

# Raptor Persecution UK

## Fully funded PhD available: The Impacts of Avian Influenza and Toxicants in Scottish Raptors

RaptorPersecutionUK  
January 2, 2025  
News

The University of Edinburgh is seeking applications for a fully-funded PhD scholarship (4 years) on the subject of The Impacts of Avian Influenza and Toxicants in Scottish Raptors.

### SUMMARY

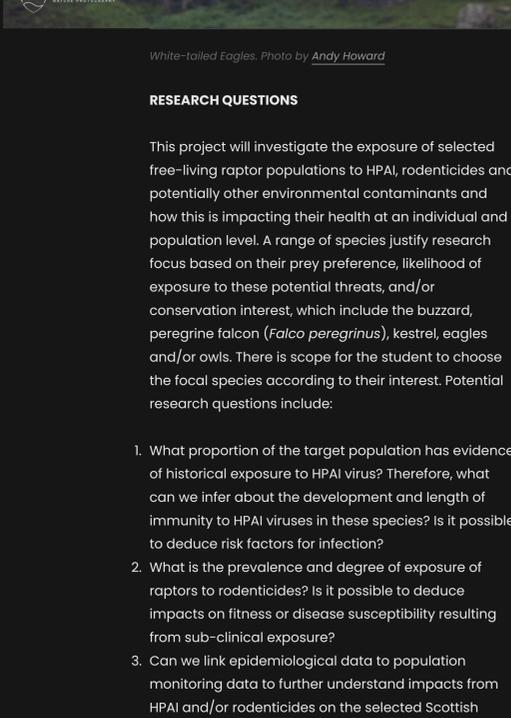
This project will investigate how HPAI outbreaks and rodenticide exposure are affecting the health of Scottish raptor populations, to inform future surveillance approaches and conservation strategy.

### PROJECT BACKGROUND

Highly pathogenic avian influenza (HPAI) viruses have caused disease outbreaks in domestic poultry, wild birds and occasionally wild mammals on multiple continents for several decades. Since 2021, new strains have spread globally causing an unprecedented number of outbreaks and affecting a broader range of wild bird and mammal species. In the UK, the most prominent impacts have been on waterbirds (seabirds and geese), with visible mass mortality events. Numerous other species including raptors have also been affected, but we currently have limited understanding of HPAI virus prevalence, pathogenicity and immunity in raptor populations.

Rodenticide use is widespread on farms in Scotland and exposure has been documented in a range of non-target wildlife species including raptors. Most studies have investigated lethal effects of rodenticide exposure, but little is known about the sub-lethal effects of these anticoagulant toxins. Long-term, sub-lethal exposure could impact on health and immunity, potentially influencing susceptibility to infectious agents including avian influenza viruses. In addition, raptors are exposed to lead and other environmental contaminants, which could also be impacting their health.

Raptor populations in Scotland are monitored through the Scottish Raptor Monitoring Scheme. These data are already informing our understanding of the population-level impacts of HPAI: aside from the deaths of adult birds of a range of species, most notably buzzards (*Buteo buteo*), the virus appears to have contributed to poor breeding success in some iconic species such as Scotland's two eagle species, white-tailed sea eagles (*Haliaeetus albicilla*) and golden eagles (*Aquila chrysaetos*). Raptor species of conservation concern in Scotland include kestrels (*Falco tinnunculus*), for which there has been a notable population decline in recent years. Prey preference in this species suggest that exposure to rodenticides could be a contributing factor to this decline.



White-tailed Eagles. Photo by Andy Howard

### RESEARCH QUESTIONS

This project will investigate the exposure of selected free-living raptor populations to HPAI, rodenticides and potentially other environmental contaminants and how this is impacting their health at an individual and population level. A range of species justify research focus based on their prey preference, likelihood of exposure to these potential threats, and/or conservation interest, which include the buzzard, peregrine falcon (*Falco peregrinus*), kestrel, eagles and/or owls. There is scope for the student to choose the focal species according to their interest. Potential research questions include:

1. What proportion of the target population has evidence of historical exposure to HPAI virus? Therefore, what can we infer about the development and length of immunity to HPAI viruses in these species? Is it possible to deduce risk factors for infection?
2. What is the prevalence and degree of exposure of raptors to rodenticides? Is it possible to deduce impacts on fitness or disease susceptibility resulting from sub-clinical exposure?
3. Can we link epidemiological data to population monitoring data to further understand impacts from HPAI and/or rodenticides on the selected Scottish raptor populations?

### METHODS

The project will work closely with Scottish Raptor Study Groups and the Scottish Raptor Monitoring Scheme to support the collection of samples from selected raptor species including live birds and cadavers. Some archived samples collected from golden eagles are also available for study. Laboratory investigations will include molecular, serological and toxicological techniques to investigate disease status and exposure. Demographic data will be accessed through the Scottish Raptor Monitoring Scheme and will be analysed alongside the disease data.

Year 1: Training in data management, laboratory and necropsy techniques, statistical modelling and Home Office Personal Licence course. Review of current research and establishing a working relationship with the Scottish Raptor Study Group network and other collaborators.

Year 2: Field work to allow sample collection and initial analysis of samples to validate techniques.

Year 3: Continuation of field work and sample collection. Processing of samples and analysis of outcomes.

### TRAINING

A comprehensive training programme will be provided comprising both specialist scientific training and generic transferable and professional skills. The successful applicant will receive academic support from wildlife veterinarians and others with expertise in quantitative ecology, ornithology, epidemiology, laboratory and necropsy techniques. They will be provided with training in data management, analysis and statistical modelling. Specialist skills training will include raptor raptorial and blood sampling. Laboratory training will include the processing of samples for serology, toxicology and PCR for viral detection. They will have the opportunity to interact with a range of research scientists and policy advisors involved in the field of avian influenza surveillance. Additionally, there will be an opportunity to engage with the activities of the CASE partner, NatureScot, to support their awareness of policy and regulatory activities.

### CANDIDATE REQUIREMENTS

A masters-level qualification in a relevant field and a veterinary degree are preferred, although candidates with a 2:1 or equivalent degree in a biological science subject will be considered. Field experience working with wild birds, and good laboratory / data analysis skills would be advantageous.

### APPLICATION CLOSING DATE

Monday 6 January 2025 by 12.00hrs.

For further information & details of how to apply, see [here](#).

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Aldicarb	alphachloralose
Balmoral Estate	barrow owl
Bendiocarb	buzzard
Cabrach Estate	
Cairngorms National Park	
carbafuran	Cardross Estate
Cawdor Estate	chloralose
clam trap	
Carrybrough Estate	
crow trap	dailyprompt
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Dinnit & Kinard Estate	
Edradyntate Estate	
Environment Minister	
gamekeeper	Gift of Grouse
gin trap	Glanusk Estate
Glenogil Estate	Glen Orchy
Glenturret Estate	
golden eagle	goshawk
hen harrier	
Invercauld Estate	
Invermark Estate	kestrel
Leadhills Estate	
Lochindorb Estate	
long-eared owl	
Marsh harrier	merlin
mevinphos	Miliden Estate
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osprey	peregrine
poisoning	pole trap
Raeshaw Estate	red kite
Ross-shire Massacre	
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