



The James
Hutton
Institute

Women **in** Science





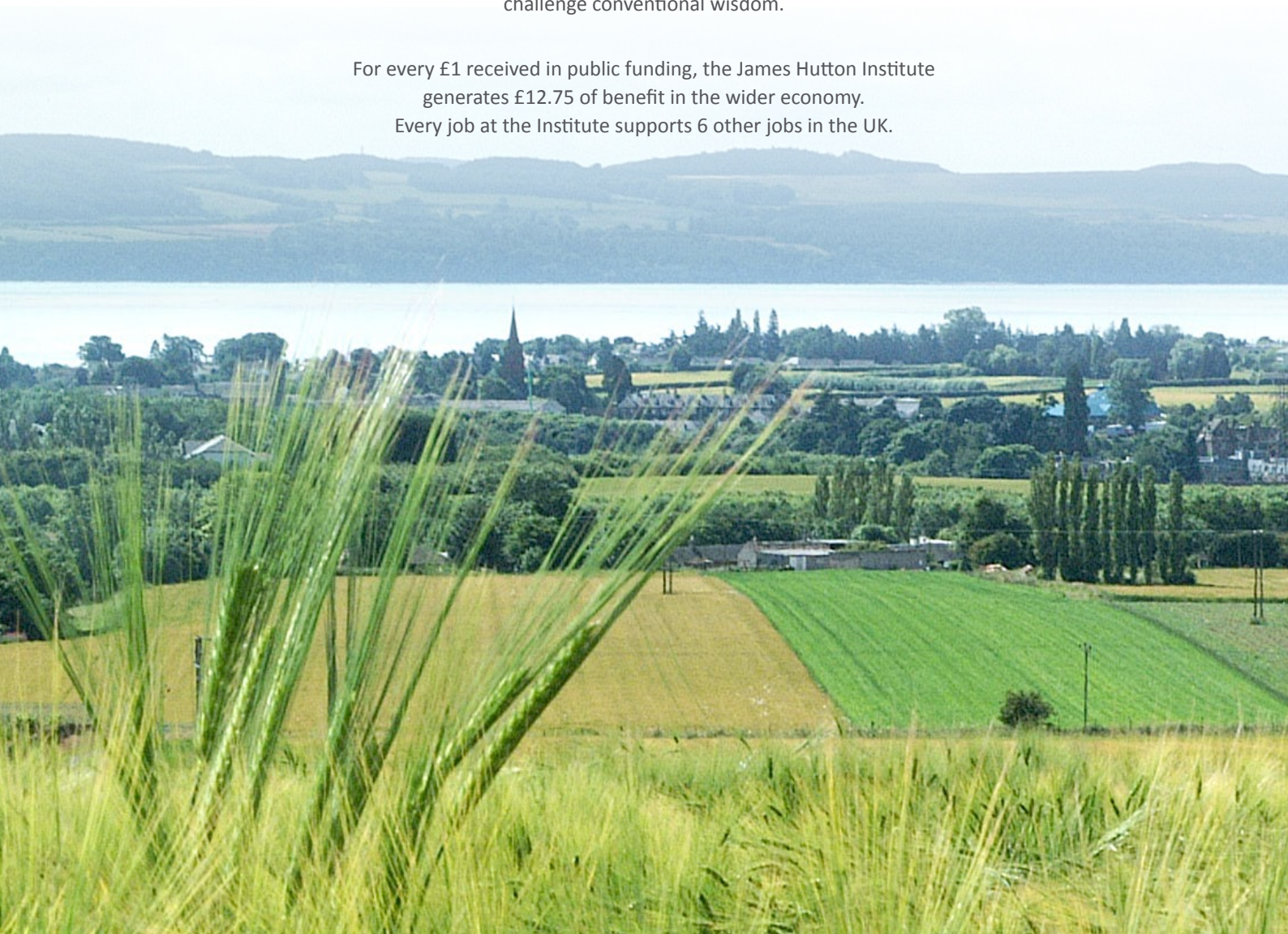
The James Hutton Institute

The James Hutton Institute is a respected, globally recognised research organisation that delivers fundamental and applied science to drive the sustainable use of land and natural resources.

The Institute delivers independent, world-class scientific research tackling some of the world's biggest challenges relating to food and environmental security and sustainable development. The context is significant global changes in population, increased demand for natural resources, a changing climate, and economic and geopolitical developments.

Our scientists follow the inspiration of James Hutton, whose observations on Scotland's rock, soils, agriculture and landscapes forever changed the way we think about the world. We deliver global impact through excellent science, collaboration and innovation and like Hutton, are willing to challenge conventional wisdom.

For every £1 received in public funding, the James Hutton Institute generates £12.75 of benefit in the wider economy.
Every job at the Institute supports 6 other jobs in the UK.



Our research and areas of interest cover a vast span of **scientific disciplines** including:

Psychology
Genetics
Statistics
Bio-informatics
Zooology
Plant breeding
Analytical chemistry
Hydrology
Mineralogy
Crop science
Microbiology
Plant physiology
Virology
Agro-ecology
Geo-informatics
Plant pathology
Ecology
Modelling
Ecology
Food chemistry
Economics
Soil science
Data mapping
Landscape Ecology
Geography
Physics
Pedology
Genomics
Sociology
Epidemiology
Metabolomics
Chemistry
Bio-geochemistry
Systems analysis



Introduction



Being a scientist is a way of making a difference and improving people's lives. It is generally accepted that research and scientists are crucial in providing solutions to global challenges like climate change, or food insecurity. However, science is not always considered as a potential career and women in particular remain under-represented in many science areas.

This booklet hopes to help address the imbalance by describing the role of 21 of the 204 female scientists and technicians who work at the James Hutton Institute. It highlights some of the vast array of interesting, rewarding and appealing jobs and careers there are in science and social science. The work is often in other countries, typically with a very international community of colleagues and partners. Some of the women featured here have moved across or between science disciplines as opportunities and interests have evolved, while others have chosen to become specialists in their field.

It's increasingly recognised that gender-diverse workplaces are more innovative and productive, so gender equality has real economic benefits. This is just as true in science as other sectors. In contrast to the image often associated with science, most research projects nowadays involve people from a wide variety of science or social science backgrounds working together to solve complex problems. At the James Hutton Institute, much of the work we do is interdisciplinary, team-based research that calls for people who can communicate well and deal with different opinions and uncertainties as well as scientific and technical skills.

Thanks to all those who contributed to this booklet for their time and willingness to share their experience. We hope it inspires interest and contributes to a future generation of female scientists.

Professors Deb Roberts and Lesley Torrance
Directors of Science
The James Hutton Institute



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Dr Andrea Britton

What do you do?

I am an ecosystem scientist researching how natural and man-made factors influence plant communities and the consequences of this for ecosystem functioning, habitat management and conservation. My work focusses on alpine habitats in Scotland: I investigate the effects of the deposition of pollutants, and climate change. I explore how these factors affect the biodiversity of plant communities and soil organisms such as mites and fungi which are important for controlling decomposition and nutrient cycling. I look at the effects on carbon storage in soil and vegetation and how this affects water quality in upland areas. Most of my day to day work is office based; planning and designing experiments, managing projects, supervising PhD students, analysing data and writing up research results for scientific journals but I also do a significant amount of outdoor work; plant and soil sampling in the mountains.



