



Project Title: Exposure to, and risks from synthetic chemicals in terrestrial and freshwater biota: drivers and consequences of landscape scale variation

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Lead Institution: Cardiff

Eligibility: UK, European and International applicants

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ECORISC Partner organisation: Syngenta

Project Overview: The project aims to develop a deeper understanding of the temporal and spatial variation in ecosystem exposure to synthetic pollutants, at a landscape scale, and potential implications for affected systems. Existing data (target and non-target screening data) held by the supervisory partnership will be analysed to identify differences in chemical mixtures between contiguous terrestrial and freshwater systems, and between trophic levels. Spatial and temporal variation will be explored as part of an evaluation of the efficacy of recent/current regulatory practices. Working with our stakeholder partners and wide collaborative network (e.g. EA, NRW) these outputs will be used to guide selection of specific chemicals for further, targeted, analyses (e.g. plant protection products are one of the projected focal areas). For these targets, predictive models will be developed, and predictions compared with screening data. This is an exciting and applied project, led by an experienced supervisory team (Cardiff University, UKCEH, Syngenta, HSE CRD) with expertise in freshwater ecology, ecotoxicological analysis, and statistical modelling. It brings together a cross-disciplinary (and international) network of collaborators, across academia, industry and the regulatory authority, as well as access to extensive sample and data archives.

Novelty of the Project: The project offers unique access to long term, spatially widespread biota sample archives (e.g. Cardiff University Otter Project; Predatory Bird Monitoring Scheme), and to target and non-target screening data from across Europe (LIFE Apex). These provide an ecologically relevant, sensitive estimation of exposure, to a wide range of potentially harmful substances, many of which have received little previous attention.

Expertise that you would develop: The student will develop expertise in analytical chemistry, chemical fate and biomonitoring, ecological modelling, landscape ecology, risk assessment, policy and regulation, within the context of a broader ecological understanding of freshwater and terrestrial ecosystems and wildlife health. The specific project direction is flexible, and can be tailored to the developing interests of the student; students with a background/interest in ecology, chemistry, and/or statistical modelling are encouraged to apply.

The ECORISC CDT

This project is one of 12 projects being advertised by the NERC-funded ECORISC (Ecotoxicological Risk Assessment Towards Sustainable Chemical Use) Centre for Doctoral Training programme. More information on the CDT can be found at:

<https://www.york.ac.uk/environment/postgraduate/ecorisc/>. Funding will be provided for 3 years and 10 months. During this time you will work on your research project but will also receive a unique and outstanding training in pollution science and transferrable skills.

Over the first two years of their PhD programme, you will receive subject-specific training, in: i) ecotoxicology; ii) environmental chemistry; iii) ecology; and iv) risk assessment; and v) core skills required for an environmental specialist. Successful completion of this training will result in the award of phase 1 of the Certified Environmental Risk Assessor qualification from the Society of Environmental Toxicology and Chemistry. The formal training programme will be complemented by yearly residential challenge events, ECORISC annual conferences and tailored specialist skills training conducted as group and individual exercises.

ECORISC students will also be required to undertake two workplace experiences based with our business, policy and regulation, third sector and research organisation partners.

An inclusive CDT programme

Inclusivity is at the heart of the ECORISC programme. We strongly encourage applications from under-represented groups and are employing a number of mechanisms, such as the possibility of part-time working, to ensure the programme is open to all. We will ensure that individuals with disabilities are provided reasonable accommodation to participate in the application process. If you have any questions, then please don't hesitate to contact us at ecorisc-cdt@york.ac.uk.

Eligibility and Application process

The studentships are open to highly motivated UK and international/EU applicants with at least an upper second class Honours degree (or equivalent) in a relevant subject. Successful applicants will be passionate about environmental pollution science and want their science to make a difference.

To be considered for this and other PhD's offered under the ECORISC CDT, you should initially complete a short online application form available at: <https://cardiff.onlinesurveys.ac.uk/ecorisc-cdt-student-application-2020212>. Applications should be submitted before 1700 (British Summer Time) on 16th May. You will be notified of the outcome of the process by 25th May.

Successful applicants, will be provided with an opportunity to meet with supervisory teams and then be invited to submit a project-specific application form which will be used to shortlist candidates for an interview.

If you have any questions on the ECORISC CDT or the application process, please contact us at ecorisc-cdt@york.ac.uk.