (CNAA & Kutztown University USA) Environmental Studies (1983-1986)
- Environmental valuation and Policy, MSc., module, Open University (2008)
- Integrated Environmental Management, MSc., IEMA accreditation module (University of Bath)

## Technical and management training

- Agile PM (2018)
- NERC Band 5 management training (see below)
- BREEAM Eco Homes assessor training (2006/2011)
- BRE Life Cycle Accounting & Environmental Profiles, Green Book assessor training (2006/2011)

## Employment history

- 1) **Principal Consultant**, Sustainable Development: Building Research Establishment, (4/2006- 7/2011).

Scope of work: environmental planning, sustainable communities, climate change adaptation & resilience and renewable materials in construction. **Technical editor**: ecology, for the BREEAM Regional Checklist for Development, and BRE's GreenPrint (a sustainable development planning tool). **Expert panellist**: EPSRC: 'Urban Futures' research programme. **PhD supervisor**: BRE Centre for Sustainable Design, University of Cardiff. Ecology lead on the corporate ISO 14001 and Sustainability Plan. **BRE Project Manager** and lead BRE consultant for the Prince's Foundation for the Built Environment.

### Selected Projects:

- **Project manager**: Tenuta San Michelle Italy, sustainable ecosystem farm/forest resort project using BRE GreenPrint as land use decision tool;
- **Project manager**: Defra, Making Space for Water Project: Life (Long term Initiatives in Flood risk Environments). Exploring via case studies, green-infrastructure led solutions to developments in flood risk areas within 3 typical catchments, (2007 - 2008), RIBA award for best practise based research project 2009;
- **Project manager**: Marks & Spencer biodiversity in construction work package, enhancing biodiversity opportunities in retail buildings;
- **Member**: UK Greenbuilding Council Biodiversity Task Group;
- **Project manager**: The Characteristics of Sustainable Communities. A BRE Trust project exploring the development of a critical typology and character profiles for sustainable communities via an ecosystem approach (2007-2008);
- **Project manager**: Excellence Framework tool: an online tool for assessing sustainability performance across a range of criteria;
- **Technical lead**: BRE regional checklist for development;
- **Training delivery**: multiple workshop presentations on the EcoHomes standard to English Partnerships;
- **Project manager**: White Nap Barns, rural historic buildings conversion to low energy office accommodation, (Prince's Foundation for the Built Environment project);
- **Participatory Planning** experience at: Upton, Kettering East, Northampton, Walton on the Naze, Ballater, Ellon and Hertfordshire design charrettes, **Advisory panel member** for the Urban Land Institute, attendance at 6-day panel enquiry in Biloxi, Mississippi, (post Katrina), USA 2008;
- **Technical author**: European Green Public Procurement framework, Gardening products and services;
- **Project chair**: Surbiton floating homes development BRE GreenPrint workshop;

- **Project manager and co-author:** NHBC Foundation study: Cellulose based building materials: utility, performance and risk;
- **Project manager and author:** Issues and options paper for the Temperate House, Kew Gardens (for DTI);
- **Project manager and author:** Energy Efficiency in Agriculture, Carbon Trust review.

2) **Business Innovation Manager:** Innovation in Crops project (InCrops: University of East Anglia) ERDF funded secondment from BRE 3/2009 – 3/2010).

Providing business and research support on the wider utilisation of non-food crops in business and industry to SME's in the east of England:

- renewable materials in shop-fitting;
- hemp-crete and the Renewable House a BRE demonstration house, designed, specified and built from hempcrete;
- straw panel and bale;
- supply chains, assurance & certification;
- evaluation of Corsican Pine (Thetford Forest);
- Defra LINK project: evaluation of hemp/ lime building;
- Institute of Materials presentation and display co-ordinator for UN International Year of Natural Fibres
- Presentation to the European Hemp Association conference 2009

3) **Natural Environment Team leader,** Northamptonshire County Council, (secondment from Northamptonshire Borough Council 3/2005-4/2006).

Management of biodiversity, landscape and strategic environmental planning functions. Specific responsibilities: team management (biodiversity, landscape, environmental assessment, GIS):

- Northamptonshire Biodiversity Action Plan;
- Planning consultations: Strategic & Environmental Impact Assessment;
- Climate change strategy;
- Northamptonshire Environmental Character Assessment;
- Land management and implementation of the Chester Farm heritage site;
- Environmental planning liaison with the River Nene Regional Park Team.

4) **Sustainable Development Co-ordinator** (Northampton Borough Council 1/2001-3/2005).

Management of Local Agenda 21 staff, co-ordinating sustainable development throughout the authority, specific responsibility for environmental standards in new development within the Milton Keynes South Midlands growth area. Northampton Sustainable Development Strategy, (author and co-ordinator).