1994
BSc in Ecology, Conservation and Environment **York University**



1994-95
Assistant Conservation Officer **Wildlife Trust for Bedfordshire**



1998
PhD in Applied Plant Ecology **University of Liverpool**



1999
Plant Ecologist **Macaulay Land Use Research Institute**



2009
Senior Plant Ecologist **Macaulay Land Use Research Institute**



2012
First child born



2013
End of maternity leave and begin part time working

How did you get into it?

I've always been interested in the natural world and enjoy being outdoors, but I first got seriously interested in ecology at uni, where I went intending to do molecular biology, but came out with a degree in ecology. My PhD was on lowland heathland ecology, but as a keen mountaineer I was very interested in upland management issues. When I moved to Scotland for my first post-doctoral job I found very little research being done on alpine systems in Scotland so I moved into that area and have been working on it ever since.

Essential qualities for this kind of role?

Much of ecology is about understanding how the different elements of complex natural systems fit together. You need a keen eye for detail, while being able to keep the bigger picture in mind. On a practical note, ecological projects often involve team working; it helps to be good at getting along with colleagues, and to have good time management and planning skills. Working in mountain environments requires an extra dose of determination when the weather is not on your side!

Best thing about your job?

Being outside in the mountains and knowing I am contributing to understanding how these ecosystems work and how we can conserve them. I love the 'eureka' moments when our data show us something surprising or unexpected.

Anything you would change?

Science can be a very competitive career path and many people work long hours. When you have a young family it can be difficult to achieve work-life balance.

What might surprise people about what your work involves?

An important aspect of science is communicating your work to people from all walks of life. I once appeared on TV to explain how lichens might make Rudolf's nose glow in the dark!



Dr Carol-Ann Craig

What do you do?

I mainly work in the laboratory preparing and analysing various samples for their isotopes. The samples types that I receive to analyse range from rocks, waters, soils and food to teeth and bone. Depending on what is required, I either break the sample down or extract it, then chemically purify it so that all that is left is the element I am interested in. I then load it into a Thermal Ionisation Mass Spectrometer (TIMS) and measure the ratio between the different isotopes. The data are used either to date how old the sample is in geological timescales or to trace where it came from. As quality manager I have to make sure that all our accredited methods are being followed correctly and are fully traceable.

1994

Switched to Environmental Geoscience **University of Edinburgh**

1997

Obtained degree

1998

MSc in Environmental Analysis and Assessment

2003

PhD in dating geologically young samples using isotopes **University of London**

2003-2004

Various jobs from draped life model to social services call handler

2004-present

Macauley Enterprises/ Institute, later James Hutton Institute lab assistant through various positions to section head and quality manager

How did you get into it?

I had always wanted to be a scientist and apparently told my primary school teacher I was going to become an environmental advisor to the UN. My father taught Chemistry at the university and I spent my holidays there with him. I was always fascinated by the equipment and instruments (and smell!). As someone who loves nature and has a logical and questioning mind, the environmental sciences suited me perfectly. During my MSc I fell in love with lab work using multiple instruments and techniques and have pursued a lab career since. I also love organising and this led me to my QM role where I can put systems into place and make current ones more efficient and fool-proof.

Essential qualities for this kind of role?

Having a logical and organised outlook is very useful for working in a lab as well as being manually dexterous. Being focused and stubborn can also be very useful when dealing with “problem” samples or uncooperative instruments! Good communication is required to be able to discuss and present results to various audiences.

Best thing about your job?

It’s a tie between that satisfaction from your work helping the environment somehow, and working with such a diverse and interesting group of people.

Anything you would change?

In my career path I would have probably done better to focus on a “pure” science for my undergraduate and only specialise later on. (Don’t tell my Dad!) Workwise I would like funding for environmental research to be improved and more time to develop ideas that may not be profitable but are worthwhile.

What might surprise people about what your work involves?

Sometime I find imprint fossils in the rock samples I analyse. For one of the chemicals I use I have had to sign a declaration that I’m not making weapons of mass destruction.



Cutting peat during a trip to the Shetland Isles where I was undertaking interviews with the islanders to explore their perceptions of the importance of their peatlands in the face of climate change.

Carol Kyle

What do you do?

I'm a research assistant working in social, economic and geographical sciences. My job involves interviewing people, running focus groups and larger workshops, handling data, writing reports and travelling. I'm involved with multiple projects (e.g. improving food security, assessing the effects of climate change, commercial poultry production and the backyard owner); the opportunities are endless and varied. Despite having no social science qualifications I have a natural aptitude with people, I love to organise and I am flexible and willing to learn.

How did you get into it?

Initially, I wanted to work with animals but there were few opportunities apart from as a vet, (not clever enough!) kennel maid or groom (I didn't want my hobby to be my job) and a job at the Rowett allowed me to spend many happy hours interacting with cattle, sheep and pigs, feeding new-fangled diets like ammonia-treated straw and whisky bi-products and analysing the 'outputs'. During my time there I also worked with red deer, llamas and dairy goats, developed a number

of analytical skills, completed a HNC in Biology, achieved promotion and learned how to use the latest invention - a desktop computer! At the Macaulay my focus became more ecological and environmental, investigating the effects of environmental oestrogens (chemicals released from plastics) with particular emphases on invertebrates (cockroaches and earthworms!).

When Macaulay merged with SCRI and became Hutton, the start-up workshops showed me how much I enjoyed people-focussed work and that's been the area I've enjoyed since.

Essential qualities for this kind of role?

I've embraced many changes throughout my 40 year career and I believe that this ability to adapt is still vital. The pressures on our world are increasing and ever changing and scientists have to be able to respond and react quickly.

Best thing about your job?

I love the variety of different projects I'm involved with, there's always something new to learn. People are fascinating. I can honestly say that I find it rewarding and challenging and I've loved every minute of it.

Anything you would change?

Getting funding for research is becoming very difficult and puts a real strain on researchers. In an ideal world I'd like to see easier access to more funding and permanent contracts for all staff.

What might surprise people about what your work involves?

I think the picture above says it all!

1977
Age 17 joined **Rowett Research Institute** straight from school

1983
HNC biology **Robert Gordon University**

1998
joined **Macaulay Research Institute** Aberdeen

2011
began running & facilitating workshops at new **James Hutton Institute**

2013
became research assistant in SocioEconomic & Geographical group at **Hutton**



Claire Abel

What do you do?

I'm a Research Assistant in Environmental and Biochemical Sciences. The main part of my job involves carrying out molecular and microbiological techniques including DNA extractions and analysis, and bacterial culture work. I have also been involved in a long-term project looking at the chemical and biological effects of pollution from farming in a catchment area near Forfar, going on fieldwork to collect samples, using monitoring equipment, and analysis of the samples in the lab. Identifying diatoms (a type of algae) is also part of my role. I look at their community structures to assess nutrient levels in watercourses. I also identify diatoms for our Forensics department, helping establish whether a body or missing person has been in a particular waterbody from diatoms that have adhered to their clothing. More recently, I've organised sampling regimes and analysis on projects looking at the effectiveness of UV systems on private water supplies and developing new technologies for the provision of safe public drinking water.

How did you get into it?

