

Scotland's Centres of Expertise



Delivering evidence for effective policy and practice

The Centres of Expertise (CoE) work at the interface between policy and research, and provide responsive work in areas of high policy importance: climate change, animal disease outbreaks, plant health, water, knowledge exchange and impact. The Centres draw upon the expertise of the researchers of the Scottish Environment, Food and Agriculture Research Institutes (SEFARI), universities, government agencies and research organisations across Scotland.

The Centres of Expertise are part of a wider Scottish Government funded Strategic Research Portfolio for environment, land, agriculture, food, rural communities and economy, and includes a mid to long term focused Strategic Research Programme (SRP) and Underpinning Capacity funding of national resources and capabilities.

Each Centre has its own style, leadership and governance, but all have the same ethos: delivering evidence with impact. In this leaflet, each CoE highlights examples of where that impact has really made a difference.



CREW CENTRE OF
EXPERTISE
FOR WATERS

climateXchange
Scotland's centre for open, multi-party
climate change research and policy

epic
Epidemiology, Population Health
and Infectious Disease Control

**Plant
Health
Centre**
Scotland's Centre of Expertise

SEFARI
SCOTTISH ENVIRONMENT, FOOD AND
AGRICULTURE RESEARCH INSTITUTE



The SEFARI Gateway the Centre of Expertise for Knowledge Exchange and Innovation. SEFARI Gateway ("Gateway") works to enhance stakeholder access to the individual and interdisciplinary expertise of the Strategic Research Portfolio and beyond to enhance the flow of research-knowledge and innovation to and from the Portfolio to Scotland's policy, industry-sector representatives, and public audiences, and to increase the impacts from those activities.

Gateway offers a bespoke, adaptable approach to knowledge exchange with working in partnership through co-construction being at the core of Gateway's ethos. Gateway's project schemes include:

- Fellowships (an expert or expert team embedded with stakeholder(s) to provide analysis and new insights on key strategic issues).
- Specialist Advisory Groups (transdisciplinary teams of researchers and stakeholders co-delivering expert assessments, horizon scanning, think tanks and inquiries)
- Innovative KE opportunities for researchers to develop new opportunities and mechanisms for knowledge exchange and partnership building with their stakeholders
- Training initiatives and events to support knowledge networking skills and capacities across the Strategic Research Portfolio

Gateway ensures that Portfolio research is actively informed by academic expertise, stakeholders and knowledge- networks across Scotland, the UK and internationally. Gateway focuses its work on delivering priorities for Scotland's National Outcomes and UN Sustainable Development Goals. In so doing, Gateway works to understand the needs of each stakeholder (policy, business and public), in order to be able to respond appropriately – with the right information, at the right time, and in the right format.



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Examples of Gateway's impact



Conserving Genetic Diversity – a world first for Scotland

Led by the Royal Botanic Gardens Edinburgh, NatureScot & the University of Edinburgh, this Think Tank filled a significant gap in addressing the International Convention on Biodiversity Aichi13 target, establishing [a world-first method to help understand and conserve genetic diversity](#). The work provides crucial [insight for conservation](#) in some of Scotland's most iconic wild species and contributed to the establishment of the first UK Genetic Conservation Unit at Beinn Eighe, in Wester Ross. The project's ground-breaking method, recognised by the UK Government for its international importance, received the prestigious RSPB Nature of Scotland Innovation Award, 2020.

Islands Revival – the power of the local voice in research and policy

[The Islands Revival](#) and its legacy project [“Research on the Edge”](#) is a partnership between Scotland's Island communities, community-land organisations, policy and researchers. Highlighting the crucial necessity for research to be developed with those who live and work locally, the Islands Revival has [revealed trends not readily identified in national data sets](#). It is providing a focus for place-based policies, including championing recognition by the Scottish Government on trends around a young, economically active population and the challenges faced by young islanders in the housing market. The project led to the [Island's Revival Declaration](#), which made recommendations for how policy can support sustainable island populations.



