

Francesca Gray

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Researcher with broad interests in the application of behavioural and evolutionary ecology to understand natural or anthropogenic environmental stressors. My work, thus far, has centred around: individual variation in pollutant exposure and its impact on reproduction and survival, and the impact of stressors on body mass trajectories and the effect of competition on behaviour and reproduction.

Education

PhD: ongoing | University of Aberdeen | OCT 2019 - current

QUADRAT/NERC funded research titled: *'Flying sentinels: using a long-distance migratory bird to assess exposure to POPs over two continents and their health consequences'*.

Supervisors: Dr Pierre Bize, Switzerland Ornithological Institute; Rory Doherty, Queen's University Belfast; Dr Davina Deros, University of Aberdeen.

MRes Animal Behaviour | Newcastle University | SEPT 2017 – AUG 2018 | Distinction

Research dissertation title: *'How do starlings adjust daily patterns of body mass change and foraging behaviour in response to food insecurity?'*. Supervisors: Dr Jonathon Dunn and Professor Melissa Bateson, Newcastle University.

Models included: Biological Study of Behaviour, Cardiovascular Science in Health and Disease, Comparative Cognition, Research Skills in the Biosciences.

BSc Biological Sciences (Zoology) | University of Edinburgh | SEPT 2013 – JUN 2017 | 2:1

Research dissertation title: *'Competition between parents and offspring over consumption of a shared food source'*. Supervisors: Dr Jon Richardson, Dr Tom Ratz and Dr Per Smiseth, University of Edinburgh. Modules included: Behavioural Ecology, Biomedical Sciences, Evolution and Ecology of Ageing, Evolution of Parental Care, Field Ecology, Molecular Ecology, Medical Biology, Parasite Biology

Brookfield Community School | 2006 – 2013

A-levels: Biology, Chemistry, Mathematics (BAA). AS level Geography (A)

10 GCSEs including English language and English literature

Publications

- IN PREPARATION: Gray, F.E., Deros, D., Bize, P., 2023. Is minimally-invasive sampling the future of persistent organic pollutant research in birds? A meta-analysis on tissue comparisons.
- PUBLISHED: Bateson, M., Andrews, C., Dunn, J., Egger, C.B., Gray, F., Mchugh, M. and Nettle, D., 2021. Food insecurity increases energetic efficiency, not food consumption: an exploratory study in European starlings. *PeerJ*, 9, p.e11541.
- PUBLISHED: Gray, F.E., Richardson, J., Ratz, T. and Smiseth, P.T., 2018. No evidence for parent–offspring competition in the burying beetle *Nicrophorus vespilloides*. *Behavioral Ecology*, 29(5), pp.1142-1149.

Employment

Research Assistant | Newcastle University | JAN 2019 – OCT 2019

- Continuation of my master's project working with the behavioural recording system (BRS)
- Testing and maintenance of new BRSs
- Caught wild starlings using a whoosh net
- Operant conditioning of wild European starlings on the BRS
- Training students in handling of European starlings
- Guiding students in the management of their research projects including behavioural video analysis
- General maintenance of lab

Awards

Studentship | University of Edinburgh | JULY 2017 – SEPT 2017

- Publication of my undergraduate project: parent-offspring competition in the burying beetle, *Nicrophorus vespilloides*
- Follow-up experiment for undergraduate project

Teaching/ supervisory experience

Acting co-supervisor

During my PhD, I have been acting supervisor for a master's and undergraduate project. Both undertook a meta-analysis under my guidance.

Managed a behavioural research laboratory

Guiding two students (one master's and one undergraduate) through their behavioural projects on the European starling using behavioural recording systems. I guided them on experimental set-up, training them on bird handling, monitoring and husbandry.

Demonstrating on courses including: seal behavioural field observation

Research skills

- Meta-analysis, principal component analysis and geolocator analysis in R
- Comfortable with data manipulation of large datasets
- Trained European starlings using operant conditioning on a behavioural recording system
- Familiar with behavioural studies in bird species
- External use of RFID tags in starlings
- Weighing, claw clipping, preen oil and feather collection of small birds
- Comfortable handling small birds, mice, beetles, and crabs
- Processing blood samples in the field
- Use of RNA extraction kits
- with laboratory safety procedures
- Molecular sexing

Conference participation

British Ecological Society | Edinburgh | 2022

Abstract submitted for presentation

Whey Aye Welfare | Newcastle University | 2018

Welcome evening prior to the UFAW welfare conference to demonstrate the Newcastle University's current research on improving animal welfare. I participated in demonstrating the automated behaviour recording system used in my master's research project.

Other qualifications and experience

Strategic Management and Leadership | CMI Level 7 | 2021

- Best practices in leadership and team management
- Adapt leadership skills to best suit the individual
- Project planning and time management

Research Expedition | Operation Wallacea | 2013

- Field experience in data collection, including bird handling and identification.

References

- **Dr Pierre Bize** | Head of Human Impact, Switzerland Ornithological Institute (Vogelwarte) | phone | email
- **Dr Davina Deros** | Research Fellow, School of Biological Sciences, University of Aberdeen | phone | email
- **Professor Melissa Bateson** | Ethology Centre for Behaviour & Evolution, Newcastle University | phone | email

Personal interests

Scuba Diving | rescue diver with acting dive master experience | 13 years' experience

Caving | including rigging and rescue training | 9 years' experience

Rock Climbing | including lead and outdoor climbing | 13 years' experience

Other relevant information

Full, clean driving licence