I have been interested in science and learning about nature from a young age. I had a microscope when I was around 10 years old and that was great for finding out about things. When I left school I wasn't exactly sure what I wanted to study at University took an 'interim' job in a microbiology lab

1990

Microbiology lab work, food manufacturer, Dyce

1995

Public Health Laboratory work, **Forresterhill Hospital** Aberdeen

2000

Scottish Water microbiology lab, Turriff

2002

Macaulay Land Use Research Institute

2010

HND in Environmental Management

and discovered how much I enjoyed this type of work. The hospital role in public health broadened my knowledge of pathogenic bacteria and I was involved in the investigation into an E.coli 0157 outbreak. Scottish Water's microbiology lab was very busy with a massive throughput of samples and led me into algae identification as we had to look for algae species in reservoirs, especially blue-green algae which are harmful to humans and animals. The Macaulay Institute move was motivated by convenience but it was here that I had the opportunity to gain formal qualifications; an HND in Environmental Management.

Essential qualities for this kind of role?

Willingness to learn new skills as my job has developed in new directions since I originally started. Being able to communicate with members of the public is essential, whether with farmers or householders who have agreed to take part in one of our projects. Working away from home is required and organisational skills are essential for organising sampling regimes for sites all over Scotland.

Best thing about your job?

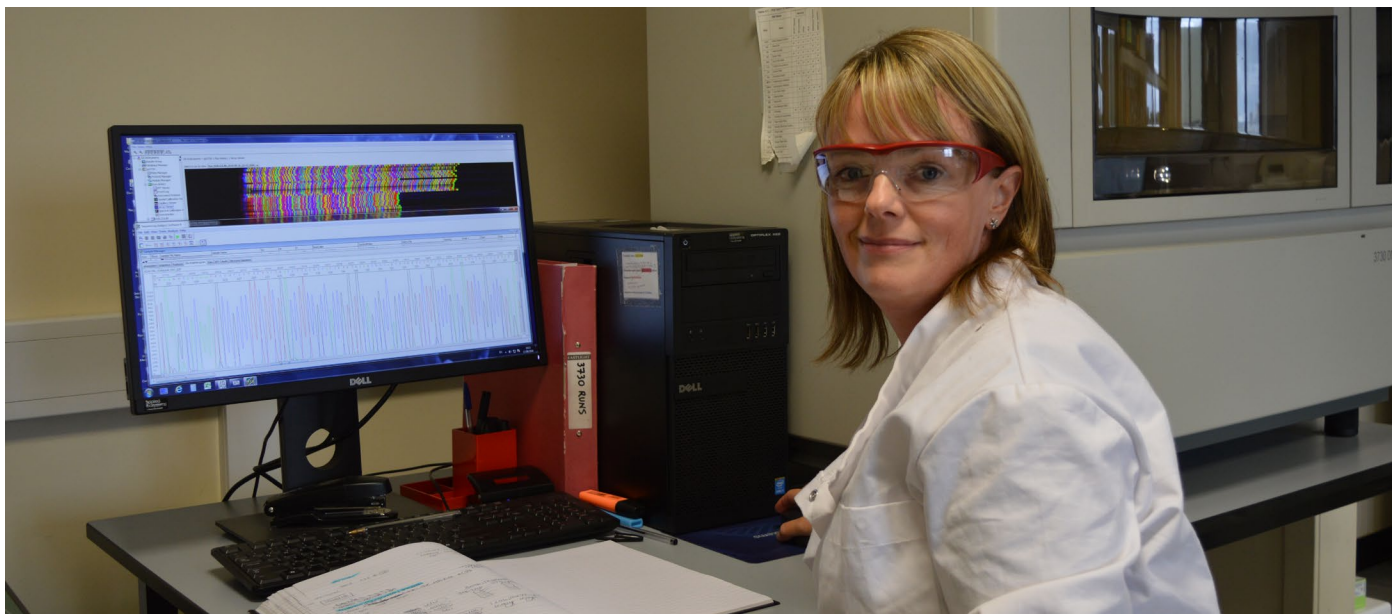
Meeting different people who are taking part in our projects is an enjoyable part of my job and building a rapport with them is very satisfying. I love the great variety of tasks in my role and specific tasks like diatom identification are very interesting and often challenging.

Anything you would change?

Sometimes I have to work in difficult conditions outdoors, such as trying to download data from one of our data loggers in the rain! Some of the molecular work I do can be frustrating when things don't work the first time - typical of this type of work. A lot of time is spent running repeats, trying to work out what went wrong!

What might surprise people about what your work involves?

The sheer variety of my work. For example, one day I can be out working in a stream or river in a pair of waders collecting water quality data, and the next day I can be sitting at a microscope identifying diatoms.



Clare Macaulay

What do you do?

For the past 20 years I have been running the Sanger Sequencing and Genotyping service for the institute. Our group - Genome Technologies - also offers a DNA extraction service, DNA/RNA quality and quantification, gene expression microarrays, library preparation and next generation sequencing. We provide a valuable resource to the institute, supporting many different and varied research projects with analysis and information that underpins the insights they are seeking.

How did you get into it?

After completing my degree I decided not to study further and instead, choose to pursue a career working in the laboratory. In my first job at SCRI I provided technical support on a research project on RNA transcription. In this role I spent almost three years gaining valuable experience in molecular biology techniques before taking up the position running the Sanger Sequencing and Genotyping service.

1994

Degree in Biological Sciences **Edinburgh University**

1995

Joined SCRI (now **James Hutton Institute**) as Laboratory Technician

1997-Present

Began running the institute's Sanger Sequencing and Genotyping service.

Essential qualities for this kind of role?

Over the years, the technologies and equipment I use have changed and continue to change rapidly. This brings the opportunity for me to learn new skills and techniques and assist in developing new protocols. Our group has some of the most specialised and costly equipment onsite. The work I do demands a high degree of organisation, accuracy, multitasking skills and the knowledge and expertise to provide troubleshooting advice to customers.

Best thing about your job?

Providing a service requires me to interact with over 100 customers across the institute. I particularly enjoy meeting and helping the variety of phd students and scientists who come here to work from all around the world. I also enjoy giving tours of our facility to visiting workers, students and school pupils.

Anything you would change?

Providing a service means our work load changes with demand. We must respond rapidly to sudden increases and ensure colleagues and customers get their results back quickly. I would love to be able to spread out the workload to avoid these peaks and troughs in demand.

What might surprise people about what your work involves?

I'm amazed how rapidly the equipment and technologies have advanced in Sequencing. The amount of data which we can generate today has increased 50,000 fold since I started the job.



Debbie Fielding

What do you do?

I work across a variety of projects, most of which focus on how land management affects biodiversity. As a research assistant I provide support to the researchers. This can involve contributing ideas during the early stages of project development, offering suggestions on appropriate methodology, collecting and managing data, as well as assisting with data analysis and report writing. However, as the projects I work on tend to have a large fieldwork component, much of my time is spent organising and carrying out fieldwork. This often involves obtaining access to sites, preparing maps and datasheets for use in the field, ensuring we have all the kit to collect the data and collecting the data itself. Vegetation surveying is my main area of expertise, however my fieldwork can be quite varied, involving vegetation monitoring, soil sampling and surveys of birds, mammals and earth worms.

2005

BSc (Hons), Environmental Conservation **University of Wales** Bangor

2006

MSc, Conservation and Land Management **University of Wales** Bangor

2007

Seasonal Field Surveyor
Thomson Ecology Ltd

2007-2008

Conservation Officer
Countryside Council for Wales (CCW)

2008-Present

Research Assistant in the Ecological Science Group at the **James Hutton Institute**

How did you get into it?

