

Breeding in a contaminated world: do environmental pollutants promote mistiming of reproduction and limit the breeding success of farmland birds?

Barbara.helm@glasgow.ac.uk

Barbara Helm, Michelle Bellingham, Maureen Bain, Neil Evans & Jane Robinson
(Institute of Biodiversity, Animal Health & Comparative Medicine, College of Medical,
Veterinary & Life Sciences, University of Glasgow)

The reason behind the dramatic decline of many bird populations remains unknown, but mistiming of reproduction with environmental conditions has been linked with reduced breeding success in several species. This studentship will investigate whether pollutant exposure affects breeding success of farmland birds through effects on reproductive timing. The successful timing of key events associated with reproduction is critically dependent on the endocrine system. During our normal lives we use, and are surrounded by, a host of chemicals that have the potential to affect endocrine systems within our bodies. The chemicals we are exposed to are reflected in our waste products, which are processed to form sewage sludge ('biosolids'). Because biosolids are extensively used as farmland fertiliser, wild animal populations living in those ecosystems are also exposed to the same chemical insult. Studies in sheep indicate effects of these chemicals on a wide variety of body systems, including reproduction. Worryingly, though, no studies have examined the impact of such chemical exposure on wild animals. This project will test the hypothesis that the timing of reproductive events in European Starlings exposed to 'biosolids' has become mismatched with important environmental factors, leading to a decline in breeding success. The project will combine ecological and physiological approaches in both the field and laboratory, and will lead to a greater understanding of the risks posed by exposing wild bird populations and whole ecosystems to admixtures of chemical pollutants.

The Institute of Biodiversity, Animal Health and Comparative Medicine has an explicitly multidisciplinary perspective (see <http://www.gla.ac.uk/researchinstitutes/bahcm/>). The supervisory team represents this spirit by combining expertise from complementary backgrounds, giving the studentship an integrative dimension. The project will determine effects of contaminants on timing, physiology and reproductive function. It will train the candidate in a unique repertoire of techniques and transferable skills, including those involved in non-invasive imaging, ecotoxicology, endocrinology, histology, chronobiology and telemetry.

For inquiries and more information please contact Dr Barbara Helm
(barbara.helm@glasgow.ac.uk)