CREW Centre of Expertise for Waters



The Centre of Expertise for Waters (CREW) informs all areas of water policy in Scotland, by delivering objective and robust research and expert opinion. Projects respond directly to contemporary and future policy developments and knowledge gaps identified by relevant public bodies. CREW's mandate is the co-construction of projects across the customer base, thereby enabling the breaking of silos in the water sector. A demand-driven service, CREW manages the engagement with researchers.

Current priorities include to:

- Deliver timely and accurate advice, in the right format
- Coordinate and fund research, collate, analyse and interpret information
- Stimulate innovative and proactive thinking
- Create opportunities for knowledge exchange and impact
- Develop the networks and skills of researchers, policy makers and practitioners to make best use of available science leading to improved environmental, social and economic outcomes

CREW established user groups around themes focused on the main policy areas to help identify, prioritise and coordinate research and other activity between policy makers, their implementation partners (e.g. Scottish Environment Protection Agency (SEPA), Scottish Water (SW), Drinking Water Quality Regulator (DWQR), NatureScot) and researchers. CREW's collaborative structure ensures that projects deliver added value by informing across key partnerships and the customer base of Scottish Government public bodies. Themes reflect changing priorities within the policy community and cover water quality and health; hydrological extremes, coasts, and risk management; land and water resource management. All themes are set within an overarching consideration of water and society.

CREW is a Scottish Government funded partnership between the James Hutton Institute and Scottish Higher Education Institutes and Research Institutes.



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Examples of CREW's Impact

Putting People at the Centre of Flood Risk Management

Bringing social science to the forefront of flood resilience research, CREW has delivered two key pieces of work to understand the long-term impacts of flooding on communities and attitudes of communities towards Natural Flood Management (NFM).

[The impacts of flooding study](#) helped identify and understand what types of support and advice are needed at different stages of the recovery process following a major flood. The study is the first of its kind in Scotland, looking at how individuals and communities are impacted not only in the immediate aftermath of a flood, but also over the years following such a traumatic event. The study continues to influence Flood Risk Management (FRM) policy, and has informed the Scottish Government [Living with Flooding Action Plan](#) and additional funding provided to the Scottish Flood Forum is attributed to this project.

The objectives of the [attitudes toward NFM project](#) were to better understand the extent to which communities at risk of flooding support NFM and the factors that influence this support. It concluded that while there is much conjecture that rural communities favour hard flood defences, communities can be supportive of NFM when delivered as part of a suite of FRM measures. More and better information about NFM was also found to lead to wider support for such measures.

Two further projects are currently ongoing that carry a strong social science emphasis. The project 'How to communicate flood risk and climate change' investigates effective ways to communicate risks and uncertainties to different audiences. The 'Review of the Metropolitan Glasgow Strategic Drainage Partnership (MGSDP)' project will identify lessons learned from the almost 20 years of the partnership and provide recommendations to other cities who may benefit from taking a similar approach to cross-institutional coordination of flood risk management.



ClimateXChange (CXC)



Scotland's centre of expertise connecting
climate change research and policy

ClimateXChange (CXC) is Scotland's Centre of Expertise connecting climate research and policy. CXC provides independent advice, research and analysis to support the Scottish Government as it develops and implements policies on adapting to the changing climate and the transition to a low carbon society.

ClimateXChange works in partnership with the Scottish Government and its agencies to:

- Respond to questions and requests for evidence
- Identify upcoming evidence need
- Plan research and analysis to meet policy timelines

Each research project is flexible and co-developed with policy colleagues to deliver research syntheses, desk-reviews, in-depth studies, reports and other outputs.

CXC acts as a knowledge broker between researchers and policy, and as a research provider. CXC seek to deliver the best ideas, knowledge and evidence to policy teams, and to provide effective pathways to impact for Scottish researchers. They aim to build a robust evidence base on how to reduce the greenhouse gas emissions that cause climate change, how different sectors can adapt to Scotland's changing climate, and how to create climate change policies that are fair and make the most of Scotland's assets.

ClimateXChange liaises closely with other Scottish Government funded initiatives, such as Adaptation Scotland, to minimize gaps or overlaps and maximise synergies. They also work closely with the UK Committee on Climate Change (UKCCC), UK Climate Impacts Partnership (UKCIP), the UK Energy Research Centre (UKERC) and the Met Office. This ensures that they share the latest and best data and research insights.