I always enjoyed spending time outdoors and was interested in nature from a young age. This led me to study Environmental Conservation at University. My inquisitive mind and enjoyment of experimentation led me to pursue a career in ecological research. Before this research assistant role, I had a couple of short term contracts where I gained useful skills for my current role. I also developed my practical survey skills through voluntary work which supplemented the theory I learnt at university.

Essential qualities for this kind of role?

This job requires a high level of flexibility. Some work is highly seasonal. Due to the remoteness of many sites, long hours are sometimes required. Unfortunately the sun doesn't always shine, so a willingness to work in all weather conditions is a must, as is an ability to walk long distances on uneven terrain carrying lots of field kit!

Best thing about your job?

The opportunity to work in some amazing places across Scotland.

Anything you would change?

Spending lots of time away from home and the anti-social hours worked when carrying out bird surveys can be quite disruptive to social activities.

What might surprise people about what your work involves?

One day I might be recording plant species, while another day I might be seeing what scavengers feed on deer carcasses, tracking deer with GPS collars or chasing sheep and cattle back into experimental plots and repairing fences so they don't escape again!



Prof Deb Roberts

What do you do?

My work is really varied but essentially I am responsible for ensuring the Institute delivers research which contributes to food and environmental security and rural wellbeing. This means making sure that the science we do is relevant (has impact) and is high quality (robust and credible). It also means ensuring the scientists in the Institute have the support and facilities to allow them to conduct world-leading research. I have a part-time appointment at the University of Aberdeen which allows me to continue to do some research myself and also supervise PhD students.

How did you get into it?

I come from a farming background and my choice of undergraduate degree reflects the fact that I hoped to get job in the agriculture sector. I had no aspirations to become an academic (partly because I did very badly in my A-levels) but I really enjoyed my degree, especially the dissertation which was my first experience of doing research, and

1986
BSc Agriculture and Agricultural Economics (Wales)

1989
Lecturer in Agricultural Economics, **University of Manchester**

1992
PhD in Agricultural Economics (Manchester)

1994
First son born

1995
Second son born

1996
Research Fellow, **University of Aberdeen**

1997
Third son born

1998
Senior Economist, **Macaulay Research Institute**, Aberdeen

1999
Fourth son born

2003
Senior Lecturer, **University of Aberdeen**

2006
Reader, **University of Aberdeen**

2012
Professor, **University of Aberdeen**

2012
Science Group Leader, **James Hutton Institute**

2016
Director of Science

accepted the offer of a PhD scholarship just after I graduated. From then on, I followed a fairly conventional career path although my teaching and research has changed focus a lot over time. If I'm honest, this wasn't always a result of proactive choice but more a case of having to adapt to changing circumstances and opportunities but it definitely helped broaden my horizons and increased my confidence in dealing with change.

Essential qualities for this kind of role?

First and foremost the role requires a belief in the importance of research in addressing critical societal challenges like climate change or food insecurity. At a more pragmatic level, having good listening, negotiating and communication skills is also important as the job is mainly about supporting and bringing other people together.

Best thing about your job?

Constantly learning and meeting lots and lots of people from a wide variety of backgrounds, including the general public, other scientists, farmers, civil servants and government ministers.

Anything you would change?

I wish I had done chemistry at school.

What might surprise people about what your work involves?

The scientists I work with at the Institute come from all over the world and cover a huge range of disciplinary backgrounds, from molecular biologists looking at ways of improving crop traits through to anthropologists looking at the social impacts of onshore wind farms.



Helen Watson

What do you do?

I am a research assistant in the Environmental and Biogeochemical Science Group. Over the years I have carried out a variety of field and laboratory work measuring water quality and quantity at our main research sites. I manage a small team of people and I'm responsible for leading a couple of small projects and for contributing to larger ones.

- 1995**
 BSc in Geography
Aberdeen University
- 1997**
 MSc Sustainable Agriculture
Aberdeen University
- 1998**
 Started at **Macaulay Land Research Institute**, Aberdeen (which became part of the James Hutton Institute in 2011)
- 2013**
 Birth of my son
- 2014**
 Return from year's maternity leave

How did you get into it?

I was brought up on a farm and loved being out of doors. After completing my studies I wanted to remain based in Scotland so that I had easy access to mountains and open spaces but when I applied for "science jobs" for a couple of months nothing came up so I decided to take time out to go mountaineering in South America (funding the trip by shop work). I returned, hopeful that I'd find something, and 4 months later I successfully applied for a job at the Macaulay Institute in Aberdeen. I enjoyed studying whilst I was a university student, but my real sense of satisfaction came from practical work. I was fortunate enough to see a post advertised for a research assistant and thought I might be a good fit. When my son was born around 5 years ago I took a year off but returned to the same post and I continue to work full time. I've been in this role for around 20 years and promoted a couple of times.

Essential qualities for this kind of role?

Some tenacity; things rarely work as you hope the first time!

Best thing about your job?

I enjoy the variety in my day to day tasks and the challenge of solving problems: trying to get instruments to work, making emergency repairs to field equipment, collecting environmental data from remote locations- It can be a real treat to be outside on a cold, bright snowy day!

Anything you would change?

No. In terms of my role I'm quite happy.

What might surprise people about what your work involves?

I have collected samples by mountain bike, ski and snorkel (once, in a pond on the lawn of a stately home whilst a wedding was taking place with the full knowledge of the bride and groom).



Dr Ina Pohle

What do you do?

I work as a water resources model developer. In this role I develop and apply mathematical models for computer simulations of river flow and water quality. With these models I can assess how river flow and water quality might change in the future and investigate how to manage water resources in a sustainable way.

How did you get into it?

I've always been interested in nature and the environment. A school project on the shrinking of the Aral Sea and its implication on society and ecology motivated me to study hydrology (the science of the movement and distribution of water on Earth). During my studies, I realised hydrological modelling using computer simulations is a powerful tool to shed light on the processes of the water cycle and to explore impacts of future scenarios.

2001-2003
BSc in hydrology **Dresden University of Technology**
Germany

2003-2008
MSc in hydrology **Dresden University of Technology**

2005-2006
Exchange student **Tallinn University of Technology**,
Estonia

2006
Internships, **Estonian Meteorological and Hydrological Institute**

2007
Saxon Dam Authority

2008
Research Assistant, **Dresden University of Technology**

2010-2014
PhD in hydrology
Brandenburg University of Technology, Germany

2014
Postdoctoral Researcher,
Brandenburg University of Technology Cottbus-Senftenberg

2016
Post-doctoral researcher
James Hutton Institute

Essential qualities for this kind of role?

Methods you will use in this role include statistics to analyse large data sets and programming to develop models. Apart from these skills you need to be curious not only about hydrology but also related environmental and societal disciplines and constantly willing to learn new technologies and topics. You need to be eager to get to the bottom of something but also be critical of the data and methods you use and cause-and-effect relationships.

Best thing about your job?

I enjoy working on different topics in interdisciplinary teams with other passionate scientists. There is always something new to learn and new discoveries to be made.

What might surprise people about what your work involves?

Both the large amounts of data to be analysed and included in the models and the complexity of simulations might be surprising. To be honest, I was surprised about that myself. Had I known that, I would have put more focus on my programming skills earlier rather than learning it by doing.



Dr Jean Robertson

What do you do?