English Partnerships, 'Working Group' member and environmental sustainability lead for the Upton sustainable urban extension Northampton. Organised extensive knowledge exchange tour of key sustainable home projects for the project team

### Activities:

- Sustainability Appraisal of the Local Development Framework;
- Co-ordination of the English Partnerships/Upton project successful submission to European Solar Energy project (ALTENER) and European tour participant;
- Author of the Northampton Borough Council Energy Strategy;
- Sustainable development indicators review (Quality of Life indicators),
- Ecological Footprinting, Environmental Management System (ISO 14001);
- Climate change: co-ordinating the authorities' response through the Nottingham Declaration and the Northampton Urban Forest proposal;
- Farmers Market development, exploring community food growing models, urban agriculture and square foot gardening. Member of the Urban Food Hubs, (£1m lottery funded) management team, a food poverty initiative (allotments, community garden and community orchard);
- Member of the Veredus change management team during the Council's transition and formation of the West Northamptonshire Development Corporation.

- 5) **Curriculum Manager** (Countryside Management): Northamptonshire Agricultural College, (2000-2001).

Curriculum Leader: countryside management, (National Diploma and Higher National Diploma); Led the countryside management teaching team (6 full time staff). **Senior Lecturer** in sustainable rural development and countryside management; member of LEADER + steering group for the Rockingham Forest Trust.

- 6) **Senior Lecturer and Environmental Co-ordinator**: Derbyshire Agricultural College, (1992-2000).

**Course Leader & originator**: HND Integrated Land Management (Broomfield College),

**Module Leader**: Sustainable Production Systems (teaching BSc. Biology, U. of Derby).

**Lecturer**: Sustainable Land Management, World Agricultural Systems, Woodland Management. Landscape Ecology, Rural Sociology, Practical Habitat Mgt., **Tutor** HND Organic Agriculture. (Sheffield Hallam U.) (1992-1997). **External Verifier**: NVQ Environmental Conservation-National Proficiency Test Council, (1996-1999). Research supervisor:

- The application of **environmental management systems** to the land base sector industries, (MPhil U of Derby). Supervised demonstration project applied to the college farm and estate
- The application of GIS in Nitrate Sensitive Areas, (MPhil U of Nottingham).

### **Initiatives as Environmental Co-ordinator:**

**Manager:** 'The Sustainable Farm Project', (1997-2000), a DfES/Local Energy Authority/Agenda 21 funded project comparing the energy used within conventional and organic farming system, practical applications of renewable energy and energy audits in the farm enterprise; Innovations included:

- farm energy audits and energy efficiency interventions;
- micro-wind power mobile sheep shearing;
- solar thermal hot water to organic farm dairy;
- horizontal reed beds;
- ground source heat to greenhouse and college library.

### **Farm management activities:**

- Leader of Broomfield's contribution to the Farm and Countryside Scheme a Peak Park Authority 5b project looking at applying Integrated Land Management practice to farms (1997-2000);
- Author of successful college bids, eg., EAGGF, ADAPT, LEADER II, Collaboration Fund;
- Management of College stewardship, hedgerow and woodland grant scheme;
- Management co-ordinator for the Breadsall Cutting SSSI.

Extension work:

- College co-ordinator Farmers World Network;
- Manor House Agricultural College Kitale, Kenya.

### **Practical Conservation (1989-1992):**

Traded as 'Practical Conservation' undertaking habitat management and agri-environment scheme work for the Institute of Terrestrial Ecology, University of Bangor and Forestry Commission. Numerous small works contracts for drystone walling, earth bank restoration, woodland management and ecological survey work. Course instructor on day courses for the university and the local BTCV .

**Overseas experience:**

**Italy, Tenuta San Michel** (2009) a BRE Sustainable Land Management project;

**USA, Biloxi** (2008) Urban Land Institute, advisory panel member;

**Hamburg** (2004) Presentation of the Upton Sustainable Community project to the EuSol conference;

**Rome** (2004) European Solar Energy project cluster meeting (presenting);

**East Africa** (1999), visited the Olaf Palme Agroforestry Centre and Manor House Agricultural College, Kitale, Kenya;

**Norway** (1996) visited the Branbu Energy Farm project;

**Sweden** (1996) contributed to the BP/AMOCO Science Across the World workshop;

**South America** (1995) visited Ecuador and the Galapagos Islands;

**East Africa** (1994) ascent of Kilimanjaro , Kenya

**Kutztown University** USA (1984-exchange student), studied Sustainable Agriculture, International Development, Environmental Conservation, Planning & land Use, Environmental Forestry, Rural Sociology, Geography of Poverty

**Continuing Professional Development****Table of innovation training with NERC**

2018	Agile Project Management Foundation	APMG
2017	Technology Transfer, theory to practice	Oxford University Innovation Ltd
2017	Open Innovation	Open Innovation
2017	Software Commercialisation	Praxis Unico
2016	Open Innovation, Empowering Innovation and Knowledge Exchange	Oxford University
2016	Capturing Sustainable Value	Centre for Industrial Sustainability: Cambridge University
2015	Applying Knowledge Management Principles and Practices	Oxford University
2013 - 2014	Innovation & Commercialisation	MIT (20 week Online MOOC)
2013	Effective knowledge facilitation	Dialouge Matters