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Examples of CXC's impact

Identifying and maximising co-benefits from peatlands

Scotland's extensive peatlands are central to both climate change adaptation and mitigation through being a carbon sink, securing biodiversity and habitats, and reducing flood risk. Restoration of degraded sites is a clear priority and CXC has contributed research on using [remote sensing to detect drained sites](#), the [practicalities of restoration](#) and facilitating discussions on approaches to monitoring. Across our research CXC have provided the Scottish Government with a better characterisation of the outcomes and wider impacts of restoration activity to date; an indication of opportunities and challenges going forward by synthesising the experiences of early adopters; and structured conversations around remaining evidence gaps and research needs and how to prioritise them.

Decarbonising heat in buildings

The Scottish Government has committed to decarbonising our homes and buildings. ClimateXChange has provided significant support to the Scottish Government on this issue. Recent projects include a review of [heat decarbonisation policies elsewhere in Europe](#), [mapping potential sources of waste heat for heat networks in Scotland](#) and [exploring public attitudes to low-carbon heating technologies](#). In addition, CXC hosted a [research-policy workshop on heat decarbonisation](#) and have overseen a project on the role of Heat as a Service in Scotland. This significant body of work has fed into the development of the Heat in Buildings Strategy and of the Hydrogen Action Plan (due for publication in 2021).

Supporting climate policy

A key role for ClimateXChange is to work across programmes and strategies to support both development and implementation. For the [Climate Change Plan](#) update published in December 2020 CXC provided evidence on issues ranging across [uptake of electric vehicles](#); [agricultural mitigation](#); and [low-carbon industrial production](#). In addition, CXC provided research on [public engagement](#) and [communicating climate change](#) which was used to develop the [Public Engagement Plan consultation](#).



The Plant Health Centre (PHC)



[The Plant Health Centre](#) (PHC) is funded by The Scottish Government through RESAS (Rural and Environment Science and Analytical Services Division) to help tackle plant health challenges for Scotland. The purpose of the PHC is to improve Scotland's preparedness and resilience to plant health including external threats.

Working with the Chief Plant Health Officer for Scotland, the PHC brings the plant sectors for forestry, horticulture, environment and agriculture together to co-ordinate plant health knowledge, skills, needs and activities across Scotland. The Centre works with Scottish Government, public bodies and stakeholders to provide [scientific evidence](#) to help them make important decisions about pests and pathogens that threaten Scotland. The Centre Directorate is headed up by the James Hutton Institute, and has Sector Leads from Forest Research (forestry), Royal Botanic Garden Edinburgh (horticulture and environment) and Scotland's Rural College (agriculture).

The PHC aims to improve resilience to plant health threats in Scotland by connecting science to application to inform policy, planning and solutions.

Current priorities include:

- Strengthening resilience and emergency response plans
- Contributing to improved surveillance and detection
- Providing scientific evidence to support policy decisions and outbreak management
- Improving rural industry resilience in Scotland by helping to mitigate plant health risks through horizon scanning
- Contributing to an expansion of interdisciplinary networks to improve capacity to respond to threats across all plant health sectors



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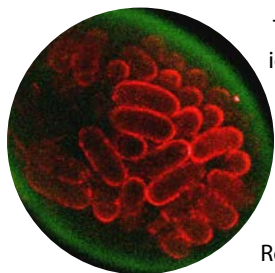
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Examples of the PHC's impact



Xylella is currently the main plant health threat to Scotland and can infect over 500 plant species. The PHC has advised the Scottish Government to focus [Xylella surveillance](#) on the central belt of Scotland, targeting peri-urban environments and sites of special scientific interest (SSSIs) for potential inclusion in the 'Pest specific plant health response plan: *Xylella fastidiosa* 2021'. Reports have also been sent to the BRIGIT consortium (jic.ac.uk/brigit) - part of the Bacterial Plant Diseases initiative led by UKRI-BBSRC, Defra's Chief Plant Health Officer and the UK *Xylella* Survey Methodology and Diagnostics Working Group. The PHC is continuing to [gather evidence](#) to strengthen remaining knowledge gaps important to the potential introduction of [Xylella into Scotland](#) and [insect vectors](#) to feed into the Government's response plan.