I use a technique called infrared spectroscopy to analyse all different types of materials and determine what they are made of or how their composition has changed. The samples I look at can be either for research projects and are things such as rocks, soil, fungi or crops or are commercial samples such as chemicals and products from industry. The many different roles, all part-time since 1991, were taken on to balance keeping an interesting science based job, while fitting round having a family and farm outside of work.

How did you get into it?

The Institute need an Infrared Spectroscopist and I had used this technique before during my PhD, although in a completely different type of work, and absolutely loved it. I was later appointed Head of the IR Section.

Essential qualities for this kind of role?

An aptitude for problem solving and troubleshooting is definitely needed, as is the ability to communicate effectively. The ability to apply chemical knowledge to new and different areas of work is also necessary.

Best thing about your job?

One of the best things is successfully solving problems, for clients or in research. The diversity of the job and the amount of new things I am continually learning is also great.

Anything you would change?

Having too much to do in too little time (both at home and work!)

What might surprise people about what your work involves?

All the problem solving and insight that I can give people, into both natural and manmade systems, is essentially done through looking at a squiggly line on a computer screen. People have told me that they thought I was just making it up – until I was proved right!

1986

BSc Hons in Chemistry
University of Aberdeen

1990

PhD in Organometallic Chemistry
University of Aberdeen

1990-1991

Spent a year studying Conducting glasses (changing topic to allow me to remain in Aberdeen as I was now married to an Aberdeenshire farmer)

1991

went part time when daughter born and started to teach for the **Open University**

1992

6 month postdoc in organometallic chemistry and post teaching Chemistry at **Aberdeen College**

1993

First son born

1995

Teaching fellow at **University of Aberdeen**

1996

Research Fellow developing thin film batteries

1998

Second son born

2002

Lecturer in Chemistry at **RGU**

2004

joined the **Macaulay Institute** as an Infrared Spectroscopist

2005

Head of the Infrared Section at the **James Hutton Institute**



Dr Jessica Maxwell

What do you do?

I am a research Fellow in Placemaking, Planning, and Ecosystem Services, looking at how they are connected, and aiming to build capacity and understanding towards integrated land use planning. This research explores the role of placemaking in sustainable development in urban and peri-urban areas, collaboratively involving people in the design and planning of the spaces where they work, live and play to strengthen the connections that exist between people and places. I also explore the role of the planning system in sustainable development by analysing the planning and governance structures used in different cities and regions. My two main projects focus on developing a comprehensive knowledge base to enhance green infrastructure to benefit territorial development in different European regions and cities, and how existing policy instruments shape the management of natural resources in Scotland, focusing especially on instruments designed to influence soil, water, and biodiversity.

How did you get into it?

I was in a science stream in high school and studied pure and applied science at college. I switched from physical to social sciences during my PhD - a

2007

BSc (Hons) Major in Environmental Science
Carleton University
Ottawa, Canada

2004-2009

Research Assistant and Teachers Assistant
Carleton University

2005-2006

Volunteer Communication Officer **North Andaman Tsunami Relief** Thailand

2009

Master of Science, Physical Geography (Hydrology) **Carleton University**

2008

Intern **Yukon Territorial Government** Canada

2010

Project Coordinator **United Nations Environment Programme** Switzerland

2011-2016

Project Management Consultant (**various clients**, international)

2016

Doctor of Philosophy Environmental Change and Sustainability
University of Edinburgh

2012-2017

Course Coordinator and Demonstrator
University of Edinburgh

2016

Macaulay Development Trust Fellow
James Hutton Institute

transformative experience that has completely altered my world view, enhanced the types of methods that I use, and broadened my understanding of sustainability challenges and solutions. My research and work has focused on natural resource management, land-use change, reducing environmental impacts, conserving biodiversity, and stakeholder engagement. I have also worked with intergovernmental, private, and civil society organisations.

I am passionate about the need for sustainable development because we live on a finite planet. We must find new ways to support ourselves and minimise our impact on the natural systems that all living things depend upon. Sustainable development can also help us reconnect with these natural systems towards improved health and wellbeing. We can explore development opportunities while also equally sharing the benefits and minimising environmental impacts.

Essential qualities for this kind of role?

My Fellowship requires both team working and independent research. I believe the most essential quality for this kind of role is adaptability.

Best thing about your job?

Freedom to think independently and critically about a range of interesting environmental challenges and solutions. I also enjoy working within a diverse interdisciplinary team.

Anything you would change?

Funding cycles can make forward strategic career planning challenging. It's important to spend time lining up potential future projects and collaborations but this inevitably takes time away from working on existing projects/research. I also find academic publishing a challenge as I don't always feel it is the most useful way to real impact.

What might surprise people about what your work involves?

I am often surprised and delighted that I get paid to read, think, and write. There are worse ways to earn a living!



Dr Katherine Irvine

What do you do?

I study the relationship between people and natural environments, how contact with nature might benefit our health and wellbeing, and how we might live more sustainably. I work outdoors and indoors, both on my own and with other researchers (some in different disciplines) as well as non-academics using a variety of methods such as statistics and interviews. My projects look at the wellbeing benefits of biodiverse environments, how to assess the impact of nature-based activities such as group walks and how to involve people in creating a more sustainable world.

How did you get into it?

I was going to go to medical school but a summer on a sailing ship studying the marine environment reminded me how much I loved being outside in nature. I took a job as an environmental educator helping high school kids to explore and learn about the Chesapeake Bay in the USA. I went on to help foresters, teachers, park managers and the like from around the world learn from each other, then worked as a consultant helping set-up environmental education

programs in Africa and the Caribbean. I saw first-hand how just being in the natural environment helped transform our outlook on the world. I decided to find out why.

Essential qualities for this kind of role?

Patience: Science is a creative profession, often with no fixed time by which we will find answers to the questions we have. Ability to work with both words and numbers: some researchers work almost exclusively with numbers, or with words; I use both. Reading and writing academic literature to keep up with the research that other people are doing, as their findings can shed light on my work, and vice versa. Science involves talking and working with a wide range of people, sharing ideas and recruiting people to take part in my studies.

Best thing about your job?

The opportunity to play with ideas and see how different things fit together; a facet of being a researcher in general. I like working to help bring us closer to the natural environment.

Anything you would change?

I wish there were not so much paperwork associated with being a researcher and more administrative help with 'housekeeping' jobs arising from the work.

What might surprise people about what your work involves?

There are no lab coats.

1986

BA in Biology **Haverford College** (USA)

1986

Environmental Educator at the **Chesapeake Bay Foundation** (USA) and Research Scientist in the Caribbean

1990

Environmental Education Consultant

1997

MSc in Natural Resource Policy and Behaviour **University of Michigan**

1997

Lecturer at **University of Michigan**

2004

PhD in Environmental Psychology **University of Michigan**

2005

Senior Researcher/ Senior Lecturer at Institute of Energy & Sustainable Development **De Montfort University** Leicester

2013

Senior Researcher at the **James Hutton Institute**, Aberdeen



Dr Lee-Ann Sutherland

What do you do?

I tell people I'm a 'farmer whisperer' – my research investigates why farmers make the decisions they do. I lead research into influences on decisions farmers make, and how this is reflected in larger patterns of change in the agriculture sector like why farmers do and do not engage in agri-environmental schemes, renewable energy production and organic farming. These topics are important because of the amount of money governments put into trying to motivate farmers to take these actions. I've also focused specifically on issues relating to new entrants to farming, women in agriculture and non-commercial farming (important social justice issues), and I lead projects aimed at understanding how farmers learn. These days, most of my job is leading bids for funding and project teams.