2012	Managing Innovative Technology	Oxford University (ISIS Enterprise)
2012	Creative thinking	De Bono Masterclass
2012	Social Entrepreneurship	(10 week online course): Oxford University
2012	Fundamentals of Business	Saiid Business School evening lecture series
2012	Ecosystem service benefits to business	Plas Tany Bwlch (Snowdonia National Park)
2011	Fundamentals of Technology Transfer	Praxis Unico
2011	Six Thinking Hats	De Bono Masterclass
2011	Intellectual Property Master Class	Intellectual Property Office
2011-2013	NERC Management training programme: (Project management, Advanced Project Management, Effective Communication, Successful negotiation)	NERC

2010- Life Cycle Assessment of Materials: practitioner, BRE

2007 - Joined responses to flooding, CIWEM

2006- Retreat and realignment: flood prevention and risk CIWEM

2006- EcoHomes Assessor Training, BRE

2005- Certificate in Strategic Environmental Assessment (Oxford Brookes)

2004- Certificate in Environmental Impact Assessment (Oxford Brookes)

2002- Strategic environmental appraisal (SEA) of plans and processes (UWE)

2001 – Walter Segal –self build workshop, St Anne’s Community Centre, Nottingham

1998- Agricultural Archaeology (University of Oxford, summer school)

1995- National Proficiency Test Council, Training for NVQ (level 1 – 5) External

Verification training for lead verifiers ‘Environmental Conservation’

1993-Groundwork Trust: Permaculture Design Course

1987-Field Studies Council: Time and Team Mgt. for conservation managers.

### **Conferences and workshops:**

2017- Open Innovation (Rothamsted)

2014- Farming Futures workshop (Rothamsted)

2013- Rethinking Agricultural Systems in the UK (Association of Applied Biologists/University of Oxford)

2013- Wakelyns Agroforestry workshop (Elm Farm Research)

2013- Agroforestry Research Trust (3 day workshop)

## **Reports, publications and unpublished research**

**Editorial panel member:** *Engineering Sustainability Journal*: Institute of Civil Engineers (2007-2011)

Eleanor B. Mackay, Stephen C. Maberly, Gang Pan, Kasper Reitzel, Andy Bruere, **Nicholas Corker**, Grant Douglas, Sara Egemose, David Hamilton, Tristan Hatton-Ellis, Brian Huser, Wei Li, Sebastian Meis, Brian Moss, Miquel Lürling, Geoff Phillips, Said Yasseri, and Bryan M. Spears. Geoengineering in Lakes, welcome attraction or fatal distraction? (2014) *Inland Waters 4*, pp. 349-356

Spears BM, Maberly SC, Pan G, Mackay E, Bruere A, **Corker N**, Douglas G, Egemose S, Hamilton D, Hatton-Ellis T, Huser B, Li W, Meis S, Moss B, Lürling M, Phillips G, Yasseri S, Reitzel K. (2014). Geo-engineering in lakes: a crisis of confidence? *Environmental Science & Technology*

**Corker NR.**, Willoughby P.(2013) editorial to Engineering Sustainability Journal (ICE) themed edition 'Participatory Planning', May 2013

**Corker NR.**, & Scott C.(2012) *Offsetting for Biodiversity*, BRE Information Paper IP 10/12

**Corker NR.**, (2011) *Garrett Hardin's, The Tragedy of the Commons*, Engineering Sustainability Journal, Institute of Civil Engineers , invited seminal paper review: June 2011

2010 NHBC Foundation project report: Cellulose based building materials: utility, performance and risk (draft submitted for publication)

2009 Editor: The Life Project: Long-term initiatives for flood-risk developments, BRE EP 98

2009 Seeds of a low carbon economy. Constructing the Future, BRE

2007 The Characteristics of Sustainable Communities: what are they and how can they be recognised ? (report to the BRE Trust )

2006 Joint lead author of the Excellence Framework (Inspire East planning tool)

2005 Environmental decision making: informing the process through the emancipation of environmental information (unpublished EIA Pg Cert project)

2005 Environmental Sensitivity Assessment of the North Northamptonshire development area (lead joint contributor). Northampton County Council internal report

2002 'Living Today with Tomorrow in Mind', Northampton's Community Vision for a Sustainable Quality of Life

2001 Climate Change, 'the challenge of the century'? Northampton Today;

2000 'Manor House Agricultural Centre, (Kenya) an important resource for all', Landmark, Farmers World Network

1999 contributor to the RSPB/Land based Colleges National Consortium pack, 'Farming for Tomorrow-integrating conservation into the agriculture curriculum'

1998 co-author BP/AMOCO Science Across the World Biodiversity pack

1997 'The Sustainable Farm Project: vision for a sustainable future' (co-author)

1997 'Agricultural Colleges, their role in a sustainable future', Landmark, Farmers World Network

1997 Broomfield Sustainable Farm Project. The energetics of two agricultural systems, information leaflet and contributor to final report

1994 HND Integrated Land Management. Curriculum handbook

1990 'Land use evaluation on Ynys Enlli a GIS approach' (MSc dissertation)

1986 Grouse (*Lagopus lagopus scoticus*) and Grouse Moorland Management (undergraduate dissertation).