The PHC led a working group of over 50 Scottish stakeholders to identify a clear strategy for dealing with the threat of potato cyst nematode (PCN) in Scotland. As a result of the work of this group, the Scottish Government has awarded £2.3M for a 5-year project of scientific research and knowledge exchange to implement the recommendations in the [working group report](#), with aspects also incorporated into the RESAS 2022-27 Strategic Research Programme. The 5-year project is led by the Plant Health Centre, and involves other organisations including the James Hutton Institute, SRUC, SoilEssentials, Scottish Agronomy and SASA, who are all working together with the aim of delivering a sustainable potato and bulb industry for Scotland. More details on the project can be found on our [PCN Hub](#) website.



EPIC (Epidemiology, Population health and Infectious disease Control)



Epidemiology, Population health and Infectious disease Control (EPIC) is an ambitious animal health consortium project. The Centre of Expertise on Animal Disease Outbreaks brings together Scottish-based expertise under one umbrella to support policy makers and best prepare Scotland's livestock industry stakeholders for disease outbreaks. Funded by the Scottish Government, EPIC is a consortium involving seven Scottish research institutions and around 40 researchers and support staff.

EPIC seeks to foster an interdisciplinary and collaborative environment in which scientists who are expert in veterinary medicine, epidemiology, genetics, mathematical modelling, social science and economics can come together to respond to ongoing policy relevant questions as well as during animal disease emergencies.

Working in partnership with Scottish Government veterinarians, scientists and policy officials, as well as engaging with stakeholders and the public, EPIC's purpose is to:

- Capitalise on our shared knowledge and expertise
- Ensure that decisions for local action are based on robust evidence, necessary to improve the resilience of Scottish livestock industries
- Provide top quality epidemiological advice to Scottish Government to guard against, and/or respond to, animal disease outbreaks

EPIC flexibly occupies the continuum between applied, policy-responsive work and longer term, curiosity-driven research. Applied research forms the basis of advice to policy makers whilst the researcher- driven enquiry is essential to sustain the experience-base, quality and credibility of the science available to inform policy.



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Examples of EPIC's impact

EPIC's work supporting the industry-led eradication of an endemic disease affecting cattle, Bovine Viral Diarrhoea (BVD) in Scotland has had significant impact. In collaboration with the RESAS SRP, EPIC scientists have conducted farm level analysis of BVD spread, providing insight into farm transmission routes. Social science research into biosecurity and farmer attitudes for BVD is providing insights into the often neglected human element in [disease control](#).

Phylogenetic sequence analysis (the study of genetic variation in pathogens, and the effect of such variation on their transmission) has proved an effective tool in the eradication and control of exotic disease outbreaks in the UK, including Foot-and-Mouth Disease (FMD) and Avian Influenza (AI). Applying these techniques to the Scottish BVD context has necessitated the development of a unique BVD Biobank for Scotland, created in collaboration with industry BVD scheme diagnostic providers. This work has been instrumental in informing the disease eradication programme by identifying persisting subtypes of the virus and the chains of infection supporting these so that they can be specifically targeted for control.



EPIC has been developing veterinary risk assessments (VRAs) to support policy response and decisions on control of exotic notifiable diseases. This began with a suite of 25 VRAs that would be needed in the event of an incursion of Foot-and-Mouth Disease (FMD) into the UK. These were adopted at GB level and published on government websites. The Centre has subsequently produced further VRAs on other exotic notifiable animal diseases, including the vector-borne Bluetongue and Avian Influenza.

This work has been the genesis of a '5 Nations Veterinary Risk Assessment Group' which involves animal health risk assessors from the four nations of the UK and the Republic of Ireland, supported by the Chief Veterinary Officers of those nations. This has created a coherent critical mass in this important area, able to respond rapidly and efficiently to animal disease incursions and help to bring these under control as quickly as possible.



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