How did you get into it?

I grew up on a farm in Canada and wasn't interested in being a farmer. I went to university and studied to be a health care professional but it didn't suit me, so I went back to university to study international development and realised I was interested in agriculture after all – not how to farm, but why farmers farm the way they do. Agriculture is so different from other

1995
Bachelor of Science in
Occupational Therapy
Queen's University
Canada

2000
Master of Science in Rural
Planning and Development
University of Guelph
Canada

2005
Doctor of Philosophy,
University of Aberdeen

2005
Social Scientist
**Macaulay Land Use
Research Institute**
Aberdeen

2011-Present
Senior Social Scientist:
James Hutton Institute
Aberdeen

occupations – the hours, the physical work, the emotional investment – and the rewards are so varied. Farmers get to be their own bosses, and have direct connection to their land, the seasons and their livestock. They spend more time with family, have fantastic work ethics and strong peer groups – it's a real subculture. It's risky business, though – fluctuating prices, subsidy changes – it takes courage to farm. I really admire them.

Essential qualities for this kind of role?

You have to have real passion for your subject to get excited about each new call for funding proposals and put your all into writing that next proposal, picking up the phone to ask farmers for interviews, analysing the data, speaking at conferences, and writing papers. Persistence is needed because proposals get rejected, farmers say 'no', and papers inevitably come back for revisions. And it really helps to be organised – to keep track of what the different teams on each project are doing.

Best thing about your job?

Getting paid to learn about things I'm interested in and to travel around Europe to tell people about what I've learned. I've also got a fair bit of freedom to set my own agenda – from what I'll do in a given day, to the topics I'll study and the partner countries I'll work with – and therefore visit. Italy and France appear in my proposals a lot!

Anything you would change?

Reporting! Of course funders need to know how their money is being spent, but it can be quite tedious and time consuming. I also wish Aberdeen was a direct flight to more cities. I rack up a lot of air miles, but it's not something I'm proud of – we need better telecommunications to run European projects effectively without air travel.

What might surprise people about what your work involves?

At present, very little actual talking to farmers! Most of the time is spent designing the research, reading what other people have written and communicating it all. Post-docs do most of the interviewing and focus groups.



Prof Lorna Dawson

What do you do?

I lead the Soil Forensic Group at the James Hutton Institute, which works across disciplines from forestry to molecular biology. I work with police, forensic scientists and lawyers on areas such as food authenticity, searching for missing people, contaminated land, attending crime scenes, evaluating evidence, report writing, and presenting evidence in court. Another part of my work involves coordinating information and expertise from Scottish government funded research on food, agriculture and environment and making sure it reaches and is used by people who will apply it to policy-making and industrial practice. An extra thing I do is advise crime writers and TV producers on correct forensic practice and have had the privilege of working with authors Val McDermid, Mark Billingham and others, and on shows like Vera and Silent Witness. I've also produced materials and teaching aids for school geography courses such as Soils posters for Higher Geography. I was delighted to be recognised with a Pride of Britain Award in 2017 for assisting and communicating in the criminal justice system.

1980
Bsc (Hons) Geography
University of Edinburgh

1984
PhD Soil Science
Aberdeen University

1984
Joined **Macaulay Institute**

1989
Eldest child born

1991
Second child born

1994
Third child born

2007
Changed direction to
Forensic soil science

2009
Visiting professor at **RGU**

2009
Chartered Scientist status

2010
Expert Witness Certificate
Criminal law
Cardiff University

2010
Registered Expert with the
National Crime Agency

2011
Science Communications
Master Class

How did you get into it?

I always loved the outdoors, and grew up on a farm. My dad was a Special Constable and I also always loved mystery books in my youth! I was initially motivated to help farmers produce better crops. Now I mainly work on criminal cases to help reach the truth and minimise human suffering. I guess I'm motivated by helping improve people's lives.

Essential qualities for this kind of role?

I can sleep anywhere at any time so have been able to work long hours, and travel extensively, without it affecting my sleep pattern or appearance in public! I have an enquiring mind and am very determined to find an answer to any question posed of me. I really enjoy being part of investigative teams working on cold cases and pulling information together; useful in forensic reporting and also in work with industry and policy.

Best thing about your job?

The variety of the work - no two days are ever the same, whether attending a crime scene or speaking to primary school pupils about science. Another great thing about my job is working with and meeting really interesting people.

Anything you would change?

Apart from 'more funding', I'd encourage scientists to communicate the outputs and outcomes from their research better by working with science communicators. I would also try to promote people to work more across disciplines and professions as I have gained so much from marrying soil science with law and forensic science.

What might surprise people about what your work involves?

I work in really strange places at times, such as in wet cold woodland to recover a body, and I've had to work within the confines of a police interview room analysing golden artefacts so valuable they had to stay in police custody!



Dr Louise Shepherd

What do you do?

I trained as a plant biochemist and am now a Senior Research Scientist. I lead a research team of five on a diverse range of projects, and now as a Project Leader I manage and co-ordinate my team's efforts to ensure the delivery of science outputs on time. Science-wise, my work attempts to reduce bruise damage in potato, which costs UK farmers about £26 million a year. I have used genetic modification techniques to successfully produce potatoes which do not bruise or discolour. These have been analysed using sophisticated methods to assess whether any 'unintended effects' have occurred. More recently my team and I are researching the impact of reduced nitrogen, phosphorous and potassium inputs on end-product quality in a range of crops, including potato, barley, wheat, oilseed rape and beans. This work is on-going.

How did you get into it?

I always knew I wanted to pursue a career in science, but my degree and MSc projects were on animal systems, rather than plants. I met someone from the Institute who heard and was impressed by my MSc talk and was offered a one-year position at the Institute, working on tomatoes. During this time, I met a Department Leader from the Institute at a cricket match (long story!) and heard he had a PhD opportunity on the use of genetic modification to alter starch structure in potatoes. I applied successfully and have never looked back, working at the Institute ever since, first as a junior

1993

BSc in Biological Sciences

1994

MSc in Biotechnology

1994

joined **SCRI** on 1-year placement

1999

PhD in Plant Biochemistry

2000

Junior post-doctoral researcher **SCRI**

2008

Promoted to Senior Research Scientist

post-doc on two externally-funded EU projects, after which I was promoted. Since then I have worked on a number of diverse projects.

Essential qualities for this kind of role?

It is essential to be highly organised, with an eye for detail and able to co-ordinate my staff, as they may also be working on multiple projects as well as working on projects I lead. This requires constant liaison with my team and other Project Leaders.

Best thing about your job?

A colleague asked where I saw myself in 10 years' time and I replied 'hopefully still working here, with a promotion'. Did I not have any aspirations to work in other institutes, perhaps in another country, they wondered, but why would I want to? We have world-leading scientists and all the technologies we could possibly need to deliver high-quality science. I've loved my 24 years here, am continually learning, get motivation from my peers, and great mentoring. A bonus has been the privilege of working with a dedicated, hard-working team, some wonderful colleagues and making some wonderful life-long friends.

Anything you would change?

I'd like to see more women taking up science as a career, and more senior women in science. Male scientists in my group do provide mentoring, but I have no direct female mentor. Cross-disciplinary work means I do work with women more senior than myself and look to them as examples of the female scientist I strive to be, but it would be nice to have more senior females in science everywhere.

What might surprise people about what your work involves?

My friends can't believe I've spent approximately 20 years working on the 'humble spud'. I can't even begin to explain how this has been possible, nor how I will continue to do this for the foreseeable future, as there is still so much to discover.



Dr Pauline Miller

What do you do?

My BSc and PhD are in Geomatics, which relates to surveying and mapping sciences. I've worked as a research scientist on various projects in engineering and geosciences including using aerial photographs and satellite imagery to measure trends in glacier change in Antarctica. I'm currently investigating airborne laser scanning for precise mapping of changes to river environments for applications such as flood modelling. I also work with unmanned aerial vehicles ('drones') to study processes such as landslides. My work includes collecting measurements or images in the field, and processing and analysing this and other data, sometimes using programming to write my own code. This allows me to establish how effective a certain method is for identifying features or trends in the environment.

How did you get into it?

I have always been obsessed with maps! At school, I decided I would like to become a cartographer, which led me to study for a BSc in Topographic Science. At university I was introduced me to other aspects of geomatics which allowed me to combine my mathematical strengths with fieldwork

2001
BSc (Hons)
Topographic Science
University of Glasgow

2002
Field Data Engineer
Fugro FLI-MAP The Hague,
Netherlands

2007
PhD, Geomatics **Newcastle University**

2007
Research Associate & School
Research Fellow **Newcastle University**

2015
MDT Fellowship in Remote
Sensing **James Hutton Institute** Aberdeen

2016
Birth of first child

2017
Return to work after
maternity leave

such as land surveying. Ultimately, my analytical and problem solving interests led me to study for a PhD and to my career as a research scientist.

Essential qualities for this kind of role?

The skills most important to my job are having an analytical mind and attention to detail, as well as a willingness to undertake field work and travel internationally to conferences.

Best thing about your job?

I really enjoy the practical aspects of my role, including working with UAVs (drones) and getting outdoors to undertake field work.

Anything you would change?

Scientific research often results in short term contracts. This can offer an opportunity to move around and see the world, but at my current life stage, I would like to have better job security.

What might surprise people about what your work involves?

To work with UAVs, I had to learn how to fly fixed wing model aircraft and understand a bit about flight dynamics, which was actually quite interesting!





Dr Rowan Ellis

What do you do?

I work on a project which is designing and implementing a decentralised wastewater treatment system in a school in rural India. It's a model of low cost, low energy, environmentally sustainable options to address shortfalls in sanitation provision in the Global South. Decades of sanitation projects in India have failed to improve sanitation conditions, primarily because they are not appropriate to the social context. My role as a social scientist is to better understand the social factors that shape demand for sanitation services. I am particularly interested in the challenges that women and girls face in accessing improved sanitation, as well as in influencing decision-making processes around the provision of sanitation services. I am working with participatory research methods.

How did you get into it?

During my undergraduate degree I became especially interested in processes of public consultation around infrastructure development. However the time I spent living in India as a single mother with a young daughter very much shaped my interest in gender and natural resource access and management. I experienced first-hand how the consequences of environmental degradation were experienced in socially unequal ways. Fifteen months of fieldwork in urban India as the mother of a young child was particularly challenging and we did our best to negotiate the sometimes contradictory and sometimes complementary

demands of family life and conducting field research in a large foreign city. The day I had to bring my seven year old to a focus group because my childcare fell through started as a minor disaster but ended up building trust with participants who forever more gave me sweets and treats for her. The career change away from University employment has allowed me to find a work-life balance more suited to my role as a parent, as well as offering me new forms of work satisfaction through a combination of more locally as well as internationally based fieldwork.

Essential qualities for this kind of role?

The ability to assimilate large quantities of information from diverse sources (you must love to read!), and then be able to effectively communicate the key ideas from this information. (You must love to write!) Equally essential is a genuine interest in understanding the world from diverse perspectives, and in talking and listening to people from all sorts of backgrounds. There is also a need to be innovative and identify new and exciting research opportunities.

Best thing about your job?

The opportunity to spend my days thinking, reading, writing, and talking about subjects I find really interesting! I am also fortunate to work with and around people who are equally passionate about their research interests.

Anything you would change?

There's a risk that research work can creep into your free time. Sometimes your commitments to research participants, or just the intellectually demanding nature of the work, means it is hard to 'shut off'. It is also an unfortunate reality of scientific inquiry, that we spend a lot of time worrying about how our work will be funded in the future.

What might surprise people about what your work involves?

Geography is about much more than maps! Social science work can be very creative too. Recently I was working with Indian colleagues on a children's story about the journey of a poo from toilet to treatment to effluent.

2000

Birth of first child during my second year at uni

2004

Completed my degree in Urban Planning at the **University of Washington** Seattle, USA

2006

MSc in Geography **University of Washington**

2009

Postdoctoral researcher, **University of Aberdeen**

2010

PhD in Geography **University of Washington**

2013

Lecturer **University of Edinburgh**

2013

Birth of second child

2015

Birth of third child and career break

2016

Part-time Research Assistant, **James Hutton Institute**

2018

New role as Environment and Development Geographer



Dr Samia Richards

What do you do?

I am an environmental water and soil scientist with expertise in surface water quality and pollution from sources such as septic tanks and sewage discharges to streams and rivers impacting the environment. This covers various environmental issues such as drinking water quality and water safety plans in Scotland from water sources, through treatment to consumers' tap; rainwater harvesting; decentralised wastewater treatment in rural areas and nutrient recycling in agriculture to maximise soil quality and crop productivity.

How did you get into it?

Although I enjoyed and excelled in maths and science at school, studying and taking a career in science was not on the cards when I looked at options for university. Instead, I was directed to studying art and interior design. However, after finishing my art degree, marrying and having children, I felt something was still missing and realised I needed a change

1988

Degree in Art and Interior Design

1988-1991

Various administrative jobs

1991

Birth of my first son

1993

Birth of my second son

2000

Started my **Open University** course

2006

Graduated BSc Natural Sciences with Chemistry

2006

Synthesis Chemist in **oil company**

2007

Chemical and Microbiological Analyst for **oil services company**

2008

Joined **James Hutton Institute**

2016

PhD **Bangor University** Soil and Environmental Pollution

of direction. I decided to study a subject that answered some important questions, satisfied my curiosity and was something that I had enjoyed at school. I enrolled to study science with the Open University and gained a BSc (Hons) degree in Natural Sciences with Chemistry. It was hard work and at times I questioned my decision, but at the end it was truly worth it. The new qualification let me work in different scientific establishments (oil and non-oil related) gaining theoretical and practical experience in chemical, physical and microbial laboratories. In 2008, I joined the James Hutton Institute, investigating various research topics including phosphorus in soils and its mobility from soil to water. While working here I completed a PhD from Bangor University in soil and environmental pollution.

Essential qualities for this kind of role?

It is advantageous to be naturally inquisitive, observant, open minded; persevere and don't give up when the results do not make sense and always be optimistic.

Best thing about your job?

The best thing about my work is that it allows me to investigate various environmental issues that concern and have impacts on all of us including future generations, such as surface and drinking water quality or the use of recycled materials as soil fertilizers to increase productivity.

Anything you would change?

If I could change anything, it would be starting my science journey earlier in my career to increase my contribution to science.

What might surprise people about what your work involves?

People are always surprised to know that I have been investigating septic tanks and septic tanks discharges; not something that women would choose!



Dr Vivian Blok

What do you do?

I am a Nematologist in the plant pathology group at the James Hutton Institute: meaning that I study small organisms that live in the soil. I am interested in using modern technologies to develop sustainable and environmentally friendly methods to control pests that affect potato crops. Potato is the fourth most important food crop and controlling pests and diseases is an ongoing and global challenge.

- 1980 BSc **Uni of Waterloo** Canada
- 1983 MSc, **Uni of Saskatchewan**
- 1984 Moved to the UK
- 1987 Birth of first child
- 1988 PhD and start of P/T post-doc, **Uni of Cambridge**
- 1989 Move to Scotland, start second P/T post-doc at **SCRI** (now James Hutton Institute)
- 1990 Back to full-time
- 1992 Birth of second child, start full-time research post at **SCRI**
- 1998 Promoted to Senior Post-doc
- 2002 Promotion to Senior scientist at Hutton

How did you get into it?

As a child I enjoyed being outdoors and I am fascinated with the natural world. I have been lucky to pursue a career that enables me to use my chosen academic field to work in applied biology, particularly at time when the tools in biotechnology are developing spectacularly.

Essential qualities for this kind of role?

Curiosity, patience, persistence, resilience, tenacity, commitment, attention to detail, thoughtfulness, industry, intelligence, interpersonal skills, self-motivation, flexibility, creativity, good organisation and time management, willingness to travel, self-confidence, good communication (writing, speaking)

Best thing about your job?

Having a career in my chosen field of “biology”, having the freedom to pursue ideas and find solutions to problems, sharing discoveries with colleagues and students.

Anything you would change?

I would place a greater emphasis on the important strategic challenges that are team driven rather than focusing on individual career development. Also, more secure funding, diversity and opportunities to “put one self in someone else’s shoes”.

What might surprise people about what your work involves?

International travel to conferences and project meetings has been an unexpected benefit, particularly through participation in EU projects. Nematodes are gorgeous!



The James Hutton Institute hosts Biomathematics and Statistics Scotland (BioSS), which provides quantitative expertise to underpin research in the James Hutton Institute and its sister organisations (Moredun Research Institute, Rowett Institute, Royal Botanic Garden Edinburgh and Scotland's Rural College)



Dr Christine Hackett

What do you do?

I work with teams of scientists to design experiments efficiently and to analyse the results. The experiments can study different fruits, crops or wild species and can measure their genetics, chemistry, disease resistance, water requirements and many other aspects. I also do research on analysing data on crop genetics, and a little teaching.

- 1981-1984**
BA Maths **University of Cambridge**
- 1984-1985**
Diploma in Statistics
University of Cambridge
- 1985-1988**
PhD applying maths and statistics to investigate movements of plankton in the Irish Sea **University College of North Wales Bangor**
- 1988**
Statistician at **Scottish Agricultural Statistics Service** (now BioSS)
- 1995**
Senior statistician
- 2001**
Principal statistician
- 2002-2004**
Career break to follow my interest in languages: worked in Nigeria analysing two unwritten languages
- 2004**
Returned to my job in Dundee
- 2008**
Began involvement in some leadership of the statisticians based in Dundee.

How did you get into it?

The diploma in statistics showed me many different statistical opportunities – I realised I would have little interest in applying statistics in, say, economics or finance but enjoyed the applications in genetics and biology. As I was finishing my PhD in I successfully applied for a position as a statistician with the Scottish Agricultural Statistics Service (now BioSS), based at the Scottish Crop Research Institute in Dundee (now the James Hutton Institute). The Scottish Munros were part of the attraction to the post! Initially I worked mainly analysing experiments on nematodes damaging potatoes, but around 1990 an opportunity came up to work on crop genetic data, and this has been my main area of work since then.

Essential qualities for this kind of role?

Firstly curiosity about a broad range of science is key. It's important to enjoy solving puzzles, especially logical or mathematical ones, and to be able to be persistent if the first approach doesn't succeed. Another quality is to be a good listener, to make sure you hear everything about the science that is relevant for the analysis.

Best thing about your job?

The best thing is to be involved in projects that make a real impact. Early in my time in Dundee I worked with a researcher visiting from Tanzania to study a disease damaging coffee trees there. The statistics needed were quite simple, but it was a privilege to be involved in research that could potentially help so many African farmers.

Anything you would change?

Unfortunately the longer you stay in this job, the higher the proportion of time spent on managing projects and people rather than doing statistics.

What might surprise people about what your work involves?

Detective work! It's important to look out for clues in the statistical data that the scientific explanation may be more complicated than initially thought, and to be imaginative in thinking how to prove this.



Dr Helen Kettle

What do you do?

I am a mathematical modeller at BioSS (Biomathematics and Statistics Scotland). My work involves simulating biological systems which span applications from gut bacteria in humans to managing crop pests. I spend time developing the equations that describe how the system changes with time and then I write these into a computer program so they can be solved to produce a simulation/prediction of what we think will happen in certain circumstances. We can then compare the results with any data we have to check if we really do understand the system we are studying.

1991-1994

Bsc **Lancaster University**

1995

Msc **Heriot Watt University**

1996-1999

PhD **Lancaster University**

2000-2008

Post doc and fellowship at **University of Edinburgh**

2009-Present

Mathematical modeller at **BioSS**

How did you get into it?

I loved maths, physics and geography when I was at school so I did a degree involving maths, environmental/geo-physics. During my degree I realised applied maths was my true love so I did an MSc in mathematics of nonlinear models. After that I did a PhD on modelling solute dispersion in rivers. Following this I did two post-doctoral research posts at GeoSciences in Edinburgh University and then obtained a NERC personal Fellowship. Following that I joined BioSS as a mathematical modeller and thus moved from environmental systems to biological systems.

Essential qualities for this kind of role?

I think you need to enjoy problem solving and since a lot of the work relies on collaborations with multiple people, you need to enjoy trying to explain your ideas to people who aren't experts in your field. Likewise you have to be committed to trying to understand new ideas and topics that you don't necessarily have a background in.

Best thing about your job?

The best thing is the work is so interesting and I get to collaborate with talented and enthusiastic people! My job involves a very wide range of application areas so I feel like I am always learning something new. Also I love problem solving so programming is very enjoyable and satisfying – lots of little solvable problems! It is also very fulfilling when you write code (e.g. a software package) that other people start using.

Anything you would change?

Higher salary would be good but doing a job I love is (just about) sufficient compensation!

What might surprise people about what your work involves?

People might be surprised how maths can be used to predict how your gut bacteria behave, how much methane cows produce and how spiders and parasitic insects can be used to control pests that damage crops!

The James Hutton Institute's research activities have resonance across many of the UN's 17 Sustainable Development Goals.

Every strand of our work helps deliver on one or more of these goals.



Zero Hunger



Quality Education



Clean Water and Sanitation



Affordable and Clean Energy



Decent Work and Economic Growth



Industry, Innovation and Infrastructure



Responsible Consumption and Production



Climate Action



Life On Land



Partnerships for the Goals



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Craigiebuckler
Aberdeen AB15 8QH
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UK

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Invergowrie
Dundee DD2 5LJ

Dundee

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Invergowrie
Dundee DD2 5DA
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Shotts
Lanarkshire ML7 4JY

